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## **Editorial**

The OPUS Journal of Society Research (OPUS JSR) brings together a diverse range of theory, practice, and research in the pursuit of understanding human behavior in its social context. The interdisciplinary viewpoint lays the groundwork for presenting and establishing a holistic relationship with other disciplines, concepts, and methods. The OPUS JSR allows researchers to use an interdisciplinary approach to present different interpretations and alternative points of view. The theoretical frameworks that underpin the analyses and interpretations of the subjects under study are as important as the intersection of disciplines. This framing can lead to greater clarity of multiple, even contradictory findings, allowing for a better understanding of social dynamics that would otherwise be invisible if scholars concentrated on a single set of theoretical dynamics.

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## RESEARCH ARTICLE

# Decoding the Happiness: Analyzing the Components of World Happiness Index

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## Abstract

The aim of this study is to reveal the effects of selected World Happiness Index components on the happiness index value. Thus, the study investigates effect of log GDP per capita, social support, and freedom to make life choices on happiness index across 29 European countries using panel data from 2019 to 2024 and applies the Eberhardt&Teal's (2010) Augmented Mean Group (AMG) estimator to account for cross-sectional dependence and heterogeneity. Results show that, at the European aggregate level, a one-unit increase in social support is associated with an increase of 0.84 in the Happiness Index, while GDP and freedom yield statistically insignificant effects. However, country-specific findings vary. For instance, Austria, Iceland and the Netherlands show significant negative effects of increasing income on Happiness Index. Thus for these countries the AMG results support the Easterlin Paradox in several high-income nations, where increased income correlates with decreased happiness. Social Support and Freedom to make life choice has positive effect on happiness for Estonia, France, Iceland, Ireland, Latvia, Netherlands, Romania, Slovakia and Türkiye. The study concludes that subjective well-being is shaped more by social and institutional dynamics than by economic growth alone, highlighting the importance of context-specific and multidimensional policy frameworks in improving life satisfaction.

**Keywords:** Happiness, World Happiness Index, Components of Happiness, Augmented Mean Group Estimator

## Öz

Bu çalışmanın amacı seçilmiş Dünya Mutluluk Endeksi bileşenlerinin mutluluk endeksi değerine olan etkilerini ortaya çıkarmaktır. Bu amaç doğrultusunda 29 Avrupa ülkesinin 2019-2024 dönemine ait verileri kullanılarak mutluluğun temel belirleyicileri incelenmiş ve yatay kesit bağımlılığı ile heterojenlik de dikkate alınarak Eberhardt ve Teal'in (2010) Arttırılmış Ortalama Grup (AMG) tahmincisi uygulanmıştır. Dünya Mutluluk Endeksi ve temel bileşenleri olan logaritmik kişi başına düşen GSYH, sosyal destek ve yaşam tercihi özgürlüğü değişkenlerinden yola çıkılarak, bu faktörlerin öznel iyi oluş üzerindeki bireysel ve birleşik etkileri analiz edilmiştir. Bulgular, söz konusu ülkeler genel düzeyinde sosyal destekteki bir birimlik artışın mutluluk endeksini 0.84 birim artırdığını göstermiştir; buna karşın gelir ve özgürlük değişkenleri istatistiksel olarak anlamlı bulunmamıştır. Ülke bazlı sonuçlar ise farklılık göstermektedir. Örneğin, Avusturya, İzlanda ve Hollanda'da gelirdeki artış mutluluk endeksi değerini azaltmaktadır. Bu yönüyle analiz sonuçları söz konusu ülkeler için AMG sonuçları, yüksek gelirli bazı ülkelerde artan gelirin azalan mutlulukla ilişkili olduğunu ortaya koyarak Easterlin Paradoksu'nu desteklemektedir. Sosyal destek ve hayata dair karar alma özgürlükleri ise Estonya,Fransa,İzlanda,İrlanda,Letonya, Hollanda, Romanya, Slovakya ve Türkiye'de mutluluk endeksi üzerinde olumlu etkiye sahiptir. Çalışma bu bağlamda yenilik getirmekte, öznel iyi oluşun yalnızca ekonomik büyüme ile değil, sosyal ve kurumsal dinamiklerle şekillendiğini ortaya koymakta ve yaşam memnuniyetini arttırmaya yönelik bağlama özgü, çok boyutlu politika çerçevelerinin önemini vurgulamaktadır.

**Anahtar Kelimeler:** Mutluluk, Dünya Mutluluk Endeksi, Mutluluk Bileşenleri, Arttırılmış Ortalama Grup Tahmincisi

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## Introduction

Within social sciences, numerous constructs are dedicated to understanding and explaining human well-being. These include concepts such as subjective well-being, happiness, pleasure, life satisfaction, quality of life, and adaptation. The universal aspiration to cultivate positive emotions and experiences drives efforts to understand and elucidate human well-being (Park, 2004).

The discourse on happiness raises several pivotal questions: What is the current state of individual happiness? How does it compare to historical levels? What accounts for variations in life satisfaction across different societies? Can happiness be reliably measured? What are the determinants of happiness, and how does it correlate with living conditions? While these questions are inherently challenging, they are of critical importance and hold personal relevance for individuals seeking to understand and enhance their own well-being.

In contemporary academic discussions, life satisfaction and happiness have been highlighted as key areas of investigation within the social sciences, including mainstream economics. Scholars frequently advocate for the enhancement of objectively quantifiable indicators of well-being, such as GDP per capita, to improve economic welfare. Economists argue that economic growth, by increasing GDP per capita, contributes to the development of society and, consequently, to higher levels of individual welfare. However, this raises an essential question: Do individuals perceive themselves as happy based on such objective economic metrics?

The emerging field of happiness economics examines how objectively defined and measurable factors—such as economic growth, unemployment, inflation, and institutional variables—affect well-being, a fundamentally subjective construct. Measuring happiness and identifying the indicators that lead individuals to self-report as "happy" present significant methodological challenges. Furthermore, the question persists as to whether reliable and valid comparisons can be established to definitively demonstrate the presence and extent of happiness. This issue remains a critical and ongoing area of academic inquiry.

This study aims to empirically analyze the determinants of happiness in Europe through a panel data framework using the World Happiness Index and its key components. Unlike previous research that often considers happiness from a global or economic-growth-only perspective, this study emphasizes the importance of social and freedom dimensions. By applying the AMG estimator to account for cross-sectional dependence and parameter heterogeneity, the research provides a nuanced and methodologically rigorous contribution to the existing literature. The results are expected to provide insights that are both academically valuable and practically relevant for policymakers seeking to design more effective well-being-oriented strategies.

## Literature Review

Many studies have been conducted to understand what determines happiness. Happiness is commonly categorized into two dimensions: hedonic happiness, which emphasizes pleasure and avoidance of pain, and eudaimonic happiness, which focuses on meaning and personal growth (Ryan & Deci, 2001). Subjective well-being typically includes both emotional experiences (positive and negative emotions) and cognitive evaluations (life satisfaction) (Diener, 1984). When we look at the studies, we see that happiness is mostly associated with income level. The relationship between material welfare and happiness has been extensively examined in literature, with a general consensus that happiness is a key life objective and income serves as a significant contributor to its attainment. However, the happiness-income paradox, as articulated by Richard Easterlin in his seminal work "Does Economic Growth Improve the Human Lot? Some Empirical Evidence" (1974) challenges the simplicity of this association. Easterlin's analysis highlighted that while income and happiness exhibit a strong positive correlation within a country, this relationship weakens or disappears in international and long-term contexts—a phenomenon now known as the Easterlin paradox.

Easterlin's study focused on three dimensions to explore whether higher income is essential for greater happiness. First, he compared happiness

levels between wealthy and poor individuals within the United States, observing that individuals with higher incomes reported greater happiness. For instance, 56% of those earning over \$15,000 annually described themselves as very happy, compared to 29% of those earning below \$3,000. Conversely, only 4% of the wealthier group identified as unhappy, compared to 13% in the lower-income bracket. Second, Easterlin conducted international comparisons, examining the relationship between average happiness levels and Gross National Product (GNP) across countries. Third, he performed a longitudinal analysis within the United States, exploring changes in the income-happiness relationship over time (Easterlin, 1974).

While these findings underscore a statistically significant but generally weak association between income and happiness, the nature of this relationship differs over short- and long-term periods. In the short term, the correlation is stronger, whereas it diminishes over the long term, as supported by subsequent research (Schurer & Yong, 2016). These insights have spurred ongoing debate among economists, psychologists, and social scientists about the complexities of income-happiness dynamic.

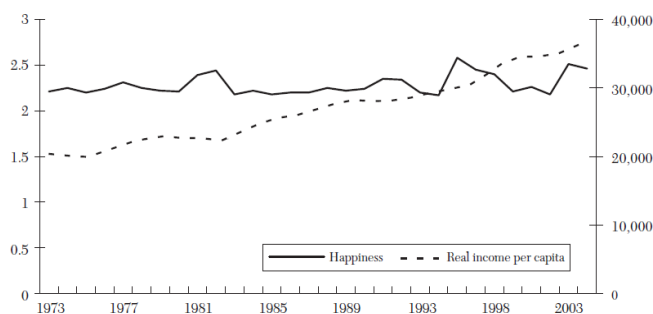


**Figure 1. Happiness and Real GDP Per Capita, USA, (1973-2004)**

Source: A. E. Clark, P. Frijters, ve M. A. Shields *Relative Income, Happiness, and Utility: An Explanation for the Easterlin Paradox and Other Puzzles*, *Journal of Economic Literature*, 2008.

Empirical analyses of the relationship between income and happiness reveal significant nuances, particularly the lack of a linear or long-term correlation between economic growth and subjective well-being. Regarding to Figure 1, between 1973 and 2004 in the United States, real GDP per capita nearly doubled, yet happiness levels remained stagnant, suggesting that increases in income do

not inherently enhance happiness. This observation has catalyzed deeper investigations into alternative determinants of happiness, such as social relationships, family life, and psychological mechanisms like income comparisons, expectations, and hedonic adaptation (Layard, 2005; Lane, 2000; Frey & Stutzer, 2002 in Veenhoven & Dummladağ, 2015).

Easterlin and Angelescu (2009) further explored this dynamic in their study, "Happiness and Growth the World Over: Time Series Evidence on the Happiness-Income Paradox," analyzing longitudinal data from 37 countries over periods ranging from 12 to 34 years. Their findings revealed that, while short-term happiness fluctuations corresponded to income changes due to macroeconomic conditions, there was no sustained long-term relationship between GDP growth and happiness. This reinforces the Easterlin Paradox, which posits that while income and happiness may correlate positively in the short term, this relationship dissipates over extended periods. The findings highlight the role of hedonic adaptation, whereby individuals' happiness levels return to a baseline despite substantial changes in income or circumstances, thereby challenging the notion of perpetual well-being improvement through economic growth. The study underscores the complexity of the income-happiness relationship, emphasizing the need for broader metrics of societal well-being that transcend economic indicators. Factors such as social cohesion, work-life quality, and environmental conditions are suggested as critical contributors to long-term happiness, advocating for a paradigm shift in evaluating national success beyond GDP growth.

Complementing these findings, Kahneman and Deaton (2010) investigated the income threshold for optimal happiness, utilizing data from over 450,000 responses collected in the Gallup-Healthways Well-Being Index during 2008–2009. Their research identified \$75,000 as the income level at which daily emotional well-being peaks, with additional income contributing little to further happiness. The study differentiated between emotional well-being—measured through self-reported daily experiences of emotions like happiness and stress—and life evaluation, assessed via Cantril's Self-Anchoring Scale. Their findings suggest that

while income scarcity exacerbates adverse conditions, exceeding a certain income threshold renders additional gains irrelevant to happiness.

Also Aydınbaş and Erdinç (2022) investigated the factors associated with happiness in the context of Society 5.0 using panel data analysis for 8 OECD countries between 2007 and 2019. According to the findings obtained within the scope of the analysis, it was determined that there was a statistically significant and positive relationship between GDP per capita and happiness.

In parallel with this economic literature, there are also many studies in the psychology literature showing that happiness is strongly dependent on personality traits and other subjective outcomes such as family and personal relationships (Schurer & Yong, 2016, p.3).

These collective studies challenge the assumption of a direct, linear relationship between economic prosperity and well-being. They advocate for policies that prioritize holistic well-being, incorporating psychological, social, and environmental factors into frameworks of personal and societal success. However, interpreting happiness only in terms of income is not enough to understand the nature of happiness. Determining the variables of happiness involves a multifaceted approach that incorporates biological, behavioral, and socio-economic factors. Research indicates that key predictors include social support, freedom to make life choices, and healthy life expectancy, with variations observed between affluent and poorer countries (Carstea et al., 2024).

Additionally, personal attributes such as emotional intelligence, attachment patterns, and the presence of meaningful relationships significantly contribute to individual happiness (Mukherjee, 2018). According to Mukherjee (2018), key variables of happiness among college students: attachment patterns (secured and preoccupied), emotional intelligence, and inner-inner-another directness. It highlights significant positive correlations with secured attachment and emotional intelligence, while noting negative correlations with preoccupied attachment. The Gallup World Poll highlights freedom and family as strong correlates of happiness, while economic factors like income and education also play crucial roles (Jaswal et al.,

2020) (Nandini & Afiatno, 2020). Furthermore, a mathematical model suggests that happiness can be viewed as a portfolio of individual elements, emphasizing the subjective nature of happiness across different contexts (Carrero et al., 2022). Thus, a comprehensive understanding of happiness requires integrating into these diverse variables.

The World Happiness Index serves as a comprehensive measure of subjective well-being across countries, capturing various dimensions of life quality beyond traditional economic metrics. The construction of the index relies on a series of variables sourced from established international databases and surveys, each reflecting critical aspects of societal and individual well-being. The index has six main components. GDP per Capita, Healthy Life Expectancy, Social Support, Freedom to Make Life Choice, Generosity and as a last one Perception of Corruption. Income is proxied by GDP per capita adjusted for Purchasing Power Parity (PPP) in constant 2017 international dollars, sourced from the World Bank Database (WHR,2024). This measure reflects a nation's economic capacity and its citizens' material living standards, though prior literature (Easterlin, 1974) notes that beyond certain thresholds, the impact of income on happiness diminishes. Healthy Life Expectancy at birth, based on World Health Organization and United Nations Development Programme data, captures the average years individuals can expect to live in good health. It emphasizes the essential link between physical well-being and subjective happiness. Social Support is measured through national averages of positive responses to the question of whether individuals have relatives or friends they can rely on in times of trouble, reflecting the strength of social networks—a significant determinant of happiness as emphasized by Helliwell, Layard, and Sachs (2019). Freedom to Make Life Choices is assessed through national averages of responses indicating satisfaction with personal freedom, emphasizing the importance of autonomy and self-determination in enhancing life satisfaction (Deci & Ryan, 2000). Generosity is captured by the residual of regressing charitable donation responses on log GDP

per capita, isolating the cultural component of altruistic behavior, which has been linked to increased well-being (Aknin et al., 2013). Perceptions of Corruption are derived from responses evaluating the prevalence of corruption in government and businesses, with lower perceived corruption associated with greater institutional trust and higher happiness levels (Helliwell & Huang, 2008). In addition key contributors include Gross Domestic Product (GDP), social support, healthy life expectancy, and perceptions of corruption, with higher GDP and social support correlating positively with happiness levels (Xiao, 2024).

## Empirical Analysis

### Data

This study utilizes a strongly balanced panel dataset covering 2019 to 2024 for 29 countries. These countries are Austria, Belgium, Bulgaria, Croatia, Cyprus, Czechia, Denmark, Estonia, Finland, France, Germany, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Türkiye. The data sources include the World Happiness Report and complementary indicators obtained from global development databases. The dependent variable is the happiness index score (HAPPX), while the independent variables include the income (GDP), freedom to make life choices (FREE), social support (SOC).

**Table 1. World Happiness Index Variables**

| Variables                                 | Explanation of Variable                                                                                                                                                                                 | Source              |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|
| <b>Happiness Index Score (HAPPX)</b>      | The score is a comprehensive measure of well-being and happiness across countries, offering insights into how economic, social, and governance factors contribute to the quality of life.               | Gallup World Poll   |
| <b>Income (GDP)</b>                       | GDP per capita is in terms of Purchasing Power Parity (PPP) adjusted to constant 2017 international dollars, taken from the World Development Indicators (WDI) by the World Bank.                       | World Bank Database |
| <b>Freedom to Make Life Choice (FREE)</b> | Freedom to make life choices is the national average of binary responses (0=no, 1=yes) to the GWP question. "Are you satisfied or dissatisfied with your freedom to choose what you do with your life?" | Gallup World Poll   |

|                             |                                                                                                                                                                                                                                               |                   |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| <b>Social Support (SOC)</b> | Social support is the national average of the binary responses (0=no, 1=yes) to the Gallup World Poll (GWP) question. "If you were in trouble, do you have relatives or friends you can count on to help you whenever you need them, or not?" | Gallup World Poll |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|

In the initial stages of this study, it was intended to construct a panel dataset covering a broader historical range, specifically including years prior to 2019. However, due to significant data gaps and missing observations for many countries in earlier years, it was not feasible to maintain a sufficiently balanced panel necessary for robust econometric analysis.

Consequently, the final dataset has been limited to the period between 2019 and 2024, during which data availability across the selected European countries is complete and more consistent. Restricting the timeframe ensures the integrity of the dataset, mitigates biases arising from unbalanced panels, and enhances the validity and reliability of the empirical findings. This approach aligns with best practices in panel data analysis, where consistent temporal and cross-sectional coverage is crucial for accurate estimation of long-run relationships (Sezgin, 2022).

Besides the empirical model was designed to incorporate all independent variables used in the construction of the Happiness Index, in line with comprehensive modeling practices aimed at minimizing omitted variable bias (Wooldridge, 2010). However, due to data limitations, particularly missing observations across countries and years for certain variables, a revision of the model specification was required to ensure the integrity and balance of the panel dataset (Baltagi, 2005).

Preliminary exploratory analyses, including correlation assessments and explanatory power evaluations, indicated that income (GDP), social support (SOC), and freedom of life choices (FREE) were the variables most strongly associated with variations in the happiness score. These three factors exhibited the highest levels of correlation with the dependent variable and provided the greatest explanatory strength, consistent with previous findings in the happiness economics literature (Helliwell, Layard, & Sachs, 2019; Easterlin, 1974). As a result, only these variables were retained in

the final model specification to maximize model fit and robustness.

Conversely, healthy life expectancy, gender equality and perceptions of corruption were excluded from the final model. The exclusion was based on two primary reasons: (i) these variables displayed relatively weaker explanatory power in preliminary regressions, and (ii) their datasets suffered from a higher incidence of missing values, threatening the balance and efficiency of the panel analysis. This decision aligns with the principle of model parsimony, where including only the most theoretically and empirically justified variables improves model efficiency without compromising explanatory relevance (Burnham & Anderson, 2002).

Thus, the final specification prioritizes both theoretical coherence and empirical rigor, ensuring that the estimated relationships are both statistically robust and substantively meaningful.

Happiness Index=f (Income, Social Support, Freedom to Make Life Choice)

$$\begin{aligned} (1) \quad & \text{HAPPX}_{it} = \beta_0 + \beta_1 \text{LGDP}_{it} + \beta_3 \text{SOC}_{it} + \beta_4 \text{FREE}_{it} + \varepsilon_{it} \\ (2) \quad & \varepsilon_{it} = \mu_{it} + u_{it} \\ (3) \quad & i=1, \dots, N; t: 1, \dots, T \\ (4) \quad & \end{aligned}$$

Equation (1) illustrates the functional form of HAPPX based on existing literature. In this model, the subscript “i” denotes individual countries, while “t” refers to time periods. The parameter “β” represents the estimated coefficient, and u captures the error term. Since panel data is employed, the model incorporates both cross-sectional (i) and time-series (t) dimensions through these subscripts.

In Equation 2, the dependent variable is the HAPPX index score, whereas the independent variables include LGDP, SOC, FREE. In the study, the natural logarithm of GDP is employed instead of its original levels for several important econometric and interpretive reasons.

First, taking the logarithm of GDP helps to stabilize the variance, reducing the potential issue of heteroskedasticity that often arises when modeling

economic variables with large magnitude differences across countries and over time (Wooldridge, 2010). A more homoscedastic error term improves the reliability and efficiency of regression estimates. Second, the logarithmic transformation enables a more intuitive interpretation of the coefficients, allowing for the assessment of elasticities rather than absolute effects (Gujarati & Porter, 2009). In this form, the estimated coefficients can be interpreted as the percentage change in the dependent variable associated with a one percent change in GDP, facilitating a more meaningful economic interpretation. Third, log-transforming GDP assists in addressing potential nonlinearity in the relationship between GDP and the dependent variable. Economic phenomena often exhibit diminishing marginal effects; thus, the logarithmic form captures the decreasing sensitivity of happiness (or other outcomes) to changes in income levels, especially at higher levels of GDP (Wooldridge, 2010). Finally, the use of the natural logarithm enhances comparability with previous empirical literature, where log-transformed GDP is a standard practice in cross-country panel studies examining economic development and well-being outcomes (Frey & Stutzer, 2002). SOC and FREE are determined by their own level.

## Methodology

Effectively accounting for multicollinearity, cross-sectional dependence and heterogeneity in panel data models is essential in econometric analysis to ensure the use of appropriate estimation techniques. To ensure the validity and robustness of the panel regression estimations, we begin by conducting a series of diagnostic tests to determine the most appropriate estimation technique. Given the potential for structural differences across countries in the panel dataset, we first assessed the multicollinearity and then assumption of parameter homogeneity by testing for slope heterogeneity. Subsequent tests address cross-sectional dependence, unit roots, and cointegration, which collectively guide our choice of the estimation method.

### Testing Multicollinearity

If there is a correlation among the independent variables included in the model, this may lead to the problem of multicollinearity. In cases where multicollinearity exists, the model is highly likely to produce unreliable results. Therefore, to determine whether the independent variables in the model suffer from this issue, the Variance Inflation Factor (VIF) test was conducted.

According to Iddrisu and Alagidede (2020) also suggests the following general rule for interpretation: If the VIF is equal to or greater than 10 ( $VIF \geq 10$ ), there is a significant multicollinearity problem.

**Table 2. Variance Inflation Factor**

| Variable | VIF  | 1/VIF    |
|----------|------|----------|
| FREE     | 1.92 | 0.522029 |
| SOC      | 1.46 | 0.682848 |
| LGDP     | 1.38 | 0.723052 |

Based on the results in Table 2, the VIF values are all well below the commonly accepted threshold of 10. Since none of the variables exceed this threshold, we can conclude that the model is not suffering from multicollinearity and multicollinearity is not a concern for the model.

### Testing for Slope Heterogeneity

The first diagnostic step involves testing whether the slope coefficients are homogenous across cross-sectional units. Assuming homogeneity in slope parameters when heterogeneity is present can lead to biased and inconsistent estimates. To examine this, we employ the Delta tilde ( $\Delta$ ) and Delta tilde adjusted ( $\Delta_{adj}$ ) statistics proposed by Pesaran and Yamagata (2008). These tests are particularly suitable for panels with a large number of cross-sectional units (N) and a relatively small-time dimension (T) (Yerdelen Tatoğlu, 2013). The null hypothesis of the test assumes slope homogeneity across cross-sectional units, while the alternative suggests heterogeneity:

- $H_0$ : Slope coefficients are homogenous across units.
- $H_1$ : Slope coefficients differ across units.

If the null hypothesis is rejected, it indicates that the assumption of common slope parameters is invalid, and heterogeneity across countries should be accounted for. In such cases, mean group-based estimators (such as the Mean Group [MG], Pooled Mean Group [PMG], or Common Correlated Effects Mean Group [CCEMG]) become more appropriate than pooled models.

**Table 3. Coefficient Heterogeneity**

| Test      | Test Statistics | Prob.    |
|-----------|-----------------|----------|
| Delta     | -6.414          | 0,000*** |
| Delta adj | -6.812          | 0,000*** |

*Note: \*\*\*, \*\* show rejection of the null hypothesis at the 1% and 5% levels of significance, respectively.*

Based on the results in Table 3, the null hypothesis must be rejected, indicating that the slope coefficients are heterogeneous. Therefore, this test should be applied to account for heterogeneity in the model.

### Testing for Cross-Sectional Dependence

After examining slope heterogeneity, the next step is to test for cross-sectional dependence (CD) in the panel data. Ignoring cross-sectional dependence may result in inefficient estimators and invalid inference, particularly when economic shocks or policies affect multiple countries simultaneously. To detect the presence of cross-sectional dependence, we apply the Pesaran (2004) CD test, which is robust in panels with both small- and large-time dimensions. The null and alternative hypotheses of the test are as follows:

- $H_0$ : No cross-sectional dependence.
- $H_1$ : Cross-sectional dependence exists.

**Table 4. Cross Sectional Dependence Test Results**

| Variables                | HAPPX     | LGDP     | SOC      | FREE     |
|--------------------------|-----------|----------|----------|----------|
| /CSD Tests               | p-value   | p-value  | p-value  | p-value  |
| Breusch Pagan LM         | 0.000***  | 0.000*** | 0.000*** | 0.000*** |
| Pesaran CD               | 0.0248*** | 0.000*** | 0.000*** | 0.000*** |
| Bias Corrected Scaled LM | 0.000***  | 0.000*** | 0.000*** | 0.000*** |
| Pesaran Scaled LM        | 0.000***  | 0.000*** | 0.000*** | 0.000*** |

To assess the presence of cross-sectional dependence in the panel data, multiple tests were conducted, including the Breusch-Pagan LM test

(Breusch & Pagan, 1980), the Pesaran CD test (Pesaran, 2004), the bias-corrected scaled LM test (Pesaran, Ullah, & Yamagata, 2008), and the Pesaran scaled LM test.

The results reveal strong evidence of cross-sectional dependence across most of the variables. Specifically, the Breusch-Pagan LM test, the bias-corrected scaled LM test, and the Pesaran scaled LM test reject the null hypothesis of cross-sectional independence at the 1% significance level for all variables, including happiness (HAPP), the natural logarithm of GDP (LGDP), social support (SOC), freedom to make choice (FREE).

The Pesaran CD test, known for its robustness in panels with a large number of cross-sectional units (N) and small-time dimension (T), also indicates significant cross-sectional dependence at the 1% level for almost all variables. These findings imply that ignoring cross-sectional dependence could lead to biased and inconsistent estimators. Consequently, the study employs estimation techniques that are robust to cross-sectional dependence, such as the Common Correlated Effects Mean Group (CCMG) or Augmented Mean Group estimator and panel cointegration methods that account for cross-sectional interactions.

### Panel Unit Root Testing

Before proceeding with estimation, it is necessary to determine the stationarity properties of the variables. Non-stationary panel data can lead to spurious regression results unless a cointegration relationship exists. To assess whether the series are stationary, we implement panel unit root tests that account for cross-sectional dependence, as detected in the previous step.

For this purpose, we apply the Cross-Sectionally Augmented IPS (CIPS) test developed by Pesaran (2007). This test extends the traditional Im-Pesaran-Shin (IPS) test by augmenting the standard ADF regressions with cross-sectional averages of lagged levels and first differences of the series, thereby controlling common factors that induce dependence.

- $H_0$ : All series contain a unit root (non-stationary).
- $H_1$ : At least one series is stationary.

The CIPS test is conducted for each variable individually. The outcome of these tests determines whether the variables should be differenced or tested further for long-run equilibrium relationships.

**Table 5. Panel Unit Root Test Results**

| Variable | Level Stationarity | First Difference Stationarity | Conclusion |
|----------|--------------------|-------------------------------|------------|
| HAPPX    | No                 | Yes                           | I(1)       |
| LGDP     | No                 | Yes                           | I(1)       |
| SOC      | No                 | Yes                           | I(1)       |
| FREE     | No                 | Yes                           | I(1)       |

The results of the panel unit root tests, conducted using the Pesaran (2007) CIPS methodology, reveal important insights regarding the stationarity properties of the variables under study. According to the findings, the all variables are found to be non-stationary in their levels, as the null hypothesis of a unit root could not be rejected at the 10% significance level.

Following the first difference of non-stationary variables, the CIPS test results strongly reject the null hypothesis of non-stationarity for all differenced series. Specifically, DHAPPX, DSOC, DFREE, DLGDP are confirmed to be stationary at all conventional significance levels. This indicates that these variables are integrated of order one, I(1).

Overall, the unit root test results demonstrate that all variables are I(1), becoming stationary after first differencing. These findings justify the use of panel cointegration techniques in subsequent analyses to examine the long-run equilibrium relationships among the variables. Furthermore, when estimating dynamic panel models, the stationarity properties guide the correct specification of the variable level forms for I(0) variables and differenced forms for I(1) variables unless cointegration relationships are explicitly modeled.

### Panel Cointegration Test Result

In the presence of non-stationary variables, it becomes essential to test whether a cointegration relationship exists among them. A valid cointegration relationship implies a stable long-run association despite short-run deviations, thus justifying the use of level-form models.

To test for cointegration under cross-sectional dependence, we employ the Westerlund (2007) panel cointegration test. This test is robust to both heterogeneity and cross-sectional dependence and allows for individual country-specific dynamics.

The test constructs four statistics (Gt, Ga, Pt, and Pa) based on error correction models, with the following hypotheses:

- $H_0$ : No cointegration.
- $H_1$ : At least some panel units are cointegrated.

If the null hypothesis is rejected, the presence of cointegration justifies the use of estimation methods that model long-run relationships, such as the Pooled Mean Group (PMG) or Common Correlated Effects Mean Group (CCEMG) estimators.

**Table 6. Westerlund ECM Panel Cointegration Test**

| Hypothesis                                | Test       | Bootstrap Prob. | Statistics |
|-------------------------------------------|------------|-----------------|------------|
| <b><math>H_0</math>: No cointegration</b> | Westerlund | 0,0000***       | 5.8153     |

Table 6 indicates the presence of cointegration; therefore, the null hypothesis should be rejected, confirming a long-run relationship among the variables.

### Augmented Mean Group (AMG) Estimator

The Augmented Mean Group (AMG) estimator, introduced by Eberhardt and Teal (2010), offers a powerful approach to handling heterogeneity and cross-sectional dependence in panel data models. Unlike conventional estimators that assume uniform behavior across units, AMG accommodates structural variations and shared influences that may distort results if ignored. This methodology integrates a common dynamic process to control unobserved factors that simultaneously affect all cross-sectional entities (Eberhardt & Bond, 2009).

The AMG estimator is particularly advantageous in empirical contexts involving non-stationary panel datasets with significant policy, institutional, or structural diversity—such as cross-country analyses. Its design enhances the traditional Mean Group estimator by allowing individual-specific slope coefficients while adjusting for

global disturbances and interdependencies (Bond & Eberhardt, 2013).

The estimation unfolds in two main steps. First, a pooled regression is performed in first differences with time dummies to extract the underlying shared component across units. This component, reflecting common temporal effects, is then incorporated into individual-level regressions in levels to obtain unit-specific long-run coefficients. Through this strategy, AMG achieves consistent and unbiased estimates of both average and unit-level long-run dynamics, even in the presence of complex cross-sectional relationships.

**Table 7. AMG Estimator Coefficient Estimation Results**

| Codes | Countries         | LGDP                 | SOC                  | FREE                 |
|-------|-------------------|----------------------|----------------------|----------------------|
| 0     | European Over-all | 0.352<br>(0.472)     | 0.841<br>(0.014)**   | 0.161<br>(0.653)     |
| 1     | Austria           | -7.731<br>(0.000)*** | -0.315<br>(0.451)    | -6.027<br>(0.000)*** |
| 2     | Belgium           | -0.310<br>(0.410)    | 0.724<br>(0.174)     | 0.401<br>(0.152)     |
| 3     | Bulgaria          | 3.566<br>(0.135)     | 1.148<br>(0.782)     | -0.270<br>(0.905)    |
| 4     | Croatia           | 1.523<br>(0.500)     | 2.921<br>(0.141)     | 1.233<br>(0.122)     |
| 5     | Cyprus            | -0.041<br>(0.808)    | -0.095<br>(0.804)    | -0.915<br>(0.100)    |
| 6     | Czechia           | 0.455<br>(0.352)     | -0.351<br>(0.071)*   | -0.170<br>(0.003)*** |
| 7     | Denmark           | 0.450<br>(0.601)     | -0.719<br>(0.608)    | -0.919<br>(0.385)    |
| 8     | Estonia           | -0.115<br>(0.865)    | 2.898<br>(0.000)***  | 2.424<br>(0.000)***  |
| 9     | Finland           | 1.043184<br>(0.135)  | 0.075<br>(0.807)     | -0.1950<br>(0.274)   |
| 10    | France            | -0.232<br>(0.470)    | 0.4227<br>(0.031)**  | 0.2851<br>(0.266)    |
| 11    | Germany           | 0.393<br>(0.009)***  | 2.409<br>(0.117)     | -0.5269<br>(0.627)   |
| 12    | Hungary           | -0.0016<br>(0.999)   | 1.627<br>(0.138)     | 0.084<br>(0.898)     |
| 13    | Iceland           | -0.0826<br>(0.028)** | 0.4624<br>(0.000)*** | 0.344<br>(0.000)***  |
| 14    | Ireland           | -0.024<br>(0.931)    | 1.807<br>(0.007)***  | 0.697<br>(0.115)     |
| 15    | Italy             | -0.947<br>(0.556)    | 1.345<br>(0.615)     | 1.283<br>(0.531)     |
| 16    | Latvia            | -0.120<br>(0.846)    | 1.409<br>(0.000)***  | 0.946<br>(0.000)***  |
| 17    | Lithuania         | 8.709<br>(0.094)     | -3.323<br>(0.385)    | -3.219<br>(0.320)    |
| 18    | Luxembourg        | 1.680<br>(0.267)     | 0.805<br>(0.465)     | 0.498<br>(0.451)     |
| 19    | Malta             | -2.700<br>(0.263)    | -1.154<br>(0.983)    | -1.124<br>(0.848)    |
| 20    | Netherlands       | -1.109<br>(0.000)*** | 1.882<br>(0.000)***  | 1.059<br>(0.000)***  |
| 21    | Norway            | 0.393<br>(0.819)     | -3.246<br>(0.220)    | -2.994<br>(0.106)    |
| 22    | Poland            | 1.697<br>(0.072)*    | -1.683<br>(0.243)    | 0.230<br>(0.818)     |
| 23    | Portugal          | 0.170<br>(0.878)     | 1.759<br>(0.378)     | 1.680<br>(0.111)     |

|    |          |                   |                     |                     |
|----|----------|-------------------|---------------------|---------------------|
| 24 | Romania  | -0.093<br>(0.918) | 3.919<br>(0.000)*** | 3.400<br>(0.000)*** |
| 25 | Slovakia | -2.416<br>(0.273) | 3.502<br>(0.007)*** | 0.896<br>(0.226)    |
| 26 | Slovenia | 0.2742<br>(0.832) | 0.4297<br>(0.620)   | 0.126<br>(0.769)    |
| 27 | Spain    | -1.074<br>(0.354) | 0.279<br>(0.659)    | 0.315<br>(0.254)    |
| 28 | Sweden   | 0.274<br>(0.832)  | 0.429<br>(0.620)    | 0.126<br>(0.769)    |
| 29 | Türkiye  | 3.047<br>(0.759)  | 4.468<br>(0.737)    | 4.287<br>(0.000)*** |

The table 7 presents country-level estimates of the impact of three explanatory variables—logarithm of GDP per capita (LGDP), social support (SOC), and freedom to make life choice (FREE)—on the dependent variable for 29 European countries, including an overall average for the region. The results reveal significant heterogeneity across countries, both in the magnitude and direction of the coefficients, as well as in their statistical significance.

The AMG results, based on 174 observations across 29 countries, indicate a statistically significant long-run association between social support (SOC) and happiness index (HAPPX) ( $p = 0.014$ ). Specifically, a one-unit increase in social support is associated with an average increase of 0.84 units in the happiness index, holding other variables constant. However, when significance is assessed separately for each country, there are 13 countries that have statistically significant results in the context of independent variables. The following results that we can emerge: In Austria LGDP and FREE variables are statistically significant for 1%. For Czechia SOC and FREE variables are statistically significant for 10% and 1% respectively. In Estonia and Romania SOC and FREE variables are statistically significant for 1%. In France SOC variable is statistically significant for 5%. In Germany, LGDP is statistically significant for 1% level. In Iceland LGDP, SOC and FREE variables are statistically significant in 5, 1% and 1% respectively. In Ireland and Slovakia SOC variable is statistically significant for 1%. In Latvia, SOC and FREE are statistically significant results in 1%. In Netherlands LGDP, SOC and FREE are statistically significant in 1% level. For Poland, LGDP is statistically significant in 10%. For Türkiye, FREE has statistically significant results in 1%.

## Findings

At the European aggregate level, social support demonstrates a statistically significant and positive relationship with the Happiness Index. Specifically, a one-unit increase in social support is associated with an increase of 0.84 in the Happiness Index, underscoring that improvements in social factors consistently contribute to better well-being outcomes across the continent.

Country-specific results demonstrate more nuanced patterns. Notably, Austria, Iceland and the Netherlands show significant negative effects of income on Happiness Index with p-values well below 1%, indicating that higher income may have adverse effects in these specific contexts. In Austria a 1 unit change in the income change the happiness index by 7.7. In Iceland a 1 unit change in income decrease the happiness index by 0.08. For Netherlands, 1 unit change in income creates a decreasing effect in happiness index by 1.1.

Other inverse relationships has been revealed by the analysis for freedom to make life choice and social support in Austria and Czechia. In Austria a 1 unit increase in the freedom to make life choice decreases the happiness index by 6.02. In Czechia a 1 unit increase in the social support decreases the happiness index by 0.17.

In contrast, several countries display strong positive associations between social factors and happiness. Estonia, Iceland, Latvia, the Netherlands, and Romania exhibit highly significant positive coefficients for both social support and freedom to make life choices. Specifically, increases in social support and freedom result in increases in happiness by 2.8 and 2.4 units (Estonia), 0.462 and 0.344 (Iceland), 1.409 and 0.946 (Latvia), 1.882 and 1.059 (Netherlands), and 3.919 and 3.400 (Romania), respectively.

France and Slovakia also exhibit significant positive effects of social support reinforcing the broader trend that social support is a more consistent and positive determinant across countries. In France and Slovakia a 1 unit increase in social support increase the happiness index by 0.4227 and 3.502, respectively.

Income proves to be a significant positive factor in Germany and Poland, where a one-unit increase

contributes to increases in happiness by 0.393 and 1.697, respectively. Additionally, freedom to make life choices emerges as a particularly influential determinant in Ireland and Türkiye, with increases of 0.344 and 4.284 in the Happiness Index, respectively. The significance of freedom in these contexts may reflect the impact of institutional reforms and the strengthening of civil society in post-transition environments.

In Ireland and Türkiye freedom to make life choice emerge as particularly influential. In Ireland and Türkiye 1 unit increase in freedom to make life choice increase the happiness index by 0.344 and 4.284, respectively. Freedom to make life choice is highly significant positive coefficient which may reflect the role of institutional reforms and civil society in post-transition societies.

Overall, the findings suggest that while the average European effect of income and freedom to make life choice is limited, social support consistently emerges as a key determinant in many countries. These results underline the importance of context-specific analyses and caution against generalizations across heterogeneous national environments. Furthermore, the strong performance of social support and freedom to make life choice in certain countries points to the need for further research into the institutional and cultural factors that mediate these relationships.

## Conclusion and Discussion

Happiness, often regarded as the ultimate goal of human endeavor, transcends personal well-being and extends into societal and economic realms. Within economics, happiness is increasingly recognized as a valuable metric for assessing the success of policies and institutions, challenging the traditional reliance on material measures such as GDP or income per capita. This approach emphasizes the importance of quality of life, social equity, and environmental sustainability in fostering true prosperity. In this regard happiness is a multifaceted concept that extends far beyond fleeting moments of pleasure or material satisfaction. A holistic approach to happiness recognizes it as an intri-

cate blend of emotional, physical, social, and spiritual well-being, all interconnected and mutually reinforcing.

This study has explored the key determinants of happiness by empirically analyzing the impact of income (log GDP), social support, and freedom to make life choices across 29 European countries between 2019 and 2024. Drawing on the theoretical foundations of happiness economics and employing robust econometric techniques—specifically the Augmented Mean Group (AMG) estimator—our findings reveal significant heterogeneity in how these factors influence subjective well-being across different national contexts.

At the aggregate European level, social support emerges as a consistently significant and positive predictor of happiness, affirming the argument that relational and social capital play a fundamental role in well-being, beyond material affluence. This result aligns with the broader literature suggesting that trust-based social environments enhance life satisfaction (Helliwell et al., 2019).

However, country-specific analyses reveal considerable variation. In certain high-income contexts such as Austria, Iceland, and the Netherlands, income exerts a negative effect on happiness, potentially reflecting diminishing marginal returns, rising expectations, or lifestyle-induced stress. These findings support the Easterlin Paradox (Easterlin, 1974; Easterlin & Angelescu, 2009), which posits that beyond a certain threshold, increases in income do not translate into sustained improvements in well-being.

The role of freedom to make life choices also displays contextual dependency. While it contributes significantly to happiness in countries like Türkiye, Ireland, and Romania—likely reflecting the role of autonomy and post-transition institutional reforms—it is negatively associated with happiness in Austria, indicating that autonomy alone may not guarantee satisfaction if unmet by supportive structural or cultural conditions.

The results collectively emphasize that happiness is not solely a function of economic prosperity but is shaped by an interplay of institutional, cultural, and social variables. This reinforces the notion that context-specific policies are essential. For instance, while economic stimulus may enhance

well-being in lower-income settings, policies aimed at strengthening social cohesion and civic freedoms may yield better outcomes in more developed economies.

Despite its contributions, the study is not without limitations. First, data limitations prevented the inclusion of important variables such as healthy life expectancy, gender equality, and corruption perception, which are also key components of the World Happiness Index. Second, the analysis remains correlational in nature and does not establish causality. Finally, the focus on European countries limits the generalizability of findings to non-European contexts.

Future research should expand the scope by integrating other components of the World Happiness Index—such as perceptions of corruption, generosity, and healthy life expectancy—to develop a more holistic model. Additionally, longitudinal approaches that account for institutional transformations, demographic shifts, and cultural attitudes may offer deeper insights into the evolving determinants of happiness. Cross-cultural comparative studies beyond Europe would also be valuable in identifying universal versus region-specific determinants of happiness.

In conclusion, this study reaffirms that subjective well-being is a multidimensional construct requiring nuanced, context-aware interpretations. The observed cross-country heterogeneity calls for cautious generalizations and underscores the value of localized policy frameworks aimed at maximizing happiness not merely through economic growth, but through sustained social development and democratic empowerment.

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## RESEARCH ARTICLE

# Strategic Decision-Making and Artificial Intelligence: Exploring the Impact of AI Applications on Decision Precision and Risk Mitigation

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## Abstract

Artificial intelligence (AI) is increasingly reshaping strategic decision-making in modern organizations by enhancing decision precision, operational agility, and risk mitigation. This study investigates the influence of AI technologies on strategic management, with a particular emphasis on their role in improving decision accuracy and managing organizational risk. A qualitative methodology was employed, utilizing semi-structured interviews with 20 senior executives representing diverse sectors in İstanbul, Turkey. Thematic analysis revealed that AI facilitates data-informed decision-making, streamlines resource deployment, enhances competitive responsiveness, and reduces uncertainty in strategic planning. Results showed that 80% of the respondents reported enhanced forecasting accuracy, while 70% highlighted AI's contribution to more effective risk management practices. Additionally, AI was found to support scenario modeling and proactive strategy formulation. Nonetheless, key obstacles to implementation included organizational inertia (65%), data reliability concerns (55%), integration complexity (60%), and ethical considerations (40%). The study emphasizes the importance of aligning AI deployment with broader corporate strategies and fostering a culture of digital readiness to maximize AI's strategic impact and long-term value creation.

**Keywords:** Artificial intelligence, strategic decision-making, risk mitigation, AI implementation, decision accuracy, organizational transformation.

## Öz

Yapay zekâ (YZ), modern organizasyonlarda stratejik karar alma süreçlerini giderek daha fazla yeniden şekillendirerek karar doğruluğunu artırmakta, operasyonel çevikliği geliştirmekte ve risk azaltımını mümkün kılmaktadır. Bu çalışma, YZ teknolojilerinin stratejik yönetim üzerindeki etkisini incelemekte, özellikle karar doğruluğunu artırmadaki ve kurumsal riskin yönetimindeki rollerine odaklanmaktadır. Nitel bir yöntem benimsenmiş ve İstanbul, Türkiye’de çeşitli sektörleri temsil eden 20 üst düzey yöneticiyle yarı yapılandırılmış görüşmeler gerçekleştirilmiştir. Tematik analiz, YZ’nin veri temelli karar almayı kolaylaştırdığını, kaynak kullanımını optimize ettiğini, rekabetçi çevikliği artırdığını ve stratejik planlamadaki belirsizliği azalttığını ortaya koymuştur. Katılımcıların %80’i öngörü doğruluğunun arttığını, %70’i ise YZ’nin daha etkili risk yönetimine katkı sağladığını belirtmiştir. Ayrıca YZ’nin senaryo modelleme ve proaktif strateji geliştirme süreçlerini desteklediği gözlemlenmiştir. Bununla birlikte, uygulamadaki temel engeller arasında kurumsal atalet (%65), veri güvenilirliği endişeleri (%55), entegrasyon karmaşıklığı (%60) ve etik kaygılar (%40) yer almaktadır. Çalışma, YZ uygulamalarının kurumsal stratejilerle uyumlu hâle getirilmesinin ve dijital dönüşüme hazır bir kültürün teşvik edilmesinin, stratejik etkiyi ve uzun vadeli değer yaratımını en üst düzeye çıkarmada kritik önem taşıdığını vurgulamaktadır.

**Anahtar Kelimeler:** Yapay zekâ, karar verme, strateji, risk yönetimi, YZ entegrasyonu, kurumsal dönüşüm.

## Introduction

The integration of artificial intelligence (AI) into strategic management has transformed corporate decision-making processes. Organizations now rely on AI-driven analytics to enhance decision accuracy, optimize resource allocation, and mitigate risks in complex strategic scenarios. AI enables firms to process large datasets, generate predictive insights, and improve managerial efficiency. However, despite these advantages, the adoption of AI in strategic decision-making remains limited due to organizational resistance, concerns about algorithmic biases, and the challenge of balancing AI insights with human intuition.

The integration of artificial intelligence (AI) into strategic management has transformed corporate decision-making processes, offering improvements in accuracy, efficiency, and risk mitigation. While existing research has extensively examined AI's role in enhancing decision-making accuracy, the practical challenges of AI integration in strategic management remain less explored, especially from the perspective of executives in emerging economies. Many studies primarily adopt quantitative or model-based approaches, whereas real-world corporate applications often encounter challenges related to organizational resistance, data quality, and integration complexities. This study seeks to address this gap by providing qualitative insights into the barriers and facilitators of AI adoption in strategic decision-making.

**Contributions of this study:** While previous research has extensively examined AI's role in strategic management, most studies have focused on quantitative models of AI decision-making (Bertsimas & Kallus, 2020; Agrawal et al., 2018). The present study fills a critical gap by providing qualitative insights from senior executives, offering a practical perspective on the real-world challenges and opportunities of AI integration. Additionally, unlike many AI studies that focus on technologically advanced economies, this study provides insights from an emerging market perspective, highlighting unique adoption challenges in such environments.

The key contributions of this study include:

- Identifying the balance between AI autonomy and human oversight in strategic decision-making,
- Demonstrating AI's limitations in qualitative risk assessment,
- Highlighting organizational and cultural resistance as major adoption barriers,
- Emphasizing the importance of AI literacy and governance frameworks in successful integration.

These findings provide a nuanced understanding of AI's role in strategic management, complementing existing quantitative research with real-world managerial insights.

## Literature Review

The growing integration of artificial intelligence (AI) into strategic management has significantly influenced decision-making efficiency, risk assessment, and organizational transformation. The ability of AI to process vast datasets, predict trends, and optimize strategic decisions has positioned it as a transformative tool for businesses (McAfee & Brynjolfsson, 2017; Agrawal et al., 2018). However, despite its potential, AI adoption remains hindered by organizational resistance, concerns about algorithmic biases, and data integrity issues (Bose, 2020; Rahwan et al., 2019). This section synthesizes the existing literature by examining AI's role in strategic decision-making, its contributions to data-driven management, applications in risk assessment, and the key challenges associated with AI adoption.

## Introduction to AI in Strategic Decision-Making

Artificial intelligence (AI) has increasingly become an integral component of strategic management, transforming traditional decision-making processes by offering data-driven insights, predictive analytics, and risk assessment capabilities (McAfee & Brynjolfsson, 2017; Agrawal et al., 2018). By leveraging AI, firms can analyze large volumes of structured and unstructured data, automate complex decision-making tasks, and enhance managerial efficiency (Davenport & Ronanki, 2018).

However, while AI's ability to improve decision accuracy has been extensively documented (Bertsimas & Kallus, 2020), challenges remain regarding its adoption in strategic management, particularly in real-world corporate environments. These challenges include organizational resistance, data reliability concerns, the lack of explainability in AI-driven decisions, and the difficulty of balancing AI recommendations with human intuition (Rahwan et al., 2019; Bose, 2020).

This section systematically reviews prior research on AI in strategic management by examining:

1. AI as a decision-support tool and its impact on strategic management.
2. AI's role in risk management and forecasting in decision-making processes.
3. Key barriers to AI adoption, including organizational resistance and ethical concerns.
4. The importance of hybrid AI-human decision models to ensure effective integration.

These themes are analyzed in-depth to provide a structured and logical overview of the existing scientific landscape.

### **AI as a Decision-Support Tool in Strategic Management**

Strategic decision-making relies on accurate forecasting, scenario analysis, and real-time data processing, all of which AI can significantly enhance (Jarrahi, 2018; McAfee & Brynjolfsson, 2017). AI-powered models, including reinforcement learning, machine learning algorithms, and neural networks, have enabled firms to optimize decision-making processes by detecting patterns, processing large datasets, and minimizing human biases in judgment (Davenport & Ronanki, 2018).

A major advantage of AI in strategic decision-making is its ability to eliminate cognitive biases and improve consistency in high-risk environments where subjective judgment might introduce errors (Bertsimas & Kallus, 2020). AI-driven insights provide real-time scenario evaluations, allowing managers to explore multiple strategic options before making critical decisions. However, scholars emphasize that AI still lacks contextual

awareness, emotional intelligence, and ethical reasoning, which remain essential in leadership and high-stakes decision-making (Rahwan et al., 2019).

To mitigate these shortcomings, hybrid decision models—which integrate AI-generated insights with human expertise—have been proposed (Fountain et al., 2019). These models ensure that AI's computational efficiency is combined with human intuition, enhancing decision accuracy while preserving ethical and strategic considerations.

### **AI in Risk Management and Strategic Forecasting**

AI has significantly improved risk identification, predictive analytics, and crisis management, particularly in volatile and uncertain market conditions (Davenport & Ronanki, 2018; McAfee & Brynjolfsson, 2017). AI-powered stress-testing models have been widely implemented in finance, banking, and insurance sectors, enabling firms to assess business model resilience and anticipate financial risks (Bertsimas & Kallus, 2020).

Empirical studies indicate that AI enhances financial stability by reducing uncertainty in decision-making processes. Predictive algorithms assist managers in identifying market fluctuations, competitor strategies, and emerging risks (Agrawal et al., 2018; Bose, 2020). However, despite these advantages, trust in AI-generated risk assessments remains a key challenge.

Many scholars argue that the black-box nature of AI algorithms prevents decision-makers from fully understanding and validating AI-based risk evaluations, leading to hesitation in fully automating financial and strategic decisions (Rahwan et al., 2019). To address these concerns, explainable AI (XAI) frameworks have been proposed, allowing for greater transparency in AI-driven forecasting and risk assessment (Steffen, Rockström, & Richardson, 2015).

### **Barriers to AI Adoption in Strategic Management**

Despite AI's growing potential, several barriers hinder its adoption in corporate decision-making. The three primary challenges are:

1. Data and Infrastructure Limitations

- AI models rely heavily on high-quality, structured data, yet many firms struggle with fragmented or incomplete datasets, reducing AI's effectiveness (Bose, 2020).
  - Data biases and inaccuracies can lead to flawed predictions, undermining AI's reliability in decision-making (Rahwan et al., 2019).
2. Organizational and Cultural Resistance
    - AI adoption often faces internal pushback due to job displacement concerns, skepticism about AI-driven decisions, and reluctance to abandon traditional decision-making methods (Rahwan et al., 2019).
    - Executives and employees alike express concerns about autonomy loss, fearing that AI might undermine human expertise in strategic leadership.
  3. Lack of AI Governance and Ethical Standards
    - AI-driven decisions raise ethical and legal concerns, particularly regarding accountability, fairness, and algorithmic bias (Clark et al., 2020).
    - The absence of standardized AI governance policies increases regulatory risks, making firms hesitant to adopt AI at scale (Steffen et al., 2015).

These barriers highlight the complex socio-technical challenges associated with AI integration in strategic management, emphasizing the need for structured governance frameworks and AI literacy initiatives.

### **Toward a Hybrid AI-Human Decision Model**

To balance AI's computational efficiency with human expertise, hybrid decision-making models have gained traction in strategic management (Fountaine et al., 2019). These models allow organizations to:

1. Leverage AI's analytical power for structured tasks while preserving human decision-making for qualitative assessments.
2. Ensure ethical oversight and contextual reasoning, mitigating AI's current limitations.

3. Foster AI-human collaboration, increasing organizational trust in AI-driven insights.

The growing consensus among scholars suggests that AI should complement rather than replace human judgment, leading to more informed, data-driven, and strategically sound decision-making.

### **Research Gap**

While AI has revolutionized decision-making by enhancing efficiency, accuracy, and predictive capabilities, practical challenges in AI integration persist. Organizational resistance, ethical concerns, and the limitations of AI's interpretability hinder its full adoption in strategic management. Existing studies have extensively analyzed AI's quantitative benefits, yet few have explored the real-world managerial challenges of AI adoption in an emerging market context. Addressing this gap, this study aims to provide qualitative insights from senior executives, offering a practitioner-oriented perspective on AI's role in strategic decision-making.

### **Methodology**

A qualitative research design was employed to explore the role of artificial intelligence (AI) in strategic management decision-making processes. Data were collected through semi-structured interviews with 20 senior executives from various industries, each of whom had direct experience with AI applications in their organizations. The selection of participants was conducted using purposive sampling to ensure that only individuals with relevant expertise in both strategic management and AI implementation were included.

The selection of participants for this study was conducted using purposive sampling, a widely accepted qualitative research method that ensures the inclusion of individuals with relevant expertise in the research domain. The study focused on senior executives (C-level executives, directors, and strategy managers) who have direct experience with AI-based decision-making processes in their respective organizations. The selection criteria were established to maximize the depth and rele-

vance of insights while ensuring industry diversity. Executives from various industries were included to capture a broad spectrum of AI applications in strategic management, avoiding sector-specific biases. Additionally, only companies that have actively integrated AI into their decision-making frameworks were considered, ensuring that participants could provide firsthand insights into both the benefits and challenges of AI adoption. The research was conducted in Istanbul, Turkey's leading business and technology hub, which hosts a high concentration of companies at various stages of AI implementation. The selection of Istanbul as the geographic focus was aimed at capturing emerging market dynamics, where AI adoption is rapidly evolving but also faces unique challenges compared to technologically advanced economies. This sampling approach enhances the transferability of findings while maintaining methodological rigor, ensuring that the study provides practical, real-world insights into the role of AI in strategic decision-making.

The interview protocol consisted of ten open-ended questions designed to elicit detailed insights into the executives' experiences and perceptions regarding AI's role in decision-making. These questions covered various topics, including AI's impact on decision accuracy, challenges in integrating AI, the balance between AI insights and human intuition, and the future potential of AI in strategic planning. The semi-structured format allowed for flexibility, enabling respondents to elaborate on their thoughts while also ensuring consistency across interviews.

Interviews were conducted either in person or via video conferencing, with each session lasting approximately 45 to 60 minutes. All interviews were audio-recorded, and detailed transcripts were created to facilitate thorough analysis. Participants were assured of the confidentiality of their responses, and informed consent was obtained prior to each interview.

Thematic analysis, as outlined by Braun and Clarke (2006), was applied to analyze the data. This process involved six key steps: familiarization with the data, initial coding, searching for themes, reviewing themes, defining and naming themes, and producing the final report. The coding process was

conducted manually, with each transcript systematically analyzed to identify recurring patterns and themes. These codes were then grouped into broader categories, leading to the identification of key themes such as AI's influence on decision-making, challenges in AI integration, and the future role of AI in strategic management.

To ensure the reliability of the coding process, an intercoder agreement check was conducted by involving a second researcher. Both coders independently reviewed the transcripts, and Cohen's Kappa coefficient was calculated to assess consistency.

Throughout the analysis, efforts were made to cross-reference the findings with existing literature to ensure that the emerging themes were grounded in theoretical frameworks. This approach enabled the identification of both expected trends and novel insights, contributing to a more comprehensive understanding of AI's role in strategic decision-making.

## Results

### Code frequency table

Table 1 summarizes how frequently the main themes and subthemes emerged from the interviews. This table highlights the importance of certain aspects such as AI's role in improving decision-making speed and accuracy, the challenges faced in AI integration, and the balance between AI and human intuition (Braun & Clarke, 2006).

The analysis of the Code Frequency Table reveals key insights into the role of artificial intelligence (AI) in strategic decision-making processes. The theme of AI's Role in Enhancing Decision-Making emerged most frequently, with a notable focus on improving decision accuracy and speed, as evidenced by its frequency count of 10. This suggests that AI is perceived by executives as a valuable tool for optimizing decision efficiency. Additionally, the ability of AI to reduce uncertainty in complex decisions (n=7) and support data analysis in strategy formulation (n=8) highlights its integral role in managing complexity and leveraging data-driven insights for long-term planning.

**Table 1. Code Frequency Table**

| Main Theme                             | Subthemes                                        | Frequency (n) |
|----------------------------------------|--------------------------------------------------|---------------|
| AI's Role in Enhancing Decision-Making | Improving decision accuracy and speed            | 10            |
|                                        | Reducing uncertainty in complex decisions        | 7             |
|                                        | Supporting data analysis in strategy formulation | 8             |
| Challenges of AI Integration           | Data quality and integration issues              | 6             |
|                                        | Resistance to AI adoption                        | 7             |
|                                        | High costs of AI implementation                  | 5             |
| AI vs. Human Intuition                 | Balancing AI insights with human expertise       | 8             |
|                                        | Delegating routine decisions to AI               | 6             |
| AI's Impact on Risk Management         | Enhancing forecasting and predictive analytics   | 9             |
|                                        | Improving crisis response and mitigation         | 5             |
| Organizational Changes from AI Use     | Restructuring leadership roles                   | 5             |
|                                        | Shifting toward data-driven cultures             | 7             |
| Future of AI in Strategic Management   | Increased reliance on AI for long-term planning  | 6             |
|                                        | AI ethics and governance concerns                | 4             |

Source: Author's Own Calculations

As one executive noted: *"AI helped us eliminate ambiguity in high-stakes planning and reduced delays in decision-making."*

One participant expressed: *"Even when the system performs well, we often face pushback from managers who feel threatened by AI."*

A manager stated: *"I rely on AI for data insights, but the final call always comes from human judgment."*

An executive explained: *"With AI, we detect market volatility earlier and prepare responses proactively."*

One respondent remarked: *"We created new digital transformation roles solely because AI became central to our strategy."*

The theme of Challenges of AI Integration was also prominent, with data quality and integration issues (n=6) and resistance to AI adoption (n=7) being significant barriers identified by respondents. This indicates that while AI offers clear advantages, practical obstacles such as poor data quality and organizational resistance must be addressed to ensure successful integration. The relatively lower frequency for the high costs of AI implementation (n=5) suggests that while financial concerns are relevant, they may not be the primary

challenge compared to operational and cultural hurdles.

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A manager stated: *"I rely on AI for data insights, but the final call always comes from human judgment."*

AI vs. Human Intuition represents a recurring theme, particularly in balancing AI insights with human expertise (n=8). This indicates that, despite AI's growing capabilities, there remains a need to incorporate human intuition in decision-making processes, especially in ambiguous or high-stakes scenarios. The delegation of routine decisions to AI (n=6) reflects how AI is being utilized for less complex, repetitive tasks, allowing human leaders to focus on more strategic responsibilities.

In terms of AI's Impact on Risk Management, the use of AI for enhancing forecasting and predictive analytics (n=9) underscores its critical role in identifying and mitigating risks. However, fewer respondents emphasized AI's role in improving crisis response (n=5), suggesting that while predictive capabilities are valued, there may be room for growth in using AI to actively manage and mitigate crises.

Lastly, the theme of Organizational Changes from AI Use highlights the structural shifts prompted by AI, with leadership roles being redefined (n=5) and organizations increasingly adopting data-driven cultures (n=7). This suggests that AI is not only changing decision-making processes but also driving broader organizational transformations. The Future of AI in Strategic Management points to increasing reliance on AI for long-term planning (n=6), though concerns around AI ethics and governance (n=4) indicate that ethical considerations remain a critical aspect of AI's future integration into strategic decision-making.

A manager stated: *"I rely on AI for data insights, but the final call always comes from human judgment."*

An executive explained: *"With AI, we detect market volatility earlier and prepare responses proactively."*

One respondent remarked: *"We created new digital transformation roles solely because AI became central to our strategy."*

### Matrix coding query

The Matrix Coding Query provides a numerical analysis of how different themes are related to each other. This analysis helps identify the strength of relationships between themes such as "AI's Role in Decision-Making" and "AI vs. Human Intuition," or "AI's Impact on Risk Management" and "Future of AI in Strategic Management" (Braun & Clarke, 2006).

The matrix coding query presented in Table 2 provides an insightful analysis of the interrelationships between the identified themes. The strongest relationship is observed between AI's Role in Decision-Making and Challenges of AI Integration (n=10), indicating that the integration of AI in decision-making processes is frequently influenced by the challenges faced during implementation. Issues such as data quality, resistance, and costs appear to be critical factors that affect the effectiveness of AI in enhancing decision-making.

by practical barriers to AI adoption. This highlights the ongoing difficulties organizations face in fully leveraging AI's potential for managing risks.

The connection between AI's Role in Decision-Making and AI vs. Human Intuition (n=5) reflects the tension between AI-generated insights and the value of human expertise. Executives seem to recognize that while AI improves decision accuracy and speed, the balance between AI and human intuition remains critical in high-stakes or ambiguous scenarios.

AI's Impact on Risk Management and Future of AI in Strategic Management (n=5) demonstrates that AI's growing role in risk management is influencing future strategic planning. Organizations are increasingly relying on AI's predictive capabilities to inform long-term strategies, suggesting that AI will play an even more prominent role in decision-making moving forward.

Finally, the relationship between Organizational Changes from AI Use and Future of AI in Strategic Management (n=4) indicates that the structural changes prompted by AI adoption, such as new leadership roles and shifts towards data-driven cultures, are setting the stage for AI's deeper integration into future strategic processes.

**Table 2. Matrix Coding Query**

|                                      | AI's Role in Decision-Making | Challenges of AI Integration | AI vs. Human Intuition | AI's Impact on Risk Management | Organizational Changes from AI Use | Future of AI in Strategic Management |
|--------------------------------------|------------------------------|------------------------------|------------------------|--------------------------------|------------------------------------|--------------------------------------|
| AI's Role in Decision-Making         | 10                           | 4                            | 5                      | 6                              | 5                                  | 7                                    |
| Challenges of AI Integration         | 4                            | 9                            | 5                      | 6                              | 4                                  | 3                                    |
| AI vs. Human Intuition               | 5                            | 5                            | 8                      | 3                              | 4                                  | 4                                    |
| AI's Impact on Risk Management       | 6                            | 6                            | 3                      | 11                             | 5                                  | 5                                    |
| Organizational Changes from AI Use   | 5                            | 4                            | 4                      | 5                              | 10                                 | 4                                    |
| Future of AI in Strategic Management | 7                            | 3                            | 4                      | 5                              | 4                                  | 8                                    |

*Source: Author's Own Calculations*

A similarly strong relationship is evident between AI's Impact on Risk Management and Challenges of AI Integration (n=9), suggesting that while AI enhances predictive analytics and risk forecasting, these improvements are still hindered

This implies that as AI continues to evolve, organizations must adapt their structures and governance models to maximize its potential.

The overall patterns in the table underscore the complex interplay between AI integration, human intuition, risk management, and future strategic directions, pointing to both the opportunities and

challenges that AI presents in the context of strategic management.

### Word cloud visualization

A manager stated: *"I rely on AI for data insights, but the final call always comes from human judgment."*

One participant expressed: *"Even when the system performs well, we often face pushback from managers who feel threatened by AI."*

To provide an exploratory visual representation of the most frequently discussed topics, a word cloud was generated based on the qualitative interview data (Figure 1). This visualization highlights the key terms most frequently mentioned by senior executives, offering insights into the dominant discussion areas.

The purpose of Figure 1 is to:

A manager stated: *"I rely on AI for data insights, but the final call always comes from human judgment."*

One respondent remarked: *"We created new digital transformation roles solely because AI became central to our strategy."*

One participant expressed: *"Even when the system performs well, we often face pushback from managers who feel threatened by AI."*

- Reinforce the thematic analysis findings by visually emphasizing the most common discussion topics.
- Allow for a quick, data-driven summary of the study's main themes, particularly focusing on AI's role in decision-making, risk management, and strategic forecasting.
- Support the code frequency table (Table 1) by demonstrating how often specific keywords appeared across different interviews.

By incorporating this visualization, we aim to enhance the interpretability of the findings, providing a qualitative and quantitative overview of the most significant discussion points emerging from executive interviews.



Figure 1. Word cloud visualization

The Word Cloud visualization presents a clear depiction of the most frequently mentioned terms, highlighting the central focus of the research. Terms like "decision-making" and "AI" are prominently featured, indicating that the role of artificial intelligence in enhancing decision-making processes was extensively discussed in the study. Key concepts such as "strategy," "accuracy," and "risk management" have also been emphasized, suggesting that AI's impact on improving strategic outcomes and managing uncertainty was a significant topic of interest. The frequent appearance of words like "integration" and "challenges" reflects the barriers that were identified in adopting AI technologies, including issues related to implementation and resistance.

### Concept map: Relationships between themes

This map illustrates the relationships between the key themes in the study, such as the connections between "AI's Role in Decision-Making" and other major themes like "Challenges of AI Integration," "AI vs. Human Intuition," and "Future of AI in Strategic Management" (Figure 2).

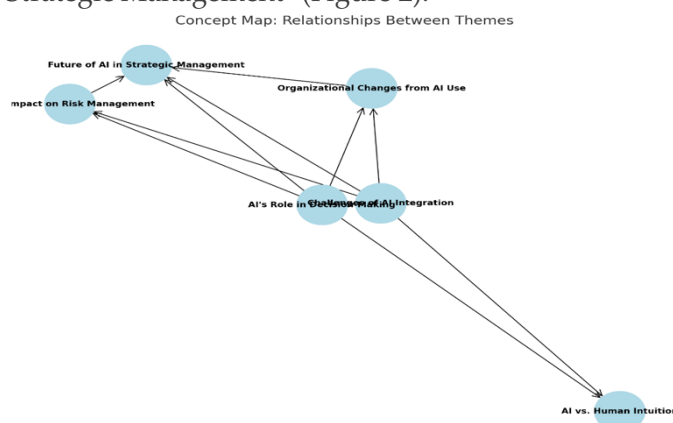


Figure 2. Concept map: Relationships between themes

The Concept Map effectively illustrates the relationships between the key themes identified in the research. The theme of "AI's Role in Decision-Making" is shown to be central, with multiple connections to other important concepts, reflecting its critical influence in strategic management contexts.

It is noted that a strong link exists between "AI's Role in Decision-Making" and "Challenges of AI Integration," indicating that the implementation of AI in decision processes is often shaped by the difficulties encountered during integration, such as data quality issues and resistance to adoption. Additionally, the relationship between "AI's Role in Decision-Making" and "AI vs. Human Intuition" suggests that the balance between algorithmic insights and human expertise remains a significant area of consideration.

One participant expressed: *"Even when the system performs well, we often face pushback from managers who feel threatened by AI."*

The map also highlights how AI's contributions to "Risk Management" are interconnected with future strategic planning, showing that AI's predictive capabilities are being increasingly integrated into long-term decision-making frameworks. Furthermore, the relationship between "Organizational Changes from AI Use" and the "Future of AI in Strategic Management" implies that structural and cultural shifts within organizations are setting the foundation for AI's deeper integration into future strategies.

Overall, the Concept Map visually emphasizes the complex interplay between AI adoption, decision-making improvements, and organizational transformation, underscoring the multifaceted impact of AI on strategic management processes.

## Discussion

The findings of this study provide significant insights into the role of artificial intelligence (AI) in strategic management decision-making, aligning with and extending existing literature in this field. The empirical evidence gathered from senior executives demonstrates that AI enhances decision accuracy, efficiency, and risk management, yet its full potential remains constrained by integration

challenges and organizational resistance. These findings resonate with prior studies but also reveal new perspectives that deepen the understanding of AI's strategic implications.

## AI as a Decision-Support Tool in Strategic Management: Empirical Evidence vs. Theoretical Insights

The findings of this study confirm that AI significantly enhances decision-making efficiency, particularly by improving data analysis speed, optimizing strategic forecasting, and reducing cognitive biases. This aligns with previous research emphasizing AI's ability to process large datasets, detect patterns, and support managers in making more objective, data-driven decisions (McAfee & Brynjolfsson, 2017; Agrawal et al., 2018). Similarly, Jarrahi (2018) argued that AI complements managerial decision-making by providing evidence-based insights, particularly in complex environments where intuition alone may lead to suboptimal results.

However, this study introduces a nuanced perspective on the human-AI balance in decision-making. While existing research often emphasizes AI's superior accuracy in strategic planning (Bertsimas & Kallus, 2020), the executives interviewed in this study highlighted the necessity of maintaining a hybrid decision model, where AI-generated insights are reviewed and validated by human decision-makers. This finding contrasts with theoretical perspectives that advocate for greater AI autonomy in strategic management (Davenport & Ronanki, 2018). Instead, the results suggest that human oversight remains essential, ensuring that AI-driven recommendations align with contextual business needs and ethical considerations.

This contribution refines existing decision-support models by demonstrating that AI adoption should not replace human intuition but rather augment managerial expertise, reinforcing the growing emphasis on hybrid AI-human decision models in strategic management (Fountain et al., 2019).

### **AI and Data-Driven Strategic Management: Enhancing Predictive Accuracy vs. Organizational Barriers**

A key theme emerging from this study is AI's role in data-driven decision-making and strategic forecasting, supporting previous research highlighting AI's capacity to generate real-time insights, automate market trend analysis, and optimize resource allocation (Davenport & Ronanki, 2018; McAfee & Brynjolfsson, 2017). In line with Agrawal et al. (2018), executives in this study acknowledged that AI-based decision-support systems improve competitive intelligence and risk assessment, particularly by identifying emerging threats and opportunities before they manifest.

However, this study also uncovers limitations of AI-driven decision models that remain underexplored in existing research. While prior studies largely focus on AI's technical advantages, the findings suggest that data quality remains a fundamental barrier to AI's effectiveness (Rahwan et al., 2019). Executives reported that poor-quality, fragmented, or biased datasets often lead to unreliable predictions, reinforcing concerns raised in previous literature regarding the risks of algorithmic bias and data dependency in AI-driven decision models (Bose, 2020).

The results further emphasize the importance of explainable AI (XAI) frameworks, echoing previous research that highlights the necessity of enhancing AI transparency and interpretability to build managerial trust in AI-generated recommendations (Steffen, Rockström, & Richardson, 2015). This study adds to the literature by demonstrating that without improvements in AI explainability, many organizations remain hesitant to integrate AI-driven insights into high-stakes strategic decisions.

### **AI in Risk Management and Strategic Forecasting: Addressing Structured vs. Unstructured Risks**

Consistent with prior research, this study finds that AI significantly enhances strategic risk assessment and crisis forecasting, particularly in financial and operational decision-making contexts

(Bertsimas & Kallus, 2020; Davenport & Ronanki, 2018). Executives reported that AI-powered risk assessment models enabled their organizations to proactively identify threats, providing a competitive advantage in volatile markets. This aligns with prior studies demonstrating that AI improves financial stability by enhancing predictive accuracy in risk assessment models (Rahwan et al., 2019).

However, this study also introduces a critical distinction between structured and unstructured risk assessments. While previous research focuses on AI's ability to analyze structured data for risk prediction, the findings indicate that AI struggles with qualitative risk assessment, particularly in areas requiring human judgment, such as political risks, industry-specific disruptions, and organizational culture shifts. Executives emphasized that AI is highly effective in structured risk analysis but remains unreliable in addressing ambiguous or unprecedented risks, reinforcing the need for human expertise in high-stakes decision-making.

This study expands existing risk management frameworks by suggesting that AI-driven risk models should be complemented with human insights to enhance their robustness in complex, dynamic business environments. This underscores the growing need for hybrid AI-human risk assessment models, integrating AI's predictive capabilities with human adaptability and contextual judgment.

### **Challenges of AI Integration: Beyond Technical Limitations**

Previous research has extensively documented technical barriers to AI adoption, including data inconsistencies, algorithmic biases, and integration challenges (Bose, 2020; Steffen, Rockström, & Richardson, 2015). The findings of this study confirm these challenges, as executives cited fragmented data systems and AI integration difficulties as major obstacles to fully leveraging AI's potential in strategic decision-making.

However, this study introduces an equally significant barrier that remains underemphasized in existing literature: organizational and cultural resistance. While most studies focus on technical limitations, the findings suggest that psychological

and sociotechnical factors play an equally critical role in determining AI adoption success. Executives and employees exhibited strong resistance to AI-driven decision models, fearing job displacement, loss of decision autonomy, and dependency on opaque AI systems. This aligns with research by Rahwan et al. (2019), which argues that organizational culture significantly influences AI adoption outcomes.

Moreover, ethical concerns surrounding AI-driven decision-making emerged as a recurring theme. Executives emphasized that AI-generated recommendations lacked transparency, leading to skepticism regarding AI's reliability. This reinforces prior calls for explainable AI (XAI) frameworks to enhance user trust and accountability in AI-driven decision-making (Clark et al., 2020).

This study contributes to the AI adoption literature by emphasizing that technical improvements alone are insufficient for successful AI integration. Instead, organizations must address cultural and ethical challenges by fostering AI literacy, ensuring regulatory compliance, and implementing transparent governance structures.

### **AI and Organizational Transformation: Redefining Managerial Roles**

This study finds that AI adoption leads to significant organizational changes, particularly in leadership structures, decision-making frameworks, and corporate governance models. This supports prior research arguing that AI requires fundamental shifts in corporate management practices (Fountaine et al., 2019).

However, unlike previous studies that primarily focus on technical adaptation, the findings emphasize the human aspect of organizational transformation. Executives highlighted the urgent need for AI literacy and training programs to equip managers with the necessary skills to interpret AI-generated insights and integrate them into strategic decision-making. This suggests that, beyond technological investments, organizations must prioritize human capital development to facilitate AI integration effectively.

The results reinforce existing literature while shedding light on previously underexplored aspects of AI integration in strategic management. AI should not be viewed as a replacement for human judgment but rather as a strategic enabler that enhances managerial decision-making.

In addition to confirming patterns observed in previous studies, this research has uncovered novel managerial perspectives that have not been widely discussed in the existing literature. Several executives reported that AI not only improves decision-making processes but also reshapes organizational culture and leadership dynamics in unexpected ways. For example, AI adoption has resulted in the emergence of new leadership roles focused on digital strategy and data governance. These findings illustrate that AI's role goes beyond efficiency gains to include the transformation of strategic thinking and organizational design. This context-specific insight offers an original contribution by capturing practical dynamics within an emerging market setting, enriching the theoretical discourse with real-world managerial realities.

Future research should further investigate the long-term implications of AI-driven decision models, particularly in relation to ethical, regulatory, and workforce-related challenges. Expanding the scope to include different industries and global contexts could further refine our understanding of AI's evolving role in corporate strategy.

### **Conclusion**

This study explored the role of artificial intelligence (AI) in strategic decision-making, focusing on its impact on decision accuracy, risk management, and organizational adaptation. By conducting semi-structured interviews with senior executives from various industries, the study aimed to provide qualitative insights into the practical benefits and challenges of AI adoption in strategic management. The findings reveal that AI significantly enhances decision accuracy and risk forecasting by enabling data-driven strategies, optimizing resource allocation, and mitigating uncertainty in complex decision environments. However, despite these advantages, executives high-

lighted key barriers such as organizational resistance, data quality concerns, and integration complexity, which hinder AI's full-scale adoption in strategic processes.

One of the critical conclusions drawn from this study is that while AI-driven decision-making enhances efficiency and predictive accuracy, its successful integration requires addressing sociotechnical challenges within organizations. The results suggest that AI alone is insufficient for high-stakes strategic decisions, as it lacks contextual awareness, qualitative reasoning, and human intuition. Therefore, hybrid decision models that integrate AI-generated insights with human expertise are essential to maintaining strategic flexibility and ensuring ethical decision-making. Furthermore, the study underscores the importance of fostering AI literacy among executives and developing explainable AI (XAI) frameworks to enhance transparency and trust in AI-driven recommendations.

The implications of these findings highlight the necessity of a balanced approach to AI adoption, where technological advancements are complemented by human oversight and governance mechanisms. While AI continues to reshape strategic management practices, its impact remains contingent upon the ability of organizations to align AI capabilities with corporate objectives and managerial expectations. Future research should expand on these qualitative insights by incorporating quantitative analyses to measure AI's tangible effects on decision-making performance, particularly in emerging economies where AI adoption patterns and regulatory landscapes differ from those in developed markets. By addressing these challenges, organizations can fully leverage AI's potential while maintaining strategic control, ethical responsibility, and managerial adaptability in an increasingly data-driven business environment.

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## Appendix

### Appendix 1: Interview questions

1. How do you perceive the role of AI in enhancing decision-making in strategic management?
2. Can you describe specific AI applications used in your organization's strategic decision-making processes?
3. In what ways has AI influenced the accuracy and speed of decision-making at the executive level?

4. What challenges have you encountered when integrating AI into your strategic decision-making processes?
5. How has AI changed the way your organization approaches long-term strategy formulation?
6. To what extent do you rely on AI insights versus human intuition in making high-stakes decisions?
7. What impact has AI had on risk management and forecasting within your organization?
8. How do you ensure that AI systems used in decision-making are aligned with your organization's strategic goals?
9. How has the use of AI in decision-making affected your organizational structure and leadership roles?
10. What future trends do you foresee in the integration of AI within strategic management?

The interview questions were reviewed and validated by two domain experts in the fields of strategic management and AI implementation to ensure content validity.

RESEARCH ARTICLE

# The Role of Employee Silence in The Effect of Perceived Gender Discrimination on Emotional Burnout in Female Employees

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**Abstract**

*This study aims to determine the effect of perceived gender discrimination on emotional exhaustion and the moderating role of employee silence in this relationship. Although it has been examined conceptually, there is no study that evaluates all concepts in a holistic model. In this respect, the research has a unique value in terms of contributing to the literature. The sample of the study, which adopts a quantitative research method, consists of enterprises operating in Ankara. The questionnaire forms created within the scope of the research with 397 women working in these enterprises were applied. In the analysis of the data obtained, SPSS v24 package program was used to determine pretests, descriptive statistics and relationships between variables, and IBM AMOS v24 package program was used for CFA analysis. In the study, firstly, the effects of perceived gender discrimination and employee silence on emotional exhaustion were tested. As a result of the analysis, it was found that perceived gender discrimination and employee silence (defensive silence, silence for the benefit of the organization and accepting silence) have an effect on emotional exhaustion, and defensive silence has a moderating role in the relationship between perceived gender discrimination and emotional exhaustion. As a result of the research, recommendations were made for decision makers, employers and for further research.*

**Keywords:** Perceived Gender Discrimination, Emotional Exhaustion, Employee Silence, Organizational Behavior

**Öz**

*Bu çalışmanın amacı, algılanan cinsiyet ayrımcılığının duygusal tükenmişlik üzerindeki etkisini ve çalışan sessizliğinin bu ilişkideki düzenleyici rolünü belirlemektir. Kavramsal olarak incelenmiş olmakla birlikte, tüm kavramları bütüncül bir modelde değerlendiren bir çalışmaya rastlanmamıştır. Bu bakımdan araştırma, literatüre katkı sağlaması açısından özgün bir değere sahiptir. Nicel araştırma yönteminin benimsendiği çalışmanın örneklemini Ankara’da faaliyet gösteren işletmeler oluşturmaktadır. Bu işletmelerde çalışan 397 kadınla araştırma kapsamında oluşturulan anket formları uygulanmıştır. Elde edilen verilerin analizinde ön testler, tanımlayıcı istatistikler ve değişkenler arasındaki ilişkileri belirlemek için SPSS v24 paket programı, CFA analizleri için ise IBM AMOS v24 paket programı kullanılmıştır. Çalışmada öncelikle algılanan cinsiyet ayrımcılığı ve çalışan sessizliğinin duygusal tükenmişlik üzerindeki etkileri test edilmiştir. Analiz sonucunda algılanan cinsiyet ayrımcılığı ve çalışan sessizliğinin (savunmacı sessizlik, örgüt yararına sessizlik ve sessizliği kabul etme) duygusal tükenme üzerinde etkisi olduğu, savunmacı sessizliğin algılanan cinsiyet ayrımcılığı ile duygusal tükenme arasındaki ilişkide düzenleyici rol oynadığı bulunmuştur. Araştırma sonucunda karar vericiler, işverenler ve ileri araştırmalar için önerilerde bulunulmuştur.*

**Anahtar Kelimeler:** Algılanan Cinsiyet Ayrımcılığı, Duygusal Tükenmişlik, Çalışan Sessizliği, Örgütsel Davranış

## Introduction

Today's intense competitive environment requires employees to work synchronously and as a whole with the management of the organization. It is human capital as well as human capital that keeps businesses alive and ensures continuity. It is only possible to fulfill customer demands, report any problems in the system to senior management and find solutions only if employees and managers who are open to communication are in charge. An effective communication network from subordinate to superior and from superior to subordinate will ensure that employees work with high motivation. Regardless of the occupational group, the adoption of a management approach that does not discriminate between religion, language, race and gender should be seen as an important tool in achieving the goals set for businesses.

Women, who have been working in every field of production since the dawn of humanity, started to take part in business life for a wage with the industrial revolution. The main purpose of this is the need for cheap labor. Unfortunately, in working life, many negative situations unworthy of human dignity await women, such as glass ceilings, barriers and the search for identity caused by obstacles, which insist on remaining unchanged from the 19th century to the present day and perhaps from today to tomorrow. Despite this, she continues to search for a place for herself in a world dominated by male hegemony.

At its most basic level, gender discrimination, which sees women as second-class citizens, is the most important indicator of inequality in economic life. Although social stereotypes and prejudiced attitudes towards women vary from country to country, in general, the positioning of women behind men is still a reality of business life as a global problem. The negativities caused by the glass ceilings that women face in business life push them to emotional exhaustion and silence in the organization over time.

The purpose of this study is to determine the effect of perceived gender discrimination on emotional exhaustion and the moderating role of employee silence in this relationship. It is thought to contribute to the literature since there is no study in which gender discrimination, which constitutes

the glass ceiling of women in business life, and the subsequent concepts of emotional exhaustion and employee silence are evaluated together.

## Conceptual Framework

### Perceived Gender Discrimination

Perceived gender discrimination is an individual's perception that he/she is subjected to unfair, negative attitudes and behaviors by different gender groups because of his/her gender. The individual who thinks that gender discrimination is practiced against him/her believes that he/she is disadvantaged compared to other employees (Seçer, 2009). In the world of work, women are subjected to gender discrimination and are evaluated within the framework of the tasks attributed to them by society. In fact, women are perceived as a gender limited to their roles in family life and restricted to domestic chores and responsibilities. Women who are forced to work have to assume both their work duties and their domestic roles on their own. Patriarchal management approach makes it difficult for women to take part in management positions (Ergeneli and Akçamete, 2004). Since women's roles increase the burden of responsibility on them, they limit their opportunities for promotion in their professions and do not provide equal opportunities. Since the roles assumed by women increase the burden of responsibility on them, they limit their opportunities for advancement in their professions and do not provide equal opportunities. This is because the roles that women have to assume are such that they prevent their wives from continuing to work. For example, women getting married, giving birth, and assuming household responsibilities are unfavorable for employers (Tolga, 2023).

The main areas where equal opportunities are not provided are vocational training, utilization of social opportunities, finding a job and promotion (Kocacık and Gökkaya, 2005: 196-200). These negativities in working life have created glass ceilings, which are the most important indicator of gender discrimination against women. Glass ceilings are defined as situations that prevent women from

taking part in top management levels in the organizations where they work (Aytaç et al., 2002).

### Emotional Exhaustions

Although burnout as a concept was first introduced by Freudenberger in 1974, it became a concept associated with Marlash, who developed the scale (Aslan & Güzel, 2018). The difficult psychological environment awaiting women in business life and as a result of unfulfilment of long-term emotional demands, individuals emotional, mental and physical exhaustion and ultimately burnout syndrome (Pines, Aranson, & Kafry, 1981; Neuberg et al., 2017; Ajayi, Ajayi & Udeh, 2024).

Burnout syndrome is a concept consisting of three dimensions: depersonalisation, which refers to the alienation of the person from others; a decrease in the sense of personal achievement caused by thinking that the person is not capable of achieving success in their personal careers; and emotional exhaustion, which is characterised as the depletion of emotional resources (Maslach & Jackson, 1984; Budak & Sürvegil, 2005; Maslach, Schaufeli, & Leiter, 2001; Halbesleben & Buckley, 2004; Geuens, Bogaert, & Franck, 2017; Shepherd, Tashchian, & Ridnour, 2011; Wilczek-Rużyczka, 2024).

Emotional exhaustion refers to the feeling of being overloaded and exhausted due to the work. In addition, it is the first indicator of burnout and if it is detected early, burnout can be prevented (Önder & Basim, 2008). The feeling of unreality, fatigue and extreme boredom encountered in people experiencing emotional exhaustion has physical, psychological and organisational consequences. The stress experienced by the individual causes him/her to experience negative emotions such as exhaustion of emotional resources, decreased energy, emotional fatigue, and as a result, he/she becomes insensitive to many environmental factors and even the thought of going to work causes him/her to feel fear (Bodur B. & Erdem, 2023). In addition, it causes negative situations such as increased turnover, low performance, social shirking, intention to quit, absenteeism, problems in work and family life, silent resignation and health

problems (Maslach & Jackson, 1985; Kanten, 2014; Bakır & Özcan, 2025; Erdek & Meteriz, 2025).

There are many studies finding that perceived gender discrimination has an effect on emotional exhaustion (Gül, 2023; Trzebiatowski & Triana, 2020; Adebayo et al., 2008)

### Employee Silence

Just as the conductor of a large orchestra wants to hear the right note from each instrument, managers expect to hear only the words that sound right to them in the organisation they manage. However, although this situation is accepted in an autocratic approach, it should not be a preferred situation in a democratic management approach and an innovative organisational structure. In situations that affect the future of the organisation, individuals who express their opinions without any reservations against any situation can play an active role in the decision-making mechanisms to make the right decisions. On the other hand, silence is the situation where employees who are in a position to influence the decisions or future of the organisation prefer to remain silent. The important thing is to identify the motivation of the employees who prefer to remain silent even though they have a good command of the subject. Because this negative situation is a type of behaviour that directly affects the potential of the organisation (Tayfun & Çatır, 2013).

Silence of employees is seen as an undesirable situation in organisational terms. Employee silence has three components: defensive silence, silence for the benefit of the organisation and accepting silence. Defensive silence can be defined as employees' expressing their opinions after abstaining and observing for a while in order to protect their own position and position due to the anxiety and uneasiness they experience (Bowen & Blackmon, 2003). This self-protective behaviour can also be considered as a defensive attitude. Since employees fear that they will be harmed if they speak out, they avoid saying what they want to say for their own benefit and prefer to protect their current positions (Knoll & Van Dick, 2013). In other words, it means that employees hide their information, ideas and

thoughts by creating a personal strategy with a deliberate and proactive approach to protect themselves from external factors due to the fear they feel (Beheshtifar, et al., 2012; Dyne, et al., 2003). In addition, they may prefer to remain silent and not express their thoughts due to fears such as not being promoted, being subjected to ill-treatment and being unemployed (Öztürk & Cevher, 2015). This situation leads to the concealment of new ideas and thoughts as well as the concealment of errors and mistakes within the organisation (Yalçınsoy, 2019). The employees' self-protection motive can be considered as an indication that they do not have the power and intention to fight. Aktaş and Şimşek (2015) investigated the role of job satisfaction and emotional exhaustion perceptions in organisational silence and found that as emotional exhaustion and depersonalisation increase, defensive silence increases (Aktaş & Şimşek, 2015). It is considered that defensive silence, one of the components of employee silence, may have an effect on emotional exhaustion.

Silence for the benefit of the organisation, which is the second dimension of employee silence, is when employees prefer silence even in the face of positive or negative events occurring within the organisation, considering the interests of the organisation (Yakışır, 2024). The main motivation for silence for the benefit of the organisation is the belief that if the issue or issues are not raised, there will be consequences for the organisation (Whiteside & Barclay, 2013). On the other hand, avoiding sharing information about organisational events can lead to serious organisational problems, detecting mistakes and preventing ethical violations (Morrison & Milliken, 2000). Silence for the benefit of the organisation can be considered as a factor that hinders productivity and development, increases stress, reduces job satisfaction and causes emotional exhaustion (Knoll & Redman, 2016).

The last dimension of employee silence is accepted in the literature as accepted silence. Accepted silence is the voluntary choice of silence and inaction by employees who have lost their belief that something will change in the organisation (Tayfun & Çatır, 2013). They are unresponsive, indifferent and uncaring towards all kinds of environmental and organisational events (Pinder &

Harlos, 2001). Individuals who feel that their opinions are not valued feel inadequate and show their thoughts and behaviours by obediently and silently obeying the decisions taken in the workplace (Dyne, et al., 2003). Thus, the employee, who is distanced from all kinds of organisational goals, concentrates on personal goals. In the literature review, a limited number of studies on the relationship between acceptance silence and emotional burnout were found. Yıldırım (2019), in his research, found that emotional burnout has a positive effect on accepting silence (Yıldırım, 2018). However, in our research model, we aimed to question the opposite of this problematic and to evaluate the effect of variables on each other.

At the core of gender discrimination is the expectation of behaviour in accordance with the role assigned to women by society. In addition to a number of features given by the nature of creation, women also have duties determined by the society. This sexist perspective puts pressure on women to 'force them to live within the limits drawn for them'. Women can only behave and live in accordance with this role. Regardless of the responsibilities of working life, regardless of the circumstances, women are considered as the person who has to fulfil the role assigned to her. Regardless of the situation, capacity and living conditions of the woman, she has to give priority to responsibilities appropriate to the role imposed by society, as well as fulfil other responsibilities in business life. The responsibilities imposed on them by social pressure and the specific requirements of business life cause women to become silent (Kocabacak, 2014). In the literature review, no study was found in which employee silence and its sub-dimensions, gender discrimination and emotional exhaustion were examined in a model. The above literature reviews suggest that all three dimensions of employee silence may have a moderating role between gender discrimination and emotional exhaustion.

## Methodology

In this study, it is aimed to determine the effect of perceived gender discrimination on emotional exhaustion of female employees and whether employee silence has a moderating role in this relationship. In the literature review, there is no holistic model in which three variables and their components are examined in one model. The research hypotheses formed within this framework are as follows:

**H<sub>1</sub>:** Perceived gender discrimination has an effect on emotional exhaustion.

**H<sub>2</sub>:** Employee silence has an impact on emotional exhaustion

**H<sub>2a</sub>:** Defensive silence has an effect on emotional exhaustion

**H<sub>2b</sub>:** Silence in favour of the organisation has an effect on emotional exhaustion

**H<sub>2c</sub>:** Acceptive silence has an effect on emotional exhaustion

**H<sub>3</sub>:** Organizational silence has a moderating role in the relationship between perceived gender discrimination and emotional exhaustion

**H<sub>3a</sub>:** Defensive silence has a moderating role in the relationship between perceived gender discrimination and emotional exhaustion

**H<sub>3b</sub>:** Silence for the benefit of the organisation has a moderating role in the relationship between perceived gender discrimination and emotional exhaustion

**H<sub>3c</sub>:** Accepting silence has a moderating role in the relationship between perceived gender discrimination and emotional exhaustion.

## Research Model

The theoretical model of the research is shown in Figure 1. The main purpose of this study is to reveal the effect of perceived gender discrimination on emotional exhaustion and the moderating role of employee silence in this relationship. In order to achieve this aim, 7 hypotheses were formulated to test the model established below.

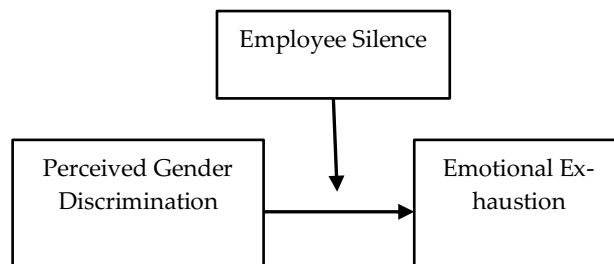


Figure 1. The Research Model

## Research Implementation and Sampling

The main mass of the research consists of women working in the service sector in Ankara. According to İŞKUR (2022) data, the total number of women working in Ankara is 418,918 (İşkur, 2022). Model of the research is shown in Figure 1. According to Cohen et al. (2002), the sample size should be 384 (Cohen, et al.,2002). Since 397 female employees participated in this study, it was determined that the sample size was sufficient. The average age of the participant female employees is 32,6 years, and their working time in their current workplaces is 2 years and 4 months. Their total work experience is 8 years and 2 months on average.

## Data Collection

**Perceived Gender Discrimination Scale:** To measure perceived gender discrimination, a four-item scale adapted by Foley et al. (2015) based on the 'Discrimination Scale' developed by Sanchez and Brock (1996) was used (Foley, et al., 2015). Sample items of the unidimensional scale with an  $\alpha$  value of 0.87: 'I sometimes feel that my gender is a limitation at work' and "My gender has a negative impact on my career progression".

**Employee Silence Scale:** The scale consisting of fifteen items developed by Bilgin et al. (2019) was used to measure employee silence (Bilgin, et al., 2019). The scale consists of three dimensions called 'Defensive Silence, Prosocial Silence and Accepting Silence'. Sample items of the scale: 'This employee is reluctant to talk about change proposals because he/she is excluded' and "This employee withholds confidential information on the basis of co-operation".

**Emotional Exhaustion Scale:** Maslach and Jackson's (1981) nine-item emotional exhaustion scale, which is the most widely used scale in the literature, was used to measure emotional exhaustion (Maslach and Jackson, 1981). Sample items of the unidimensional scale are: 'I feel emotionally drained by my job' and "I feel exhausted at the end of the working day".

than 0.50. Confirmatory Factor Analysis (CFA) was conducted to determine the construct validity of the scales. The goodness of fit values obtained with CFA are given in Table 1.

**Table 1. Confirmatory Factor Analysis Results**

|                                 | $\chi^2/df$<br><5 | AGFI >0.85 | GFI<br>>0.85 | CFI<br>>0.90 | NFI<br>>0.90 | SRMR<br><0.08 | RMSEA<br><0.08 |
|---------------------------------|-------------------|------------|--------------|--------------|--------------|---------------|----------------|
| Perceived Gender Discrimination | 3.124             | 0.908      | 0.912        | 0.921        | 0.918        | 0.078         | 0.078          |
| Employee Silence                | 2.756             | 0.944      | 0.942        | 0.955        | 0.941        | 0.064         | 0.068          |
| Emotional Exhaustion            | 3.658             | 0.902      | 0.910        | 0.907        | 0.901        | 0.079         | 0.078          |

## Data Analysis and Tests

The philosophical basis of this study is based on the post-positivist paradigm. Post-positivism is a scientific paradigm that approaches reality with an objective enquiry, taking into account the possible influence of the researcher's biases (Panhwar, et al., 2017).

As can be seen in Table 1, the CFA analysis revealed that the scales had good goodness of fit values (Hinkin, 1998). In order to further test the convergent and discriminant validity, the steps suggested by Netemeyer et al. (1990) were followed (Netemeyer, et al., 1990).

**Table 2. Convergent and Discriminant Validity Analysis Results**

|                                                | Mean | SD    | AVE   | CR    | 1              | 2              | 3              | 4              | 5              |
|------------------------------------------------|------|-------|-------|-------|----------------|----------------|----------------|----------------|----------------|
| 1. Perceived Gender Discrimination             | 3.39 | 1.869 | 0.644 | 0.921 | <b>(0.802)</b> |                |                |                |                |
| 2. Defensive Silence                           | 4.02 | 0.894 | 0.508 | 0.802 | 0.423***       | <b>(0.713)</b> |                |                |                |
| 3. Silence for the Benefit of the Organisation | 3.02 | 1.018 | 0.516 | 0.804 | -0.216*        | -0.148*        | <b>(0.718)</b> |                |                |
| 4. Accepting Silence                           | 4.21 | 1.441 | 0.501 | 0.798 | 0.186*         | 0.246**        | -0.185*        | <b>(0.708)</b> |                |
| 5. Emotional Exhaustion                        | 3.78 | 1.114 | 0.541 | 0.816 | 0.465***       | 0.581***       | 0.281**        | 0.335***       | <b>(0.717)</b> |

SD = Standard Deviation; \*p<0.05; \*\*p<0.01; \*\*\*p<0.001; Values in Brackets =  $\sqrt{AVE}$

In this context, quantitative research method was used to test the assumptions formed in the theoretical part of the study. In the analysis of the data, SPSS v24 package programme was used to determine pre-tests, descriptive statistics and relationships between variables, and IBM AMOS v24 package programme was used for CFA analyses.

## Results

### Findings and Discussion

Firstly, the construct validity and reliability of the scales were tested. In this direction, confirmatory factor analysis was performed. As a result of the factor analysis, it was determined that the factor loadings of the statements in the scale were higher

Accordingly, the square root of the variance produced by the variables (AVE) should exceed the correlation coefficient between the variables. In addition, variance and factor values (AVE) and composite reliability (CR) coefficients were calculated for concurrent validity and tested whether they were within the accepted values (AVE = 0.50; Factor load = 0.50; CR = 0.70).

Finally, for concurrent validity, the square root of the variance values should exceed the correlation coefficients (Fornell and Larcker, 1981: 39). These results are presented in Table 2.

When the findings were analyzed together, it was determined that the study met the criteria of convergent and discriminant validity. In addition,

it was concluded that it has a sufficient level of reliability.

Since it was determined that the data provided sufficient reliability and validity, hypothesis tests were started. Hierarchical regression analysis was performed to reveal the multiple relationships between the dependent (perceived gender discrimination), independent (emotional exhaustion) and moderator (employee silence) variables. The results of the multiple regression analysis conducted with SPSS v26 package programme are presented in Table 3.

**Table 3. Hierarchical Regression Analysis**

| Variables <sup>a</sup>                                                        | Step 1  |      | Step 2  |      | Step 3  |      |
|-------------------------------------------------------------------------------|---------|------|---------|------|---------|------|
|                                                                               | $\beta$ | S.h. | $\beta$ | S.h. | $\beta$ | S.h. |
| Fixed                                                                         | 3.285   | .185 | 3.721   | .191 | 3.956   | .196 |
| Perceived Gender Discrimination                                               | .385*** | .067 | .281*** | .067 | .223*** | .066 |
| Defensive Silence                                                             |         |      | .204**  | .074 | .196**  | .074 |
| Silence for the Benefit of the Organisation                                   |         |      | .096*   | .096 | .091*   | .097 |
| Accepting Silence                                                             |         |      | .165**  | .077 | .158**  | .077 |
| Defensive Silence X Perceived Gender Discrimination                           |         |      |         |      | .181**  | .058 |
| Silence for the Benefit of the Organisation X Perceived Gender Discrimination |         |      |         |      | .041    | .072 |
| Accepting Silence X Perceived Gender Discrimination                           |         |      |         |      | .046    | .074 |
| R <sup>2</sup>                                                                | 18.6    |      | 21.3    |      | 15.8    |      |
| $\Delta R^2$                                                                  | 17.8    |      | 20.9    |      | 15.6    |      |
| F                                                                             | 22.853  |      | 19.186  |      | 24.645  |      |

<sup>a</sup>Dependent Variable = Emotional Exhaustion; N = 397; \*p<0.05; \*\*p<0.01; \*\*\*p<0.001

In the first step of the hierarchical regression analysis, the effect of the independent variable (perceived gender discrimination) on the dependent variable (emotional exhaustion) was examined. The percentage of explanation of this significant model is  $R^2 = 17.8$  and the F value is 22.853. In the second step, defensive silence, silence for the benefit of the organization and accepting silence variables, which are the dimensions of the moderator variable, were added to the model. The percentage of explanation of this significant model is  $R^2 = 20.9$  and the F value is 19.186. In the third step, interaction terms were added to the model. The percentage of explanation of this significant model is  $R^2 = 15.6$  and F value is 24.645.

According to the results of regression analysis, perceived gender discrimination ( $\beta = 0.223$ ;  $p < 0.001$ ), defensive silence ( $\beta = 0.196$ ;  $p < 0.01$ ), silence for the benefit of the organization ( $\beta = 0.091$ ;  $p < 0.05$ ) and accepting silence ( $\beta = 0.158$ ;  $p < 0.01$ ) have a positive and significant effect on emotional

exhaustion. Based on these findings, "**H<sub>1</sub>**: Perceived gender discrimination has an effect on emotional exhaustion" **supported**. "**H<sub>2</sub>**: Employee silence has an impact on emotional exhaustion" **supported**. **H<sub>2a</sub>**: Defensive silence has an effect on emotional exhaustion, , **H<sub>2b</sub>**: Silence for the benefit of the organization has an effect on emotional exhaustion, and **H<sub>2c</sub>**: Accepting silence has an effect on emotional exhaustion' hypotheses were **supported**.

When the interaction terms created to reveal the moderating effect analysis were examined, it was found that the interaction term 'Defensive Silence X Perceived Gender Discrimination' ( $\beta = 0.181$ ;  $p < 0.01$ ) had a positive and significant effect on emotional exhaustion. In addition, it was observed that the interaction terms 'Silence for the Benefit of the Organization X Perceived Gender Discrimination' and 'Accepting Silence X Perceived Gender Discrimination' did not have a significant effect. In the light of these findings, the hypothesis "**H<sub>3</sub>**: Organizational silence has a moderating role in the relationship between perceived gender discrimination and emotional exhaustion" **partially supported**. '**H<sub>3a</sub>**: Defensive silence has a moderating role in the relationship between perceived gender discrimination and emotional exhaustion' was **supported**. However, '**H<sub>3b</sub>**: Silence for the benefit of the organization has a moderating role in the relationship between perceived gender discrimination and emotional exhaustion' and '**H<sub>3c</sub>**: Accepting silence has a moderating role in the relationship be-

tween perceived gender discrimination and emotional exhaustion' hypotheses were *rejected*. The regression curve slop matrix drawn to show the significance of the moderating effect of defensive silence is as shown in Figure 2.

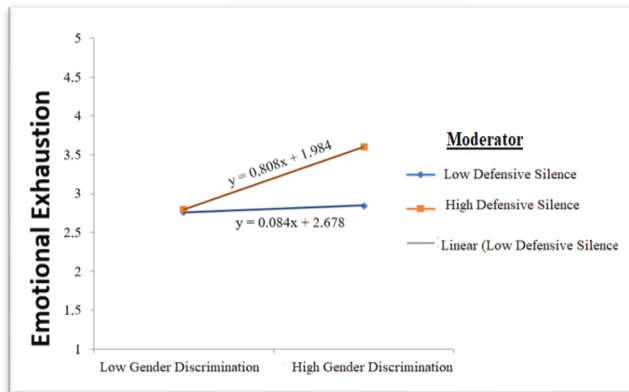


Figure 2. Moderator Impact Analysis Slop Matrix

As seen in Figure 2, the fact that the two lines are not parallel to each other shows that the moderating effect is significant (Aiken, 1991). According to this finding of the study, it is concluded that perceived gender discrimination, combined with defensive silence, leads to intense emotional exhaustion in individuals.

## Discussion and Conclusion

In today's world, women are still struggling to prove their existence in every field. Although women's first steps in business life were for economic reasons, in today's world, in addition to economic freedom, they work to prove themselves as individuals and to live freely in the modern world. Although all kinds of governmental organizations, legal entities and NGOs responsible for the governance of the modern world are working on women's participation in employment, they do not hesitate to build glass ceilings with education, marital status, legal regulations, procedures and unwritten rules when it comes to senior positions (Bozkaya, 2013; Corsun & Costen, 2001; Sposito, 2013; Amudha, et al., 2016; Jackson, 2001).

Although they do the same job and take on more responsibility for family life than their peers, the gender discrimination they face has physiological, economic, organizational and psychological consequences. In this study, a unique model was created at the center of gender discrimination in

the workplace and it was aimed to investigate its psychological effects on women. The hypotheses formed for this purpose, the analyses made and the model established are "Does perceived gender discrimination have an effect on emotional exhaustion?", "Does defensive silence have an effect on emotional exhaustion?", "Does silence for the benefit of the organization have an effect on emotional exhaustion?", "Does accepting silence have an effect on emotional exhaustion?", "Does defensive silence have a moderating role in the relationship between perceived gender discrimination and emotional exhaustion?", "Does silence for the benefit of the organization have a moderating role in the relationship between perceived gender discrimination and emotional exhaustion?" and "Does acquiescent silence have a moderating role in the relationship between perceived gender discrimination and emotional exhaustion?". In the studies conducted in the literature, there is no study in which three elements are examined together. In this context, it will set an example for future studies.

Perceived gender discrimination was found to have an effect on emotional exhaustion. Accordingly, it is seen that the gender-based approach in the workplace starts during the recruitment process (Chang & Milkman, 2020), male employees are positively discriminated against (Onay, 2009) and negative situations such as not being able to work in top positions due to their gender cause emotional exhaustion in female employees (De Villiers, 2001; Lee, et al., 2021; Wang, et al., 2020). In addition, gender discrimination in the workplace is a factor that increases stress, depression and burnout (Hennein, et al., 2021). In this context, the research data support the studies in the literature.

It has been determined that defensive, accepting and organizational benefit silence, which are components of employee silence, have an effect on emotional exhaustion. In a study conducted by Çitli (2015) with the participation of teachers working in Istanbul, it was found that defensive silence, accepting silence and silence for the benefit of the organization had an effect on emotional exhaustion (Çitli, 2015). Based on the existing information

and literature review, it can be said that the silencing of female employees in the workplace causes emotional exhaustion.

In the moderator analyses, it is another finding that defensive silence in female employees has a moderating role in the relationship between perceived gender discrimination and emotional exhaustion. It was thought and tested that the reaction of female employees who thought that they were subjected to gender discrimination by keeping silent would affect their emotional exhaustion.

Family, cultural structure, social factors, society's sexist perspective, social values and beliefs, which are the source of the role assigned to women, push them to behave in accordance with the role expected of them (Terzioğlu & Taşkın, 2008; Kocabacak, 2014). As a result, perceived gender discrimination increases emotional exhaustion because it pushes women to defensive silence. However, the hypothesis that silence for the benefit of the organization has a moderating role in the relationship between perceived gender discrimination and emotional exhaustion was not supported. In addition, it was found that accepting silence did not have a moderating role in the relationship between perceived gender discrimination and emotional exhaustion.

When the results of the research were evaluated, some suggestions were made. According to this:

- Although women and men do the same work in the same work groups, they are paid differently and male personnel are preferred when it comes to senior positions. The most important reason for this is that women cannot see the value they deserve in a world dominated by male hegemony. It is considered that the struggle for equal rights should be waged in unity and solidarity. In this context, it is recommended that women take an active role in NGOs such as trade unions.
- Women should train and work to be present in every sector. They must show their presence in all professions that have been considered men's work for centuries, prove their success and demonstrate to society that no work can be dependent on a person

or gender.

- It is known that women have a higher level of awareness than men in terms of detail mastery, fine workmanship, and the ability to follow several tasks at the same time. For centuries, women have been condemned to live in a world limited to "house, field and garden work" because of this feature bestowed upon them at birth. It is recommended that businesses should make preferences based on personal skills, education and experience rather than gender in their recruitment processes, and that they should not ignore women, especially in coordination positions, due to their natural abilities.
- States need a young population to survive. Women are the ones who can fulfill this task. However, due to the difficult economic conditions of today's world, women who have to work have to cope with heavy housework, the responsibility for children and the difficult conditions of working life. Is it not second-class treatment of women when they are not paid the wages they deserve, when they are burdened with all the responsibility for housework and childcare, and yet they are not considered suitable for senior positions in the workplace simply because they are women? However, young population is needed for the continuation of states and women should give birth to children for the continuation of the new generation. While the fertility rate in European Union countries in 2022 was 1.46, in Turkey this rate was 1.63 in 2022 and decreased to 1.51 by 2023 (TUIK, 2024). The decline in the birth rate jeopardizes the sustainability of countries' social security systems (Toker & Şahin, 2024). Women's labor force participation rate is also quite low. In 2021, the female employment rate, which was 54% even in OECD countries where the world average was the highest, was realized as 32.8% in Turkey. However, despite this, the birth rate continues to decline. Considering the economic conditions, it is considered essential and urgent to make some legal arrangements to facilitate the births of women

who have to work.

This study has some limitations. Conducting the research in Ankara and among service sector employees is considered as a limitation. Although it is anticipated that similar results will be obtained when applied to female employees in different sectors in relatively smaller cities, it is thought to be more inclusive. In addition, since the measurement of perceived gender discrimination, organizational silence elements and emotional exhaustion variables is based on subjective judgments, it can be considered as a limitation that the participants may have responded according to their current mood. In addition, it is recommended as a suggestion for future studies that holistic inclusive research should be conducted on the subject.

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RESEARCH ARTICLE

# Movie Trailers as a Marketing Communication Tool

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## Abstract

Marketing communication activities are generally used to reach consumers and convince them to purchase a product. These activities vary and diversify depending on the type of product. Trailers are one of the important marketing communication activities prepared for movies in the movie industry. In this study, the trailers of the five most-watched movies in Turkey over the past 10 years were analysed to examine how Aristotle's rhetorical elements of ethos, pathos, and logos are applied in movie marketing. Using a scene-based coding method, each trailer was divided into specific sections, and the persuasive techniques applied to each scene were systematically evaluated. Ethos was constructed using cultural representation, biographical reality, and the use of social figures; pathos was constructed using music, humour, universal emotions, and visual narration; and logos was constructed using a consistent plot and clear cause-and-effect relationships. The sample was limited to Turkey in order to enable a consistent analysis of local rhetoric and marketing practices. The findings show that emotional, cultural and logical elements are intertwined in box office successful movie trailers and marketing communication strategies are designed in this direction.

**Keywords:** Marketing communication, Trailer, Ethos, Pathos, Logos, Movie marketing

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## Öz

Pazarlama iletişimi faaliyetleri genellikle tüketicilere ulaşmak ve onları ürünü satın almaya ikna etme sürecine hizmet etmek için kullanılmaktadır. Bu faaliyetler, ürünlerin türüne göre değişmekte ve çeşitlenmektedir. Fragmanlar, film endüstrisinde filmler için hazırlanan önemli pazarlama iletişimi araçlarından birisidir. Bu çalışmada, Türkiye’de son 10 yılın en çok izlenen beş filminin fragmanları incelenerek Aristoteles’in retorik unsurları olan ethos, pathos ve logos’un sinema pazarlamasında nasıl uygulandığı analiz edilmiştir. Sahne bazlı kodlama yöntemi kullanılarak her fragman belirli bölümlere ayrılmış ve her sahneye uygulanan ikna edici teknikler sistematik olarak değerlendirilmiştir. Ethos, kültürel temsil, biyografik gerçeklik ve toplumsal figürlerin kullanımıyla; pathos, müzik, mizah, evrensel duygular ve görsel anlatımla; logos ise tutarlı olay örgüsü ve açık neden-sonuç ilişkileriyle inşa edilmiştir. Örneklem, yerel retorik ve pazarlama uygulamalarının tutarlı şekilde analiz edilebilmesi amacıyla Türkiye ile sınırlandırılmıştır. Bulgular, gişede başarılı olmuş film fragmanlarında duygusal, kültürel ve mantıksal öğelerin iç içe geçtiği ve pazarlama iletişimi stratejilerinin bu yönde kurgulandığını göstermektedir.

**Anahtar Kelimeler:** Pazarlama iletişimi, Fragman, Ethos, Pathos, Logos, Sinema pazarlaması

## Introduction

Cinema is influenced by the sociological, economic, and technological changes of the period in which it exists and can also lead to changes in society. Cinema can be used as a tool for disseminating political views, developing fashion trends, and influencing consumer purchasing decisions, or it can be the last word on a complex issue that has been lost in the depths of history. Ultimately, cinema can only serve its purpose if it has customers. A cinema is a product sold at a price determined in a market where there are producers and consumers who want to buy it. Cinema is not only a product of a critical field that is dealt with in a technical sense within its own set of values, but it is also an economic issue at the center of the global economy, as it is a marketable product.

There is serious labor involved in the success of cinema reaching the silver screen. The economic reward of the product depends on the consumer being aware of the product and buying it. The recent Covid-19 pandemic has also impacted the movie industry. As of today, the global movie industry has not yet reached pre-pandemic figures (Gower Street Analytics, 2025). Despite the development of treatment methods and vaccines, the industry's recovery has been delayed (Richter, 2024). In addition, the rise of digital platforms for watching movies and the resulting change in consumption habits also contributed to this decline (Hayır, 2023; Türk et al., 2023; Torun, 2021). At this point, marketing activities aimed at attracting audiences who do not want to give up the cinema experience to the theatres have become increasingly important. It's not enough to simply have a good product or service; this value must be effectively conveyed to the target audience. This is where marketing communications comes into play and impacts marketing success. One of the most important marketing activities in cinema is trailers. Trailers are one of the important elements of marketing communication strategies in movie marketing (Öcal & Nasır, 2023, p.261). This research explores how movie trailers influence viewers' decisions to watch movies films, using Aristotle's Rhetorical Theory as a framework. It focuses on trailers for box office hits and examines their persuasive power through emotional appeal, credibility, and

logical messaging—core rhetorical strategies also common in marketing. Given the lack of prior studies analyzing such trailers from a rhetorical standpoint, the research is considered original. Its findings are expected to contribute both academically and practically to marketing communication.

## Movies in the Context of Marketing Communication

Since marketing activity is related to all activities involving the exchange of value, it can be applied to motion pictures in this context. Marketing activities for motion pictures begin with the pre-production stage and continue through the movie's release. Even after the movie is released, marketing comes to the agenda in terms of products for the movie or the re-release of the movie in other channels after its release. In parallel with marketing management processes in other sectors, motion picture marketing starts at the new product development stage. It continues through the formation of project ideas, production, distribution, and release. At key stages of the product life cycle, various actors are involved in a multitude of marketing activities, ranging from marketing an idea or script to a production company to the final marketing of the movie in cinemas and other channels (Kerri-gan, 2010, p.10).

Motion pictures differ from many other products in that they are typically purchased without trial and are usually watched only once. This difference highlights the importance of marketing in the consumer's decision-making process (Çetin Erus, 2010, p.129). Given this importance, the process needs to be strategically planned. Studies have shown that marketing plays a significant role in the success of motion pictures (Simonoff & Sparrow, 2000; Lubbers & Adams, 2001; Karniouchina, 2011; Cabral & Natividad, 2016; Lash & Zhao, 2016).

In their work on marketing activities in cinema, Hennig-Thurau et al. discussed some of their observations on increasing the effectiveness of marketing for movie producers within the framework of the model they developed. Some of these include leveraging the power of stars, implementing marketing practices targeted at specific markets, and influencing certain groups such as members of

the Academy of Motion Picture Arts and Sciences (2001, p.16).

Apart from these, new situations have arisen that affect marketing activities. For example, movie critics whose references influence their decision to see a movie. Movie critics guide moviegoers by rating movies from various angles (King, 2007, p.173).

In changing market conditions, effective marketing strategies are essential for movies to connect with audiences. Marketing communication efforts—such as trailers, media ads, websites, social media content, posters, reviews, and influencer campaigns—play a critical role in making movies more accessible and appealing to consumers. While traditional methods offer wide visibility, they often lack depth and engagement. Today, digital approaches provide advantages like direct interaction and curiosity-driven communication through online communities (Xue, 2024, p.3). It should be noted that marketing communication, especially in collaboration with digital marketing, contributes to the promotion of movies. Digital marketing refers to applications that aim to support marketing processes conducted in a manner different from traditional methods through the internet, mobile and interactive platforms. Digital media channels, unlike traditional media, enable direct, targeted, and measurable communication with customers in digital marketing by developing their own tools (Sayın, 2024, p. 28). Social media channels, in particular, enable the widespread promotion of movies from different angles. The viewership rates of YouTube channels that review movies are noteworthy. These video broadcasts contain a high proportion of promotional information (Şahin, 2025, p.217). These broadcasters, who provide critiques on their channels, also include trailer analyses. Their followers may decide to go to the movie after watching the broadcasts.

### **An important tool in marketing communication Trailers**

Trailers are a crucial marketing tool used in the cinema industry to influence audiences and encourage them to purchase tickets and attend the cinema within a limited timeframe. Trailers are short and

direct cinematic texts that serve as both an attraction and a persuasive tool for audiences. They allow audiences to perceive movie narratives created for promotional purposes more expressively and emotionally. Trailers can be defined as promotional tools that aim to attract an audience for a future movie (Kernan, 2004, p. 2). Trailers are so important in the movie industry that studios can spend an average of \$200,000 to produce a two-and-a-half-minute trailer (Forbes, 2025).

The first trailers began to be used in 1912, and their popularity increased in the United States in 1919 when the National Screen Service established a special department for the production and distribution of trailers. Initially focusing on the narratives, stars, and technology of movies, trailers became a staple of public relations campaigns in the 1950s with the rise of the science fiction genre. In the 1920s, an effects-centered promotional language, supported by animation, graphics, and titles, came to the fore; trailers aimed to provide small clues about the movie's content rather than its genre or actors (Kılınçarslan, 2015, pp.34-45).

Trailers and television commercials are among effective marketing communication tools in the movie industry. Trailers of varying lengths aim to reach a large audience through social media and digital platforms. Trailers arouse audience interest by emphasizing the movie's basic structure and impressive aspects; typically, trailers of a similar genre to the movie being screened are preferred to guide audience expectations (Landry & Greenwald, 2018, p.228). Today, the average duration of trailers ranges from 2.5 to 3 minutes (Wasko, 2007, pp.197-198). Shorter teasers, on the other hand, are released weeks or sometimes months (Septak, 2008, p.2) before the movie's release and usually do not include actual scene footage, as they are still in production. Trailers are more important than ever for successful movie promotion and are considered one of effective, widespread ways to market a new movie. A 2002 survey conducted by Variety and Moviefone found that trailers are significant factor influencing moviegoers' movie choices, followed by other media such as television, newspapers, and the Internet (Wasko, 2007, pp.197-198). Furthermore, studies on trailers reveal that digital

content (especially YouTube comments) is an effective source of data in terms of both purchase intent and revenue estimation, and can guide data-driven marketing strategies specifically for the movie industry (Ahmad et al., 2020, p.13). Trailers not only offer a preliminary impression of the movie's content but also, as trans-textual structures, acquire a meta-textual identity in line with marketing strategies. The rhetoric of trailers has been shaped within the ideological and cultural framework of the classical Hollywood narrative, emerging as a hybrid genre that combines narrative and promotional elements (Kılınçarslan, 2015, p. 33).

With their colorful, animated, and engaging elements, trailers play a crucial role in persuading audiences to buy tickets to the movie. To understand the role of trailers, it would be beneficial to analyze them through rhetorical theory.

### Aristotle's Rhetorical Theory

Rhetoric is defined as the art of expressing thoughts effectively and creating discourses with high persuasive power. It is based on the use of language impressively and remarkably to establish justice, political benefit, or similar purposes, essentially with the aim of persuasion (Cevizci, 2005, p.731). Rhetoric is, in a sense, the art of effective communication. Aristotle emphasized this subject and ensured its development. Aristotle, who laid the foundations of rhetorical theory, called this concept "rhetoric" (Baba, 2018, p. 204). He defined rhetoric as an art based on the use of persuasion in a particular situation. While other arts and sciences provide information only in their specific fields — medicine deals with health, geometry with forms, and arithmetic with numbers — rhetoric demonstrates persuasive power in almost every subject. For this reason, rhetoric is considered a universal technique directed at persuasion, rather than a specific area of specialization (Aristoteles, 1995, p.37).

Aristotle identifies three fundamental components that comprise the persuasion process. These components are ethos, logos, and pathos (Çodur, 2018, p. 553). Logos corresponds to reason, pathos to emotion, and ethos to the appeal to the character and reliability of the speaker. Although these elements can be analyzed separately, they need to

function together and in a holistic manner for an effective persuasion process. Aristotle characterizes these three elements as essential proofs used through the art of rhetoric (Sönmez, 2008, p.106).

**Table 1. Elements of Rhetorical Appeal**

| Application Type                                                  | Examples of Persuasive Techniques                                                                                                                                                                     |
|-------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ETHOS: credibility</b><br>(perceived character of the speaker) | Similarity<br>Gaining likes<br>Respect<br>Specialization<br>Self-criticism<br>Propensity for success<br>Consistency                                                                                   |
| <b>PATHOS: emotion</b>                                            | Metaphors<br>Identification with cultural references, especially through<br>- Sport<br>- Disadvantageousness<br>- Health and well-being<br>- Hope, desires<br>- Loyalty<br>- Friendship<br>- Sympathy |
| <b>LOGOS: intellect</b><br>(logical outlook)                      | Discussion/argumentation<br>Logic<br>Justifications / legitimizations<br>Allegations<br>Data<br>Evidence / examples                                                                                   |

**Source:** (Higgins and Walker, 2012, p.198)

Until recently, when examining the relationship between marketing and rhetorical discourse, it was apparent that some academics avoided this topic. The main reason for this is the possibility that the fact that marketing is more than just persuasion aimed at sales may be overlooked. However, rhetoric is not merely the art of persuasive speech; like marketing strategies, it is a planned and conscious organisational process developed to guide the target audience towards a specific thought or behaviour. Rhetorical strategy considers factors such as the listener's level of knowledge, emotional state, thinking habits, and hopes while seeking ways to persuade them towards an idea or action. In this context, it is audience-focused, much like a customer-centric marketing approach. At the same time, rhetoric is not just about giving the audience what they want; it is about developing an effective form of communication to understand them and guide them from one position to another. In this respect, it overlaps with marketing strategies (Miles & Nilsson, 2018, p.1264). Today, marketing

researchers are publishing works that demonstrate the potential of rhetoric to contribute to many aspects of marketing theory and practice (Brown et al. 2018).

## Method

Aristotle's Theory of Rhetoric was chosen for this study because it offers a holistic approach to many areas of marketing. Marketing communication aims to establish an emotional bond with consumers and build trust through logical discourse. If these are realized, the consumer will be more easily convinced to buy and use the product/service. The success of this mission of marketing communication in practice can be seen relatively in sales figures. In this context, the research focuses on examining the trailers of movies that have achieved box office success, which is one of the important promotional activities. The role of movie trailers, which can persuade a high number of consumers and attract them to theaters, in this success is tried to be understood. Previous studies have focused more on the connection between interaction with trailers (number of views and comments) and box office success, the level of appreciation of the trailer on the audience, or the adaptation of trailers to the target audience. Although limited, studies have been conducted focusing on analyzing the effects of trailers on box office performance. (Yoo et al., 2024, p. 100). The scarcity of studies examining the persuasive aspects of movie trailers offers an important research opportunity in this field. In this context, it is thought that analyzing movie trailers that are successful at the box office will make an original contribution to the field.

In this study, Aristotle's Theory of Rhetoric was adopted as the theoretical basis for understanding the persuasive strategies of marketing communication. In particular, the concepts of ethos (trust), pathos (emotion) and logos (logic) offer an important opportunity for analysis in the context of marketing, as they represent a triad that can be effective in communication with consumers. Within this framework, the study aims to analyse the trailers of movies that have achieved box office success in

Turkey and reveal the rhetorical elements underlying the power of these trailers to attract consumers to cinemas.

Methodologically, a scene-based coding approach was adopted; each trailer was watched individually, divided into scenes, and the visual, auditory, and narrative elements in each scene were coded in detail. During this coding process, a systematic evaluation was made according to the criteria of ethos, pathos, and logos, and the analysis process was made objective and repeatable by removing subjective interpretations. Published articles following similar process stages exist (Ekinci, 2019; Bahçecioğlu, 2020; Doru and Özmen, 2022). When previous studies are examined, it is observed that rhetorical analyses are generally conducted based on sampling from text or visuals; however, in this study, scene-based systematic coding provides an objective and repeatable analytical framework. Furthermore, aspects not covered in the existing literature, such as the integration of local cultural codes and social memory with rhetorical elements, constitute the innovative aspect of the study. In addition, no previous study has examined the fragments in the context of rhetorical theory. This also contributes to the originality of the study.

## Population and sample of the study

In the study, the purposive sampling method, which is a sampling method that consists of sampling units that the researcher thinks are appropriate for the research question based on personal observations, was adopted (Gürbüz & Şahin, 2018, p. 131). Various limits and assumptions of the research were effective in choosing the purposive sampling technique. As a sample, a certain number of trailers were subject to analysis due to the high number of movies shot in recent years and time and cost constraints. For this reason, the trailers of the top 5 movies with the highest number of viewers in Turkey in the last 10 years were selected. The movies were taken from the official website of Box Office Turkey. In order to evaluate the visual, cultural, and linguistic symbols more effectively in the trailer analysis, the movies listed in the country where the researcher lives were preferred. In

movie selection, the selection was based on the number of viewers instead of revenue. In this way, it was aimed to prevent different price policies applied in movie theaters from affecting the sample. Assuming that the audience probably came across the trailers of the movies on various channels and came to watch them, the trailers of the movies that reached the most audience were preferred.

*Figure 1. Sample list obtained from Box Office Turkey*

|   | Movie title                                                                                                                             | Distributor         | Release Week | Total audience |
|---|-----------------------------------------------------------------------------------------------------------------------------------------|---------------------|--------------|----------------|
| 1 | <br><b>Recep İvedik 5</b><br>16 February 2017          | CGV Mars D.         | 25           | 7.437.050      |
| 2 | <br><b>Muslum</b><br>26 October 2018                  | CGV Mars D.         | 39           | 6.480.563      |
| 3 | <br><b>Dugun Dernek 2: Sunnet</b><br>4 December 2015 | CGV Mars D.         | 21           | 6.073.364      |
| 4 | <br><b>Ayla</b> 27 October 2017                      | Warner Bros. Turkey | 46           | 5.584.872      |
| 5 | <br><b>Bergen</b> 4 March 2022                       | CJENM               | 28           | 5.484.798      |

Source: Box Office Turkey, <https://boxofficeturkiye.com/tum-zamanlar/seyirci-rekorlari/tum-filmler> Access:14.02.2025

The first official trailers of the movies published on YouTube were included in the analysis. The sample list created in this context is as follows. The list created shows the name of the released movie, the

official distributor of the movie, the number of weeks it was released, and the total number of viewers.

## Findings

### 1. Recep İvedik 5 Movie Trailer Review

When the trailer of the movie Recep İvedik 5 is analyzed in terms of marketing communication elements of ethos (credibility), Pathos (emotional appeal), and Logos (logical reasoning), the following findings are reached.

#### Ethos

Aristotle defines ethos, one of the three basic elements of rhetoric, as the creation of credibility through the character traits of the speaker. According to him, the speaker or narrator should create the impression of "virtue, prudence, and goodwill" in the audience (Aristoteles, 1995, pp. 135-136). While Aristotle's concept of ethos emphasizes credibility through virtue, prudence, and goodwill, the character of Recep İvedik builds credibility in a non-traditional way—through irony, cultural representation, and social belonging. Although he doesn't embody classical rhetorical traits, his familiarity and alignment with socio-cultural norms make him persuasive to audiences. His credibility stems from being perceived as a relatable, neighborhood figure, reflecting a "popular ethos" shaped by repeated, socially accepted behaviors over time.



*Sample Visual 1: Recep looks at the camera with friendly and familiar facial expressions while greeting.*

At this point, the concept of "popular ethos" comes into play: The repeated and adopted behavior patterns of a figure at the social level turn into a source of his credibility over time.

Burke (1969) defines identification as the core of rhetoric, emphasizing that people connect with figures they perceive as similar to themselves. In this context, Recep İvedik's crude yet direct language is seen by audiences as a "discourse of truth." His unconventional reactions to injustice position him as a figure of "social conscience," creating rhetorical credibility beyond Aristotle's classical ethos of virtue, prudence, and goodwill. His physical appearance, gestures, and expressions evoke a sense of "someone like me," grounding his credibility in representation rather than ethical ideals. Perelman and Olbrechts-Tyteca (1969) argue that ethos stems not only from the speaker's character but also from the emotional and cultural bonds formed with the audience. Recep İvedik's persuasive power lies in the class and sentiments he embodies. Some studies in Turkey interpret him as a critique of individual-society-power dynamics, portraying "provincial resistance against urban elitism", while Ünlü (2018) suggests his popularity stems from symbolizing social class conflicts.

In the Recep İvedik trailer, the ethos is constructed through both the character's past performance in the series and the feeling of "familiarity" and "belonging" in the audience. This can be explained by the cultural ethos framework of modern media rhetoric rather than Aristotle's definition of the virtuous figure. On the other hand, the ethos created by the Recep İvedik character in the trailer becomes not only a cultural representation but also a fundamental element that convinces the audience in the marketing process of the movie.

## Pathos

According to Aristotle, pathos is to influence the state of mind of the audience, to put them in a certain emotional state, and to persuade them in this way (Aristoteles, 1995, pp. 95-96). In the Recep İvedik trailers, this strategy is effectively applied through emotions such as humor, anger, belonging, and nostalgia.

Aristotle defines anger as the desire for revenge that comes with the feeling of being wronged (Rhetoric, p. 97). In the Recep İvedik trailers, the character's angry reaction to injustice triggers sim-

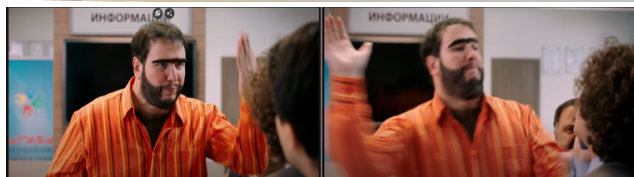
ilar social anger reflexes in the audience. This reaction is reinforced by Burke's identification theory: "Identification and identification are at the heart of rhetoric. People identify with figures they see as similar to themselves" (Burke, 1969, p. 55).

Recep İvedik's ironic reactions to the system reinforce emotional identification as an interpreter of the audience's social anger. Humor is one of the most prominent pathos elements of the fragment. Although Aristotle does not directly discuss humor in Poetics, he describes the concept of catharsis (emotional purification) (Poetics, 1995, p. 45). According to Freud, humour enables individuals to express their repressed emotions in a safe manner (Freud, 1960, p. 162).

Recep İvedik's absurd humor allows the audience to release their emotions under social pressure. This is compounded by the fact that audiovisual elements reinforce the emotional impact, as Eyman (2015) points out in the context of digital rhetoric: Digital rhetoric creates a multi-layered emotional space through the combination of text, visuals, and sound (Eyman, 2015, p. 72). The intense sound effects, body language, and gestures used in the trailer further deepen this emotional space.

In *The Economics of Attention*, Lanham (2006) argues that in modern communication, attracting and sustaining attention is the main persuasive element: Since attention is the scarcest commodity in the abundance of information, the most valuable thing in communication is to manage the economics of attention (Lanham, 2006, p. 35).

The Recep İvedik trailer keeps the viewer's attention through humor, aggressive language, and visual clutter. This strategy blends Aristotle's teaching of pathos with modern attention management. It reinforces a sense of socio-cultural belonging through the use of local dialects, traditional values, and motifs of everyday life. This combines Burke's theory of identification with Aristotle's idea of the manipulation of emotions through cultural codes: It is essential in rhetoric to appeal to the emotions and beliefs of listeners, to direct them according to their current mood (Aristoteles, Rhetoric, p. 137).



*Sample Visual 2: Recep shouts angrily and makes a dramatic gesture when he is wronged.*

This scene both expresses the anger of society and provides emotional release with humor. It brings to mind Freud's humor-catharsis connection. The Recep Ivedik trailer blends Aristotle's *Pathos* strategy with modern digital rhetoric, identification theory, and the attention economy to create a multi-layered emotional persuasion mechanism. Emotions such as anger, humor, belonging, and nostalgia are activated simultaneously, allowing the audience to establish a strong emotional bond with the character. Recep Ivedik's neighborhood culture, artisan life, and familial references activate the audience's cultural ties.

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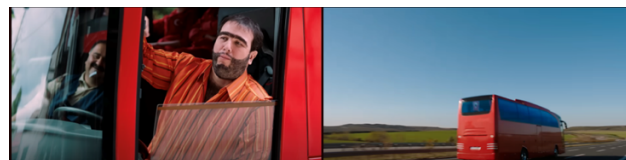
### *Logos*

According to Aristotle, *logos* is a rhetorical strategy for persuading the audience through logical reasoning and argument development (Aristoteles, 1995, p. 138). *Logos* refers to logical consistency and causal connections that increase the credibility of a narrative. In this context, the *logos* element is used in the Recep Ivedik 5 trailer by directly presenting the audience with the idea that the character is embarking on a new adventure. The clear presentation of the plot creates an expectation in the viewer's mind about the route the movie will follow. For example, in the fictional structure of the trailer, it is emphasized that the

character will go on a journey, that he will encounter funny situations, and that these situations will be combined with absurdity from time to time.

This narrative provides the viewer with a clear, logical framework for "what to watch." In the trailer, it is implied that the events that will happen to the character will proceed in a chain of cause and effect. This structure points to the existence of a logical process, as in Aristotle's definition of *logos*. This application of *logos* leads the audience to assume that the movie will have a rational and consistent flow.

In advertising and promotional products, *logos* are used to involve the target audience in a logical decision-making process. (Borchers, 2018). This is also used in the Recep Ivedik 5 trailer to create a purchase decision or a viewing decision in terms of marketing. While the movie promises an entertaining experience, it also informs the audience that it is based on a specific story structure and predictable humor. More importantly, the *logos* element is supported in the trailer through the content and form of the humor. Absurd but familiar situations logically convey to the audience the message, "This movie will make me laugh again." This is a reflection of Aristotle's principle of persuasion through logic.



*Sample Visual 3: After Recep says "I'm going on the road", the camera moves to a wide angle and presents a road scene.*

Such scenes, as in Visual 3, help the audience to expect adventure in the movie. It establishes the logic of the plot in the trailer. The clarity of the plot, the promise of entertainment offered by the trailer, and the *logos* strategy stand out in the Recep Ivedik 5 trailer in terms of presenting the character's adventure to the audience in a logical way. The fictional structure of the trailer provides a rational basis for watching the movie by creating a logical expectation framework in the viewer's mind. This situation enables the trailer to affect the audience in both cognitive and emotional layers and creates a rational justification for purchase/viewing.

The Recep Ivedik 5 trailer establishes an effective persuasion system by blending Aristotle's rhetorical triad with cultural codes. In particular, the sense of belonging through ethos, humorous catharsis through pathos, and predictability through logos allow the audience to connect on both emotional and cognitive levels. This structure makes the trailer not only a promotional tool but also a cultural discourse.

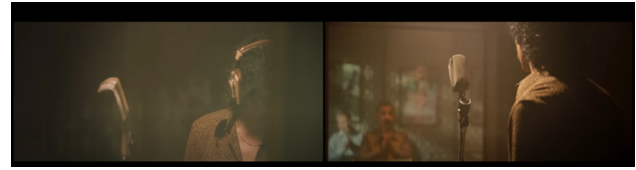
## 2. Müslüm Movie Trailer Review

The trailer of the movie Muslum is analyzed in the context of Aristotle's Rhetorical Theory. The trailer presents a powerful narrative centering on the life and music of Muslum Gurses. When the elements of Ethos (credibility), Pathos (emotional appeal), and Logos (logical reasoning) are analyzed in the context of marketing communication, the following findings are reached.

### Ethos

Aristoteles (1995, pp. 135-136) defines ethos as the speaker or narrator establishing credibility through character. In the trailer for the movie Muslum, Muslum Gurses' status as a cultural icon is the main source of the trailer's ethos. The biographical basis of the production conveys the message to the audience that the narrative is based on a real-life story. This is an important element that supports the credibility of the trailer. The concert footage, the emotional bond established with the audience, and Muslum Gurses' place in the social memory contribute to the strengthening of the ethos. Burke (1969, p. 55) defines identification as the basic dynamic of rhetoric. Muslum Gurses is a figure who expresses the pain of the masses with his voice on stage. In this way, the trailer establishes an emotional and cultural bond with the audience. The audience finds their own story in the figure of Muslum, and this identification increases the credibility of the trailer in terms of marketing communication. The actors in the trailer, such as Timuçin Esen, and the production design faithful to the period create a perception of professionalism and care. As Perelman and Olbrechts-Tyteca (1969) emphasize, ethos is constructed not only by the characteristics

of the character but also by the quality and credibility of the presentation.



*Sample Visual 4: The scene where Muslum interacts with his audience on stage.*

This scene in Visual 4 gives the viewer the perception that this character is real, and emphasizes the reliability of Muslum Gurses as a cultural figure. This trailer presents a structure that strengthens ethos in its marketing strategy. The ethos created in the trailer of Muslum is shaped not only by the biographical reality of the narrative and the cultural heritage of Muslum Gurses but also by the emotional bonding strategies and production quality. Aristotle's notion of credibility combines with marketing rhetoric here; the trailer offers a strong ground for persuasion by creating both trust and empathy in the audience. Thus, cultural representations, identification dynamics, and professional presentation elements allow the trailer to develop an effective ethos strategy in the marketing context.

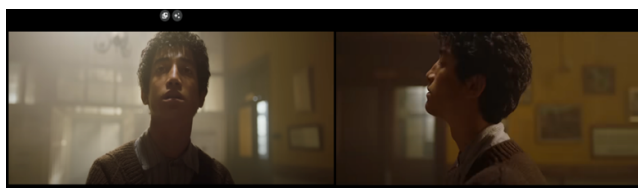
### Pathos

According to Aristotle, pathos is the emotional elements that increase the power of persuasion by affecting the mood of the listener (Aristoteles, 1995, pp. 95-96). The trailer of the movie Muslum creates an emotional atmosphere with universal themes such as pain, hope and love. These emotional themes facilitate the audience's empathy and increase the marketing effectiveness of the trailer.

Burke (1969, p. 55) emphasizes that emotional bonding is fundamental in the process of identification. The fact that Muslum Gurses is a public figure and his painful life story enables the audience to meet on a common emotional ground. Eyman (2015, p. 72) states that audiovisual elements in digital rhetoric increase the emotional impact. Diksoy and Aslan (2022, p. 77) discuss how cultural images are used in posters to increase emotional appeal. Similarly, in the Muslum trailer, the

representation of arabesque music and social suffering increases the emotional resonance of the viewer. The dim lighting, slow-paced music and slow-motion scenes used in the trailer increase the viewer's emotional resonance and make an emotional investment in terms of marketing.

Freud (1960, p.162) states that art is a means of expressing repressed emotions. In the trailer, Muslum Gurses' arabesque music brings the viewer's own repressed pains and anxieties to the surface. This helps the trailer to provide emotional release (catharsis).



*Sample Visual 5: The scene where Muslum is alone in difficult times or has an emotional moment.*

This frame in Visual 5 creates empathy in the viewer and provides the opportunity to establish a pain and emotional connection. It is a powerful moment of pathos for the viewer who feels a part of this story. In the trailer of the movie Muslum, the pathos strategy is built on universal human emotions, creating empathy and emotional resonance in the viewer. The audiovisual techniques, the emotional intensity of the arabesque music and the dramatic structure of the story mobilize the audience's repressed emotions and make them emotionally invested. Thus, by creating an emotionally charged atmosphere, the trailer increases the viewer's mental and emotional involvement in the marketing process; with its catharsis effect, it both provides emotional release and strengthens the potential for bonding.

### Logos

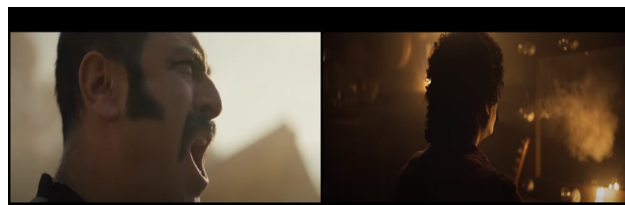
Aristoteles (1995, p. 138) defines logos as the process of persuading the audience through logical arguments and reasoning. In this context, in the trailer of the movie Muslum, logos are constructed through the biographical reality of the narrative and cause-effect relationships. In the trailer, childhood traumas, the process of taking refuge in mu-

sic and becoming the people's favorite, are presented in a logical progression. This structure creates a story linearity and a meaningful development process in the viewer's mind.

Kölgeliler (2022, p. 129) emphasizes that elements of logical persuasion activate the rational decision-making mechanisms of the target audience. In this framework, the trailer provides both emotional and cognitive involvement of the audience by showing that it presents a bibliographic and realism-based life story. In this context, the narration based on real events causes the audience to perceive the movie as a lived experience, not mere fiction. This contributes to the viewing decision becoming not only an emotional involvement but also a rational choice.

The Logos strategy establishes a rational ground in the fragment, supported by an emotional charge. By presenting a life story of suffering as a figure who reconstructs his existence through art, the viewer is presented with the following logical framework: "Adversity is a tool in the personal development of the individual, and art is the healing power of this process." The chain of logic in the trailer for the movie Muslum creates a rational structure that supports the emotional layers and conveys the message to the viewer that this movie will not only make you feel but will also make you think.

Furthermore, Steinberg (2006, pp. 14-15) argues that trailers that appeal to the viewer's cognitive processes reinforce viewing behavior. In this context, the logos in the trailer for Muslims not only tells a life story but also convinces the viewer that the movie offers an authentic and instructive experience. This cognitive persuasion process goes beyond the emotional connection that the viewer establishes with the movie and creates a rational justification for watching.



*Sample Visual 6: The frame showing the transition between before and after the struggle for life process in the movie.*

Visual 6 in the Muslum trailer exemplifies the use of logos by presenting a narrative of ascension and transformation grounded in a logical cause-and-effect structure. This cognitive persuasion strategy frames Muslum Gurses's life story—from childhood trauma to artistic resilience and societal acceptance—as a coherent and authentic progression. By integrating emotional engagement with rational clarity, the trailer enables viewers to perceive the movie not only as a moving experience but also as meaningful and instructive content. The logos appeal thus reinforces decision-making processes and enhances the trailer's effectiveness as a marketing communication tool.

The logos structure of the Muslum movie trailer provides differentiation in terms of marketing. Biographical and realistically based narratives build trust in the audience and increase motivation to watch. In this trailer, the audience is persuaded not only to be entertained but also to witness an in-depth narrative about life. This structure distinguishes the trailer from similar fiction productions and makes it an effective marketing tool on both emotional and cognitive levels. Aristotle's logos combine here with the storytelling techniques of modern cinema marketing and take the trailer beyond being a means of emotional investment.

The Muslum movie trailer constructs a holistic persuasive strategy based on Aristotle's rhetorical appeals—ethos, pathos, and logos—engaging viewers on both emotional and cognitive levels. Ethos is established through Muslum Gurses' status as a cultural icon, supported by biographical accuracy and high production quality, which enhances the trailer's credibility. Pathos forms the emotional core, evoking universal themes such as pain, hope, and love through the affective power of arabesque music and audiovisual techniques, fostering empathetic engagement. Logos is conveyed through a rational narrative structure that traces cause-and-effect relationships from childhood trauma to artistic rise, presenting the movie as both emotionally resonant and intellectually meaningful. By integrating emotional and rational appeals, the trailer encourages viewers to approach the movie with a balanced perspective, en-

hancing its marketing communication effectiveness and positioning it as a cultural narrative in the audience's memory.

### 3. Dugun Dernek 2 Sunnet Movie Trailer Review

The trailer of the movie Dugun Dernek 2 Sunnet is analyzed in the context of Aristotle's Rhetorical Theory with the elements of ethos (credibility), pathos (emotional appeal), and logos (logical reasoning), and these elements are analyzed in the context of marketing communication. The trailer is shaped on the axis of Anatolian culture, traditional rituals, and provincial humor, and carries out the processes of social belonging, emotional interaction, and rational persuasion together.

#### Ethos

Aristoteles (1995, pp. 135-136) defines ethos as a way of establishing credibility through the character traits of the speaker. Rhetorical credibility is usually built on cultural representations, collective memory, and the trust of previous experiences (Borchers, 2018, p. 42). In the Dugun Dernek 2 trailer, the ethos is directly based on the success of the first movie and the credibility of the characters in the eyes of the public. In this trailer, the audience maintains its previous connection with Sivas (Anatolian) culture, provincial life, and local humor. The recognition of actors such as Ahmet Kural and Murat Cemcir constitutes the trailer's source of authority. The process of identification described by Burke (1969, p. 55) is evident here: The audience finds itself in the rituals and everyday humorous conflicts of local culture. The humorous treatment of a traditional Anatolian ritual, such as a circumcision wedding, strengthens the cultural ethos of the trailer and creates a sense of social belonging.

In this scene in Visual 7, the characters' facial expressions, clothing, and tones of voice are based on a humorous representation specific to the Anatolian countryside. The viewer may tend to see someone from their family, village, or neighborhood in these two figures. Especially with the expression "we've messed up again", the viewer is awakened to feel a familiar life practice.



**Sample Visual 7:** Ahmet Kural and Murat Cemcir are trying to organize the environment cheerfully by speaking with a local accent in the chaotic environment of the organization preparations.

The trailer of *Dugun Dernek 2 Sunnet* creates a sense of familiarity and trust in the audience through identification dynamics and elements of popular culture. As Perelman and Olbrechts-Tyteca (1969) point out, ethos is formed not only by the characteristics of the characters but also by the quality of presentation and the strength of the cultural context. The musical choices, rural motifs, and visual aesthetics in the trailer establish a local atmosphere, reinforcing cultural authority.

### Pathos

Aristotle (Aristoteles, 1995, pp. 95-96) defines pathos as emotional elements that increase the power of persuasion by affecting the mood of the listener. In the *Dugun Dernek 2* trailer, pathos is shaped through humor, family values, traditional rituals, and local cultural codes. The treatment of a traditional social event, such as a circumcision wedding with absurd humor and exaggerated character interactions, evokes multi-layered emotions such as nostalgia, belonging, and comedy.

Burke's (1969, p. 55) identification theory works through the familiar scenes of provincial humor and local rituals in the trailer. The viewer establishes an emotional connection by seeing figures or ritual practices that they recognize from their own social environment in the trailer. Eyman (2015, p. 72) argues that audiovisual elements in digital rhetoric increase the emotional impact. The fast-paced folk music used in the trailer, the energetic and dynamic editing, and the exaggerated gestures and facial expressions of the characters stimulate the viewer's desire for entertainment. This situation, as Freud (1960, p. 162) states, serves the process of expressing one's repressed emotions through humor.



**Sample Visual 8:** A scene filled with joy, especially from the children, where the entire family and the townspeople play and have fun together.

In this scene in Visual 8, a common cultural ritual such as a circumcision ceremony awakens the forgotten feelings of "belonging, family, sharing" in the viewer. This scene provides a strong emotional resonance with both joy and nostalgia. The trailer offers a release area for emotions under social pressure through humor. This provides a strong emotional investment in terms of marketing the movie. Elements of belonging, desire to laugh, and nostalgia support the marketing communication strategies of the trailer.

### Logos

Aristoteles (1995, p. 138) defines logos as the process of persuasion through logical arguments and reasoning. In the trailer of *Dugun Dernek 2*, logos work through a clear story structure and a plot based on absurd humor. The preparations for the circumcision wedding and the mishaps and absurdities experienced during this process are presented within the cause-and-effect relationships of the trailer.

According to Kölçeliler (2022, p. 129), logos activates the rational decision-making mechanisms of the viewer. The trailer presents the audience with the following logical framework: This movie promises an absurd and entertaining adventure revolving around a traditional circumcision wedding. This predictability, as Steinberg (2006, pp. 14-15) emphasizes, manages the viewer's expectations and supports viewing behavior. The trailer clearly informs the viewer what to watch through the form of humor and the structure of the story, and this logical structure creates a rational justification for watching the movie. The combination of absurd humor with familiar rituals and the clear flow of events within the fiction contribute to the marketing strengthening of the logos strategy in the trailer.



**Sample Visual 9:** Showing the action of “preparation, problem, funny solution” with fast cuts as the wedding association team comes together and things are planned.

This scene in Visual 9 gives the message to the audience that this is a team adventure, surprises await us. A clear story flow is presented with a cause-effect relationship, and the logical basis of the trailer is strengthened with this logo.

The trailer for *Düğün Dernek 2: Sünnet* employs Aristotle’s rhetorical triad—ethos, pathos, and logos—to construct a persuasive strategy that engages viewers both emotionally and cognitively. Ethos is reinforced through the popularity of the first movie, the cultural familiarity of local rituals, and the public trust in lead actors, establishing a credible and relatable foundation. Pathos is activated via humor, nostalgia, and themes of family and cultural belonging, supported by dynamic audiovisual techniques that enhance emotional resonance. Logos is achieved through a coherent narrative structure and predictable comedic elements, presenting the movie as a rational entertainment choice. By integrating emotional appeal with cognitive clarity, the trailer functions not only as a promotional tool but also as a cultural discourse, enhancing its marketing effectiveness and audience loyalty.

#### 4. Ayla Movie Trailer Review

Analyzing the first official trailer of *Ayla* from a marketing perspective in the context of Aristotle’s Rhetorical Theory can be very effective in understanding the emotional power of the movie. The trailer aims to attract the audience to the movie by combining the elements of Ethos (credibility), Pathos (emotional appeal), and Logos (logical reasoning). In addition, the movie has been analyzed academically in terms of social structure and discourse analysis.

#### Ethos

Aristotle (1995, pp. 135-136) defines ethos as the construction of credibility through the character traits of the speaker or narrator. This credibility is constructed through collective memory, historical reality, and ethical values (Borchers, 2018, p. 42). In the trailer of the movie *Ayla*, ethos is constructed by being based on a true story and presenting the historical context in a strong way. The trailer emphasizes the narration of a real event that took place during the Korean War. This emphasis establishes authority through historical reality and increases the viewer’s belief in the narrative. Burke (1969, p. 55) states that the process of identification plays a fundamental role in credibility. Here, the audience becomes attached to the narrative through the themes of human values, cooperation, and love.



**Sample Visual 10:** A scene where Turkish soldiers march in military uniforms while preparing for the Korean War and seriousness prevails.

This scene in Visual 10 emphasizes that a real historical event is being told. The representation of the Turkish Armed Forces creates a sense of formality and authority in the viewer. The trailer, which is based on a real-life story, creates a feeling in the viewer that “this narrative is true and reliable.” At the same time, it reinforces the trailer’s reliability and cultural familiarity because it also coincides with national feelings and ethical values.

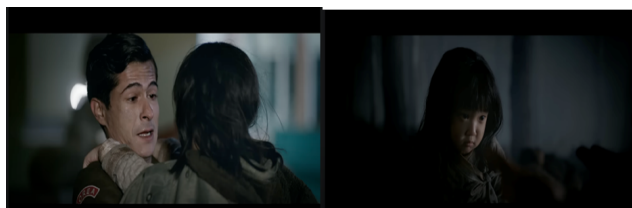
The ethos strategy of the fragment is constructed not only through historical accuracy but also by emphasizing ethical sensitivity. The values of protection, compassion, and humanity represented by the child actor and the soldier figure appeal to social ethical codes. As Perelman and Olbrechts-Tyteca (1969) emphasize, ethos emerges not only from the characteristics of the characters but also from the quality of the presentation and its alignment with social values. The period-specific costumes, space design, and cinematographic language used in the trailer demonstrate the quality

of the production and reinforce the audience's trust in the narrative. On the other hand, the ethical emphasis of the trailer evokes a sense of responsibility in the viewer. The audience perceives the story told throughout the trailer as a human duty, which deepens the ethos in terms of marketing communication strategies.

### Pathos

Aristotle (Aristoteles, 1995, pp. 95-96) defines pathos as emotional elements that strengthen the persuasion process by affecting the mood of the listener. In the trailer of *Ayla*, pathos creates an intense emotional resonance in the audience through universal themes such as love, separation, loss, hope, and human values. In the trailer, the bond between a little girl in need of protection in a war environment and a soldier figure activates human empathy. Burke's (1969, p. 55) identification theory plays a central role here: By seeing in these two figures the link between innocence and protectiveness, the viewer establishes an emotional relationship that coincides with their own values.

The emotional soundtrack, slow-paced scene transitions, and cinematography focusing on facial expressions support Eyman's (2015, p. 72) theory that audiovisual elements in digital rhetoric enhance the emotional impact. Dim lighting, momentary silences, and the contrast between the gloom of war scenes and scenes of love increase the emotional depth of the viewer. As Freud (1960, p. 162) states, art enables the individual to express his or her repressed emotions. In the *Ayla* trailer, the establishment of human bonds in a traumatic environment such as war brings to the surface the viewer's own repressed feelings of love, protection, and fear of loss.



*Sample Visual 11: The scene where little Ayla cries in the arms of a Turkish soldier.*

This scene in Visual 11 simultaneously triggers universal emotions such as child, war, and compassion. *Ayla*'s tears and the protective attitude of

the Turkish soldier trigger feelings of empathy and compassion in the viewer. It also creates a strong emotional resonance by reminding that love and solidarity are possible despite the destructiveness of war. The viewer becomes more deeply attached to the trailer through this bonding process.

By mobilizing these emotions, the trailer provides catharsis. The audience feels a mix of sadness, hope, and connection. This emotional intensity facilitates emotional investment in marketing communication strategies. The audience approaches this movie not only as a war story but as a narrative of human dignity and bonds. This increases the marketing effectiveness of the trailer.

### Logos

Aristoteles (1995, p. 138) defines logos as a way of persuading the audience through logical arguments and a storyline. In the *Ayla* movie trailer, logos appeals to the rational expectations of the audience as it is based on a biographically based true story and presents a plot woven with cause-and-effect relationships. The trailer systematically shows the crossing of the paths of a little girl and a soldier figure struggling to survive in a war environment and how this encounter transforms their lives; it presents a historical context such as the Korean War. Within this context, it highlights the unfolding of a human drama, a child's need for protection, and a soldier's sense of compassion.

The *Ayla* trailer creates a logical justification for viewing by emphasizing that it presents a narrative based on historical reality, containing ethical messages and emphasizing human values. The audience is given a clear message that this movie is not only a war narrative but also a life story where human values are tested. Stories can evoke emotional responses and changes that not only lead to immediate belief changes but also influence post-message engagement, such as repeated interaction, elaboration, and social sharing (Nabi & Green, 2015, s.138). Trailers provide this while conveying the story of the movie. This logical structure combines with storytelling in marketing and allows the audience to perceive the movie not only as an emotional experience but also as historical and instructive content.



*Sample Visual 12: A scene that brings traces of the past to the present.*

In the first frame of Visual 12, the little Ayla character is wrapped around the soldier's shoulder. The gravestones in the background symbolize the harshness of the war atmosphere, the sadness in Ayla's eyes and the soldier's tears symbolize the deep bond established in this traumatic environment. In the following frame, the aged soldier character is shaken by a hand touching his shoulder while looking back emotionally at the past. This touch implies that the past has been brought to the present, the effect of this story continues, and the narrative progresses in an intertemporal integrity. These two consecutive frames clearly support the logical structure of the logo in the movie. Because it offers the audience not only an emotional but also a historical and rational narrative ground.

A successful storyline, a clear time-space relationship, and a meaningful transformation between characters offer the viewer a predictable but impressive journey. This, as Steinberg (2006, pp. 14-15) notes, activates the viewer's cognitive processes and strengthens viewing behavior. The logos strategy established in the trailer creates not only an emotional connection but also a rational acceptance that the movie has meaningful and realistic content. A scenario based on real events, a narrative shaped around human values, and the promise that the movie will offer an instructive, thought-provoking, and inspiring experience support the cognitive persuasion process that increases marketing success.

The Ayla movie trailer employs a multi-layered persuasive strategy grounded in Aristotle's rhetorical appeals—ethos, pathos, and logos—to engage viewers both emotionally and cognitively. Ethos is established through the trailer's connection to historical reality and human values, enhancing its credibility and ethical resonance. Pathos drives the emotional impact by evoking universal feelings

such as love, protection, separation, and hope, supported by compelling audiovisual techniques. Logos appeals to rationality through cause-and-effect relationships, historical context, and the narrative of personal transformation. By integrating emotional marketing with cognitive persuasion, the trailer offers a meaningful and affective experience that motivates viewers to watch. This holistic rhetorical structure makes the Ayla trailer a multifaceted discourse that is both ethical, emotional, and cognitive, distinguishing it from similar productions; thus, it functions as an effective marketing tool.

## 5. Bergen Movie Trailer Review

It evaluates the first official trailer of the movie Bergen in the context of Aristotle's Rhetorical Theory through the elements of ethos (credibility), pathos (emotional appeal), and logos (logical reasoning). It also discusses how the trailer functions in terms of marketing communication through social structure and discourse analysis. The Bergen trailer employs a multi-layered persuasion mechanism through a biographical narrative, the representation of women, and an artist's identity intertwined with pain.

### Ethos

Aristoteles (1995, pp. 135-136) defines ethos as the speaker or narrator establishing credibility through character. In the Bergen trailer, ethos is shaped not only by the presentation of a biographical narrative but also by the representation of a female figure who has left a deep imprint in social memory. Diksoy and Aslan (2022, p. 74) state that the signs used in movie posters are associated with events that have left a lasting impression on social memory, thus creating a cultural foundation of credibility. In the Bergen trailer, the biographical background of the artist and the repercussions she creates in society are supported by this process of semiotic construction. Bergen has become one of the most well-known symbols of violence against women and social pressure on women artists in Turkey. The trailer emphasizes biographical reality in its presentation of this figure; her struggle

with her identity as an artist, the violence she experienced in her private life, and the repercussions of this violence on society are depicted in the trailer. In this respect, the trailer arouses not only curiosity about Bergen in the viewer but also a sense of social responsibility. Issues such as women's rights, the fight against violence against women, and the freedom of the artist are among the main pillars of the trailer's ethos strategy.

Burke (1969, p. 55) defines identification as the basic dynamic of rhetoric. Bergen's life offers a space of identity that overlaps with the experiences of individuals from different segments of society, especially women viewers. Violence against women becomes not only an individual story but also a representation of a social trauma. The viewer finds their own spaces of struggle in Bergen's struggle. This allows the fragment to establish a strong credibility at the level of ethos.

Perelman and Olbrechts-Tyteca (1969) emphasize that ethos emerges not only from the characteristics of the narrator but also from the power of the presentation derived from the cultural context. In this sense, the fragment successfully recreates the atmosphere of Bergen's time through its period music, costumes, aesthetic of space, and cinematography. This production quality increases the viewer's trust in the narrative.



*Sample Visual 13: The scene where Bergen makes headlines and shows the award she receives.*

The Bergen movie trailer establishes a strong ethos by grounding its narrative in real-life events. Visual 13 highlights Bergen's public recognition—her stage success, musical rise, and media visibility—which elevates her from an individual artist to a cultural icon. The award moment and newspaper headline reinforce biographical authority and historical authenticity. Ethos also operates within the trailer's social discourse, positioning Bergen as a symbolic figure for women artists and the struggle

for women's rights in Turkey. By centering a female figure embedded in collective memory, the trailer conveys a sense of social responsibility. Anti-violence themes and women's solidarity contribute to its ethical persuasion strategy. Thus, the trailer functions not only as a biographical narrative but also as a representation of shared trauma and social memory, providing a solid ethical foundation for its marketing communication.

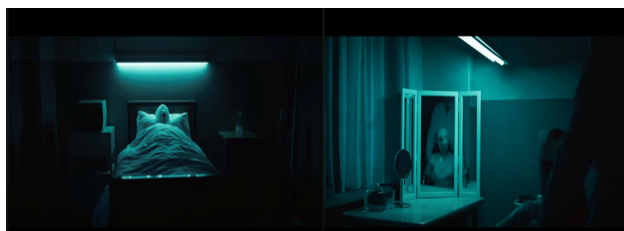
### Pathos

Aristoteles (1995, pp. 95-96) defines pathos as a rhetorical element that strengthens the persuasion process by affecting the audience's mood and appealing to their emotions. In the Bergen movie trailer, pathos is woven through universal emotions such as pain, love, loneliness, violence, and the desire to cling to hope, creating an emotional resonance that deeply affects the audience.

By intertwining Bergen's music with her tragedy, the trailer raises the viewer's level of empathy. The fact that violence against women is presented as a social wound rather than an individual story creates a sense of emotional responsibility in the viewer. The scenes in which love and pain are intertwined reflect Bergen's contradictory emotional experiences as both an artist and a woman. This situation supports Burke's (1969, p. 55) identification theory; the viewer establishes an emotional bond with Bergen through themes such as gender roles, power imbalances in relationships, and violence.

The audiovisual techniques used in the trailer are carefully selected to increase emotional intensity. Eyman (2015, p. 72) emphasizes that audiovisual elements in digital rhetoric have an impact on emotions. Melancholic piano melodies and Bergen's songs create both nostalgia and grief in the viewer. The dark color palette, slow-motion scenes, and the emptiness and sadness in Bergen's eyes further strengthen this emotional depth. Freud (1960, p. 162) states that art allows individuals to safely express their repressed emotions. In this context, the music and visual narrative in the Bergen trailer mobilizes the viewer's repressed anger, loss, pain, and search for justice. The viewer

experiences an emotional release (catharsis) following Bergen's violence and her struggle to survive through art.



*Sample Visual 14: The frame where Bergen looks in the mirror with the scar on his face and his emotional expression.*

This frame in Visual 14 makes the viewer feel both the pain of violence and Bergen's lonely but resilient stance. The viewer experiences both sadness and empathy in this scene.

The trailer also uses the discourse on combating violence against women as a tool of emotional persuasion. By mobilizing the social sensitivities of the audience, it claims to be the voice not only of Bergen but also of all women who are subjected to violence. The audience sees this movie not only as an artistic experience but also as an area of social responsibility. This facilitates the audience's emotional investment in the marketing process of the trailer and supports the movie-watching behavior.

## Logos

Aristoteles (1995, p. 138) defines logos as a way of persuading the audience through logical arguments and reasoning processes. In the Bergen movie trailer, logos are constructed through biographical reality, historical context, and the treatment of social issues in fiction. The trailer not only presents an emotional story but also provides the viewer with a logical basis for why this movie is important.

The logos strategy of the trailer is supported by the treatment of themes such as violence against women, gender inequality, and the transformative power of art in cause-and-effect relationships. Bergen's individual story is presented as a reflection of the ongoing violence against women in society. It can be said that this form of expression activates the rational decision-making processes of the target audience in marketing communication. In the

trailer, the audience is presented with the following logical message: This movie is not only about the life of an artist; it also reflects a social wound, contributes to the fight against violence, and raises awareness in the collective consciousness. The figure of a woman trapped between her identity as an artist and the contradictory structures of society, the failure to achieve justice, the transformation of music, and the stage into a space of escape and resistance are elements that strengthen the logical flow of the fragment.

Steinberg (2006, pp. 14-15) argues that fragments that appeal to the viewer's cognitive processes reinforce viewing behavior. In the Bergen trailer, logos are processed in ways that present a strong chain of argument at the intersection of biographical and social reality, art, and violence. This structure causes the viewer to see the movie not only as an emotional narrative but also as an instructive, awareness-raising, and questioning content. The construction of a narrative against the invisibilization of violence provides the viewer with a rational justification to watch the movie with a sense of social responsibility.



*Sample Visual 15: The final scene in the trailer, where Bergen displays an emotional but determined stance.*

This frame in Visual 15 shows that the trailer is not only biographical, but also a social tool for criticism and awareness. It serves to affect the audience emotionally and logically in the context of love, oppression, violence, and resistance.

The logos strategy in the Bergen movie trailer complements the emotional marketing elements with cognitive persuasion processes, creating a motivation to watch that appeals to both the heart and the mind of the viewer. This is one of the elements that increase the marketing success of the trailer.

The Bergen movie trailer employs Aristotle's rhetorical appeals—ethos, pathos, and logos—to construct a multi-dimensional persuasive strategy

that engages viewers emotionally and cognitively. Ethos is reinforced through Bergen's biographical authenticity, her symbolic role in collective memory, and her association with the discourse on gender-based violence, providing ethical legitimacy. Pathos is activated via audiovisual techniques that evoke universal emotions such as pain, love, and hope, enabling emotional identification and catharsis. Logos is conveyed through the trailer's emphasis on historical context, the systemic nature of violence against women, and the transformative role of art, offering a rational framework. This integrated rhetorical structure positions the trailer not merely as a promotional artifact but as an ethical and socially conscious narrative, enhancing its marketing communication impact.

## Conclusion

Marketing encompasses a wide range of processes, from pre-production to post-consumption. The process diversifies as much as the type of value offered to the consumer. Within the scope of marketing activities, various techniques are used to persuade, inform, or entertain the audience for motion pictures. The study aims to investigate the marketing communication activities conducted on trailers, which is a crucial aspect of marketing.

It can be said that the movie trailers analyzed in this study (Recep Ivedik 5, Muslum, Dugun Dernek 2 Sunnet, Ayla, and Bergen) have successfully internalized the elements of ethos, pathos, and logos in Aristotle's rhetorical theory, in terms of both content and form and provided examples of effective marketing communication. Although each of them has a different genre, theme, and target audience, it can be said that the common aspects of the trailers are holistic rhetorical strategies that enable the audience to be persuaded on an emotional and cognitive level.

One of the common success strategies is the reinforcement of ethos construction not only through characters but also through cultural representations, social memory, and narratives based on real events. In particular, the trailers of Muslum, Ayla, and Bergen, with their narratives based on real people and events, created a sense of trust, belief,

and familiarity in the audience, thus establishing a strong foundation for persuasion. Recep Ivedik 5 and Dugun Dernek 2, on the other hand, redefined ethos on a humorous and sociocultural level thanks to their emotional connection with popular culture figures and the public.

In all the trailers, the elements of pathos, such as pain, hope, nostalgia, anger, love, solidarity, and universal human emotions, are portrayed. It can be said that the strategic use of audiovisual elements, such as music, cinematography, sound design, and tempo, increased the emotional involvement of the audience, reinforcing identification with the characters and fostering audience loyalty. The trailers created a powerful emotional marketing space by presenting scenes that mobilized the audience's suppressed emotions.

The logos structure established in the trailers offers the audience the promise of a logical, consistent, and predictable narrative. The construction of narratives in a cause-and-effect relationship has created a rational decision-making process in the audience, making the act of watching a movie a logical choice as well as an emotional one. Mainly biographically based productions such as Muslum and Bergen have successfully presented this rational framework. However, it should be noted that each trailer differs in terms of the cultural codes and target audience it addresses, as the rhetorical tools and persuasion strategies used between humor-based trailers and biographical dramas vary contextually.

In summary, this study analyzes movie trailers based on Aristotle's Theory of Rhetoric, establishing a theoretical bridge between the disciplines of marketing communications, media, and rhetoric, and offers a unique approach to a topic that has received limited attention in the literature. The systematic analysis of persuasive rhetorical elements in trailers provides a methodological framework for academic research and provides concrete contributions to practitioners in areas such as content strategy development, promotional planning, and audience engagement. The findings can be utilized in a variety of practical contexts by marketing professionals, cultural and media analysts, educators, and producers.

There are some limitations to this study. As it is a qualitative study and based on the idea that the researcher can interpret the culture in which she lives more deeply, only trailers of movies released in Turkey were selected as samples. International comparisons can be made in future studies. A qualitative method was chosen because the study focuses on revealing the meanings conveyed to consumers through trailers. Quantitative studies may be conducted in future studies to reveal issues such as the frequency and impact of the subject. In addition to these, it may be recommended that trailer analyses in future studies be supported by broader frameworks such as digital rhetoric, visual discourse analysis, and cultural code analysis, rather than being limited to the levels of ethos, pathos, and logos. Furthermore, the impact of rhetorical strategies on multiple media platforms could be examined by considering the production process of the clips, target audience analyses, and differences between media platforms.

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## RESEARCH ARTICLE

# The Relationship Between Doomscrolling, Artificial Intelligence Anxiety, and Job Finding Anxiety Among University Students

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## Abstract

*This study aims to address university students' concerns about finding a job through the variables of doomscrolling and artificial intelligence anxiety. Doomscrolling refers to constantly focusing on negative news on the internet and social media, and artificial intelligence anxiety refers to the general anxiety experienced by individuals after the rapid development of artificial intelligence technologies and their integration into society. Within this scope, the relationships between doomscrolling, artificial intelligence anxiety, and job finding anxiety were examined. A convenience sampling method was preferred, and data were obtained from 464 students studying at Süleyman Demirel University through surveys. The collected data were analyzed using SPSS and AMOS. The results revealed a significant and positive relationship between doomscrolling and both job finding anxiety and artificial intelligence anxiety. Similarly, a significant and positive relationship was found between artificial intelligence anxiety and job finding anxiety. Furthermore, it has been observed that artificial intelligence anxiety acts as a mediator in the relationship between doomscrolling and job finding anxiety. According to the results, individuals who constantly focus on negative news online are more likely to experience job finding anxiety and increased anxiety about artificial intelligence, and artificial intelligence anxiety also increases job-finding anxiety.*

**Keywords:** Doomscrolling, job finding anxiety, artificial intelligence anxiety.

## Öz

*Bu çalışmanın amacı üniversite öğrencilerinin iş bulmaya yönelik kaygılarını, internet ve sosyal medya üzerinden sürekli olumsuz haberlere odaklanmayı ifade eden doomscrolling ile yapay zekâ teknolojilerinin hızlı gelişimi ve topluma entegrasyonu sonrası bireylerin yaşadığı genel kaygıyı ifade eden yapay zekâ kaygısı değişkenleriyle ele almaktır. Bu kapsamda doomscrolling, yapay zekâ kaygısı ve iş bulma kaygısı arasındaki ilişkiler incelenmiştir. Kolayda örneklem yöntemi tercih edilerek Süleyman Demirel Üniversitesi'nde öğrenim gören 464 öğrenciden anketler aracılığıyla veriler elde edilmiştir. Toplanan veriler SPSS ve AMOS aracılığıyla analiz edilmiştir. Elde edilen sonuçlara göre doomscrolling ile iş bulma kaygısı ve yapay zekâ kaygısı arasında anlamlı ve pozitif yönlü bir ilişkinin olduğu, benzer olarak yapay zekâ kaygısı ile iş bulma kaygısı arasında da anlamlı ve pozitif yönlü ilişkinin olduğu ortaya çıkmıştır. Bununla birlikte doomscrolling ile iş bulma kaygısı arasındaki ilişkide yapay zekâ kaygısının aracı etkisinin olduğu belirlenmiştir. Araştırmadan elde edilen sonuçlara göre internet üzerinden sürekli olumsuz haberlere odaklanan bireylerin iş bulmaya ilişkin kaygılarının ve yapay zekâya ilişkin kaygılarının artacağı, yapay zekâ kaygısının da iş bulma kaygısını arttırdığı ortaya çıkmıştır.*

**Anahtar Kelimeler:** Felaket kaydırmaları, yapay zeka kaygısı, iş bulma kaygısı

## Introduction

Nowadays, the ease of access to university education, the increasing young population and the number of graduates, the developing technology reducing the need for people in employment processes, and all these negative news about employment processes on the agenda increase the concerns of individuals who are looking for a job and planning their future about finding a job. One of the most intense concerns among university students is job search and finding (Buathong et al., 2021). In this context, it is thought that it is important to address the variables that affect job anxiety to help individuals anxious about finding a job in the profession they are trained in look to the future with more hope and reduce their anxiety levels about the future. Based on this, it is evaluated that doomscrolling, which represents addiction to negative news on social media that plays an important role in our lives, and concerns about artificial intelligence, which is rapidly taking its place in the job market with technological developments, have effects on individuals' job finding anxiety. The Conservation of Resources Theory states that individuals who constantly focus on negative news around them may also have weaker cognitive resources, and they may experience more anxiety by not being able to cope effectively with the difficulties they face (Hobfoll, 1989). In this context, it is thought that individuals who constantly focus on adverse developments, especially about their future, careers, developments in technology and artificial intelligence, and job search processes, may also have weaker cognitive resources, and their anxiety about these processes will increase with doomscrolling.

The concept known as "doomscrolling" or "doomsurfing" represents addiction to negative news on social media (Kaye & Johnson, 2024). In other words, doomscrolling refers to excessive interest in adverse developments on social media. Especially with the COVID-19 pandemic, interest in negative news on social media has increased even more, and even after the pandemic, some people's interest in negative news has reached an obsessive level. Being addicted to negative news in

the time spent on social media and constantly following adverse developments in the world causes a person to become anxious and stressed about various issues (Wafa et al., 2024; Dyar et al., 2022). In this context, doomscrolling is related to anxiety about finding a job.

With the technological developments that have taken place, many technological innovations have entered our daily lives to make human life easier and reduce the need for humans in the workplace. One of the most important of these is artificial intelligence, which is defined as computer-based intelligence based on machine learning (Lund et al., 2024). The rapid integration of artificial intelligence into our lives, coupled with the lack of clear and explicit boundaries regarding its capabilities, has sparked various concerns among people. In particular, it is thought that preconceptions about artificial intelligence and its role in the workplace, such as the idea that it could replace humans in the workplace and the need to know how to manage artificial intelligence, may affect concerns about finding employment.

This study investigates whether individuals who focus intensely on adverse developments through social media and have various concerns about artificial intelligence will experience anxiety about finding employment. First, information about the concepts is provided, followed by examining the relationships between the concepts, and finally, the study's findings are presented.

## Conceptual Framework

### 1. Job Finding Anxiety

One of the most important issues on the minds of university students is the difficulties they may encounter in finding employment after graduation. The ever-increasing number of graduates, advancing technology, and economic developments make finding employment more competitive, causing individuals to experience challenging and stressful processes in their search for work. At this point, thoughts about the job search process become a source of anxiety and turn into a process that negatively affects individuals' psychology. This is be-

cause anxiety usually arises from constantly encountering negativity and having uncertain and negative judgments about the future (Manav, 2011). In this context, job finding anxiety is a specific type of anxiety arising from concerns about finding employment, focusing on individuals' worries about whether they will be able to find a job or remain unemployed (Cho, 2008; Dursun & Aytac, 2009).

Job finding anxiety refers to negative emotional experiences such as irritability, restlessness, and uneasiness that university students often experience due to insufficient employment opportunities or negative perceptions about finding a job (Zhao et al., 2023). Mainly through social media and television news, the difficulties of finding a job, increasing competition, and news about technology replacing humans are constantly brought to the forefront. Along with this news, anxiety about the job finding process is increasing, especially among individuals who have not yet entered the workforce, such as university students. Because factors such as pessimism about the future, rising unemployment rates, feelings of inadequacy, and lack of self-confidence directly influence job finding anxiety (Akdemir & Çiçek, 2022).

Hobfoll (1989) states that, in line with the Resource Conservation Theory, adverse developments around an individual may be perceived as a threat, increasing stress and anxiety levels. Various studies conducted in line with this theory have also indicated that individuals whose cognitive anxiety weakens in response to adverse developments may experience higher levels of anxiety during job search or application processes (Zhao et al., 2024). In this context, it can be stated that negative judgments about the difficulty of finding a job and thoughts about the uncertainties that technological developments such as artificial intelligence may create in future work life affect job finding anxiety.

## 2. Artificial Intelligence Anxiety

Artificial intelligence is a digital/computer-based intelligence developed to make human life easier, which aims to replicate human abilities through machine learning and automation and even go be-

yond them (Lund et al., 2024). However, the abstract structure of artificial intelligence, composed of complex algorithms, can cause stress in individuals due to its integration into daily life and the uncertain effects it creates for the future (Kim et al., 2023). This is because the rapid development of artificial intelligence has begun to affect individual psychology and has caused people to express their concerns about artificial intelligence (Li & Huang, 2020). Following developments in the field of artificial intelligence, it was revealed that artificial intelligence could trigger anxiety, an emotional response, and the first statements addressing concerns about artificial intelligence were published in a 2018 article by journalist Achenbach in the Washington Post.

AI anxiety refers to the general anxiety or unease experienced by individuals following the rapid development of AI technologies and their integration into various sectors of society (Kim et al., 2023). Additionally, artificial intelligence anxiety is a state of anxiety caused by the rapid development of artificial intelligence tools and the unpredictable and uncertain future they represent (Johnson & Verdicchio, 2017). AI anxiety is believed to stem from excessive fear of the problems that AI technologies may create in personal or social life (Kaya et al., 2024).

Artificial intelligence anxiety generally encompasses various concerns related to artificial intelligence technology, such as privacy violations, job displacement, learning anxiety, ethical violations, and bias, stemming from a lack of personal control (Johnson & Verdicchio, 2017). Accordingly, preconceptions and concerns about artificial intelligence are believed to influence thoughts about finding employment.

## 3. Doomscrolling

The concepts of doomscrolling and doomsurfing have been established in the literature to describe the act of continuously reading and following harmful or destructive content on social media and developing an addiction to it (Okmeydan, 2021). Although the concept is popular today, it is argued that it first emerged in the early 2000s. With the advent of the internet in our lives during these years,

websites that revealed disasters and adverse developments around the world entered our lives, followed by social media applications such as Twitter, Facebook, YouTube, and Instagram on smartphones, and finally, with the COVID-19 pandemic, these channels were used intensively (Okmeydan, 2021; Dinç, 2021). The term “doomscrolling” emerged in a tweet posted in 2018 and gained popularity shortly after being shared by a journalist (Garcı-Navarro, 2020).

Doomscrolling refers to excessive scrolling in search of constantly negative news stories caused by adverse developments such as natural disasters, social crises, epidemics, and political chaos (Shabahang et al., 2022). The Oxford English Dictionary defines it as compulsively browsing negative news feeds or social media. When examining the literal meaning of the term, it is composed of the words “doom,” which evokes darkness and evil, “surfing,” adapted to internet usage, and “scrolling,” which refers to the prominence of smartphones. The term is defined as the tendency to continue browsing negative news, even if it is sad, depressing, or discouraging (Ytre-Arne & Moe, 2021). A person who engages in doomscrolling is obsessed with seeking out pessimistic and negative news in a way that harms their mental health (Merriam-Webster, 2021).

Doomscrolling also refers to the behavior observed in individuals who constantly browse depressing, sad, and negative news on social media (Price et al., 2022). Despite knowing that this behavior negatively affects their mental health, individuals spend excessive time browsing negative news (Güme, 2024). Using social media in this way can lead individuals to make career plans for the future and develop a more negative and pessimistic outlook.

## Hypothesis Development

### 1. The Relationship Between Doomscrolling and Job Finding Anxiety

Job finding anxiety is an anxiety that individuals experience or anticipate experiencing during their job search process. It is typically rooted in an individual's personality traits or external factors. In

particular, constant exposure to negative news on social media is considered an external stress factor and is known to increase job finding anxiety (An et al., 2023). Additionally, doomscrolling, the independent variable of this study, is associated with various negative emotions such as anxiety, helplessness, and anger (Kazun & Malygina, 2024). Various studies conducted on students have also revealed that anxiety increases in individuals who are constantly exposed to adverse developments and obsessively follow these negative news stories on social media (Wafa et al., 2024). Additionally, doomscrolling is closely associated with increased anxiety about the future because it focuses on negative news and negative processes (Shabahang et al., 2022). This is because individuals who constantly follow negative news, such as economic crises, pandemics, and rising unemployment rates, are likely to experience anxiety about their future.

Doomscrolling and excessive engagement with negative news lead to a decrease in life satisfaction and an increase in future anxiety (Shabahang et al., 2022). Various studies have found that job finding anxiety is negatively related to psychological capital components such as hope and optimism (Chi & Lee, 2022). This is because individuals who can manage their psychological capital in a positive direction feel less anxiety about their future. However, as the opposite of this process, it is known that individuals constantly exposed to negative news through doomscrolling experience a decrease in their optimism and hope for the future. Furthermore, the increased interest in negative news flows that have become more prevalent in our lives, especially with the COVID-19 pandemic, and the habit of following these negative news flows have increased individuals' intolerance to uncertainty. Intolerance to uncertainty, in turn, increases job finding anxiety (Zhao et al., 2023).

Hypothesis 1 was developed based on the assessment that doomscrolling and all the relationships described would increase job finding anxiety.

H<sub>1</sub>: There is a positive and significant relationship between doomscrolling and job finding anxiety.

## 2. The Relationship Between Doomscrolling and Artificial Intelligence Anxiety

Doomscrolling refers to the tendency of individuals to focus on negative news in their social media feeds, which can lead to mental health issues such as stress and anxiety (Türk-Kurtça & Kocatürk, 2025). Additionally, it increases uncertainty about the future, leading to feelings of anxiety, worry, and fear (Anand et al., 2022).

Artificial intelligence anxiety is defined as excessive fear arising from the changes brought about by artificial intelligence technologies in social or personal life (Feridun Kaya et al., 2024). Individuals constantly exposed to negative news due to doomscrolling are likely to follow adverse developments related to artificial intelligence, which is gradually becoming part of our daily lives and whose advantages and disadvantages have not yet been fully clarified. As a result, feelings of uncertainty, anxiety, worry, and fear about the future are on the rise.

In this regard, it is believed that individuals who are overly interested in the negative aspects of artificial intelligence through doomscrolling will also experience increased anxiety regarding artificial intelligence.

H<sub>2</sub>: There is a positive and significant relationship between doomscrolling and artificial intelligence anxiety.

## 3. The Relationship Between Artificial Intelligence Anxiety and Job Finding Anxiety

Recent developments in artificial intelligence and its rapid adoption in many areas, including business, influence individuals' attitudes and thoughts about artificial intelligence. In particular, news reports in the media about AI replacing humans in various fields, along with other stories about AI's functions, are increasingly fueling concerns about AI and its capabilities. Additionally, the realization that artificial intelligence is indeed impacting the job market has heightened concerns among individuals entering the workforce regarding artificial intelligence and their prospects. Concerns about artificial intelligence and its areas of use have significantly impacted individuals' job selection, job

search processes, and career decisions (Duan & Chen, 2025). Various studies have also shown that concerns about artificial intelligence increase unemployment anxiety (Uçar et al., 2024), job anxiety, job insecurity, and job uncertainty (Cheng & Jin, 2024).

As artificial intelligence technologies are rapidly integrated into business life, individuals' concerns about whether they can adapt to this rapid advancement of artificial intelligence are increasing, and hypothesis 3 was developed by assessing that this concern will also increase anxiety about finding a job.

H<sub>3</sub>: There is a positive and significant relationship between artificial intelligence anxiety and job finding anxiety.

## 4. The Mediating Effect of Artificial Intelligence Anxiety

Following developments in artificial intelligence, there has been an increase in studies addressing artificial intelligence anxiety in recent years. Although studies examining the role of artificial intelligence anxiety as a mediator are limited, various studies on this topic have been found. Şeker et al. (2024) found that artificial intelligence anxiety mediates the relationship between innovation and learning in organizations, concluding that an increase in organizational innovation reduces artificial intelligence anxiety and positively affects organizational learning. Another study revealed that AI anxiety mediates the relationship between barrier technology stressors and AI adoption intention (Chang et al., 2024). In their study, Liu et al. (2025) examined the mediating role of AI anxiety in the relationship between the perceived usefulness of AI tools such as ChatGPT and subscription intention.

In line with the research model, it has been stated that doomscrolling may have an effect on job finding anxiety and artificial intelligence anxiety and that artificial intelligence anxiety may influence job finding anxiety. In this context, it has been assessed that individuals who have developed the habit of constantly reading negative news in all areas, such as the economy, health, and finance, may also experience job finding anxiety

stemming from their concerns about artificial intelligence. Therefore, it has been suggested that artificial intelligence anxiety plays a mediating role in the relationship between doomscrolling and job finding anxiety.

H4: Artificial intelligence anxiety plays a mediating role in the relationship between doomscrolling and job finding anxiety.

## Method

This section outlines the study's purpose, research model, data collection instruments, participants, and ethical considerations.

## Research Model

This study aims to examine the effect of doomscrolling on artificial intelligence anxiety and job finding anxiety, and to investigate whether artificial intelligence anxiety mediates the relationship between doomscrolling and job finding anxiety. The proposed research model is illustrated in Figure 1.

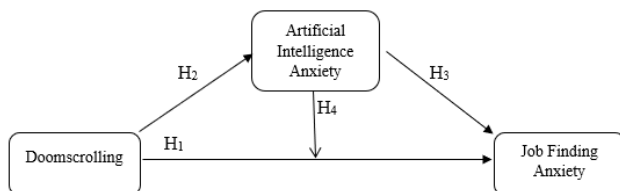


Figure 1. Research Model

To test the hypotheses derived from the research model presented in Figure 1, data were collected using a structured questionnaire.

## Ethical Approval

Ethical approval for conducting the study was obtained from the Suleyman Demirel University Social and Human Sciences Ethics Committee, decision number 162/2, dated February 3, 2025. Participants were first asked to provide demographic information, followed by responses to statements related to doomscrolling, artificial intelligence anxiety, and job finding anxiety scales.

## Participants

The study population consisted of undergraduate students at Süleyman Demirel University. A convenience sampling method was employed, resulting in survey responses from 500 students. After screening the responses, 464 valid questionnaires were included in the analysis. The gender distribution of the participants is presented in Table 1.

Table 1. Participants

|               | Category                                 | Frequency | Percentage |
|---------------|------------------------------------------|-----------|------------|
| Gender        | Female                                   | 275       | 59,3       |
|               | Male                                     | 189       | 40,7       |
| Department    | Business Administration                  | 92        | 19,8       |
|               | Economics                                | 85        | 18,3       |
|               | Human Resources Management               | 79        | 17,0       |
|               | Finance and Banking                      | 74        | 15,9       |
|               | Labor Economics and Industrial Relations | 70        | 15,0       |
|               | Other Departments                        | 64        | 13,7       |
|               | 2.00 and Below                           | 46        | 10         |
|               | 2.00 to 2.50                             | 163       | 35,1       |
| Grade Average | 2.50 to 3.00                             | 154       | 33,1       |
|               | 3.00 and Above                           | 101       | 21,9       |

N=464

As shown in Table 1, participants are studying in economics and administrative sciences and approximately 60% of the participants were female and 40% were male. Additionally, over 55% of the participants had a grade point average (GPA) of 2.50 or above.

## Measures

The research employed three instruments: the Doomscrolling Scale, the Artificial Intelligence Anxiety Scale, and the Job Finding Anxiety Scale. Participants rated each item using a 7-point Likert scale ranging from 'Strongly Disagree' to 'Strongly Agree.' Further details regarding the scales and their reliability are provided in the following subsections.

**Doomscrolling Scale:** This study employed the 6-item short form of the Doomscrolling Scale, originally developed by Sharma et al. (2022) and later adapted into Turkish by Anlı (2023), who also conducted its validity and reliability analysis. In the Turkish adaptation study, the Cronbach's alpha coefficient was reported as 0.89, indicating high internal consistency. The scale is unidimensional. Sample items include: 'I find myself constantly browsing through negative news on social media' and 'I feel addicted to negative news on social media'.

**Artificial Intelligence Scale:** The Artificial Intelligence Anxiety Scale, developed by Wang and Wang (2019), was adapted and validated for Turkish by Akkaya et al. (2021). In the Turkish validation study, the scale demonstrated excellent reliability with a Cronbach's alpha coefficient of 0.937. The scale comprises four dimensions—learning, job replacement, socio-technical blindness, and artificial intelligence configuration—and includes 16 items. Sample items include: 'I am concerned that an artificial intelligence technique/product could replace humans' and 'I am concerned that an artificial intelligence technique/product could take someone's job'.

## Findings

Data analysis and hypothesis testing were performed using SPSS 22.0 and AMOS 21.0. Following data collection, normality, validity, and reliability assessments were conducted for the measurement instruments. Subsequently, correlation analyses were carried out among the study variables, followed by mediation analysis to examine the proposed hypotheses.

## Validity of Data Collection Tools

Confirmatory factor analysis (CFA) was conducted for each scale to assess their validity. A second-order confirmatory factor analysis was performed for the AI anxiety scale, and a first-order confirmatory factor analysis was performed for the other scales. The fit indices and reference values obtained from the analyses are presented in Table 2.

The results presented in Table 2 fall within acceptable reference ranges, confirming the validity of the scales (MacCallum et al., 1996; Hu & Bentler, 1999). During the confirmatory factor analysis process, items 6, 8, 12 and 13 of the AI anxiety scale were excluded from the analysis due to their low factor loadings (below 0.40) or causing covariances between error terms (Howard, 2016).

**Table 2. Confirmatory Factor Analysis Results**

|                                 | X2/df           | RMSEA    | CFI      | GFI      | AGFI     | NFI      | TLI      |
|---------------------------------|-----------------|----------|----------|----------|----------|----------|----------|
| Doomscrolling                   | 3,33            | 0,071    | 0,98     | 0,98     | 0,95     | 0,97     | 0,96     |
| Artificial Intelligence Anxiety | 4,81            | 0,091    | 0,95     | 0,93     | 0,89     | 0,94     | 0,94     |
| Job Finding Anxiety             | 4,58            | 0,088    | 0,95     | 0,93     | 0,89     | 0,94     | 0,94     |
| Reference Values                | $\chi^2/df < 5$ | $< 0,10$ | $> 0,90$ | $> 0,80$ | $> 0,80$ | $> 0,80$ | $> 0,90$ |

**Job Finding Anxiety Scale:** The Job-Finding Anxiety Scale, developed by Gül-Şanlı et al. (2023), is a unidimensional instrument consisting of 10 items. The 9<sup>th</sup> and 10<sup>th</sup> statements in the scale are reverse scored. During the scale development process, Cronbach's alpha coefficients of 0.85 and 0.88 were obtained from two separate samples, indicating satisfactory reliability. Sample items include: 'I worry that I will not be able to find a job after graduation' and 'I am concerned about not being able to find a suitable job after graduation'.

The goodness of fit values shown in the table were obtained without any changes in the other scales.

Table 3 presents the internal consistency, means, standard deviations, skewness, and kurtosis values of the measurement instruments used in the study.

**Table 3. Normality and Reliability Test Results**

| Scale                | Internal Cons. | Dimension                | Mean. | S.E.  | Skewness | Kurtosis |
|----------------------|----------------|--------------------------|-------|-------|----------|----------|
| Doomscrolling        | 0.85           |                          | 2.77  | 1.287 | 0.659    | -0.208   |
| AI Anxiety<br>(0.92) | 0.86           | Learning                 | 4.27  | 1.479 | -0.254   | -0.545   |
|                      | 0.81           | Job Replacement          | 4.01  | 1.715 | -0.048   | -0.991   |
|                      | 0.94           | Sociotechnical blindness | 3.84  | 1.990 | 0.042    | -1.263   |
|                      | 0.91           | Configuration            | 2.85  | 1.58  | 0.636    | -0.457   |
| Job Finding Anxiety  | 0.91           |                          | 4.89  | 1.448 | -0.386   | -0.623   |

As shown in Table 3, the skewness and kurtosis values of the scales fall within the acceptable range of -2 to +2, indicating a normal distribution (Kim, 2013). The internal consistency coefficients, calculated following confirmation of normality, also meet acceptable reliability standards.

Pearson correlation analysis was conducted to examine the direction and strength of the relationships among the study variables. The correlation coefficients are presented in Table 4

**Table 4. Correlations**

| Variable                                 | 1       | 2       | 3       | 4       | 5       | 6       | 7 |
|------------------------------------------|---------|---------|---------|---------|---------|---------|---|
| 1.Doomscrolling                          | 1       |         |         |         |         |         |   |
| 2. Job Finding Anxiety                   | 0.258** | 1       |         |         |         |         |   |
| 3.AI Anxiety                             | 0.294** | 0.369** | 1       |         |         |         |   |
| 4. Learning (AI Anxiety)                 | 0.205** | 0.327** | 0.857** | 1       |         |         |   |
| 5. Job Replacement (AI Anxiety)          | 0.271** | 0.310** | 0.882** | 0.674** | 1       |         |   |
| 6. Sociotechnical Blindness (AI Anxiety) | 0.224** | 0.320** | 0.823** | 0.520** | 0.827** | 1       |   |
| 7. Configuration (AI Anxiety)            | 0.300** | 0.256** | 0.746** | 0.441** | 0.540** | 0.559** | 1 |

N=464. \*\* $p < 0.01$ , \* $p < 0.05$

The results presented in Table 4 indicate that all variables included in the study are significantly and positively correlated. Upon detailed examination of the correlation values, it was found that there is a significant and positive correlation ( $r=0.294$ ) between artificial intelligence anxiety and doomscrolling, between job finding anxiety and artificial intelligence anxiety ( $r=0.369$ ), and between job finding anxiety and doomscrolling ( $r=0.258$ ). In addition, the correlation of the sub-dimensions of artificial intelligence anxiety with the variables in the study is also included. The results show that all dimensions of artificial intelligence anxiety are in a relationship with other variables.

IBM AMOS 21 software was utilized to test the hypotheses of the study. With the data showing a normal distribution, the covariance matrix was created using the Maximum Likelihood calculation method.

First, the measurement model consisting of doomscrolling, artificial intelligence anxiety, and job finding anxiety variables was tested and validated ( $\chi^2/df=3.40$ ; RMSEA=0.072; CFI=0.91; GFI=0.85; AGFI=0.82; NFI=0.88; TLI=0.90).

Following this process, hypotheses were tested using a structural model with latent variables. The results for all hypotheses are presented in Table 5.

Based on the results presented in Table 5, the model testing the first hypothesis indicated that doomscrolling significantly affects job-finding anxiety ( $\beta = 0.27$ ,  $p < 0.001$ ).

**Table 5. Analysis Results of the Structural Model**

| Predictor Variables | Outcome Variables |       |                     |       |
|---------------------|-------------------|-------|---------------------|-------|
|                     | AI Anxiety        |       | Job Finding Anxiety |       |
|                     | $\beta$           | SH    | $\beta$             | SH    |
| Doomscrolling       | -                 | -     | 0.276***            | 0.096 |
| R <sup>2</sup>      | -                 | -     | 0.08                |       |
| Doomscrolling       | 0.291***          | 0.052 | -                   |       |
| R <sup>2</sup>      | 0.09              |       | -                   |       |
| Doomscrolling       | -                 |       | 0.186***            | 0.093 |
| AI Anxiety          | -                 |       | 0.311***            | 0.120 |
| R <sup>2</sup>      | -                 |       | 0.17                |       |
| Indirect Effect     | -                 |       | 0.091(0.050, 0.136) |       |

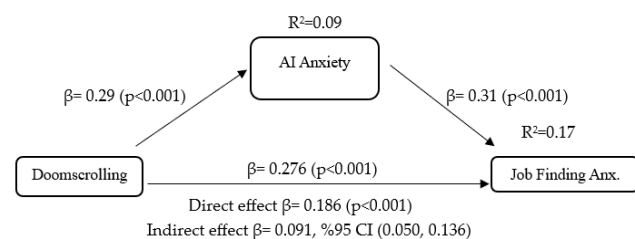
\*\*\* $p < .001$ , SE= Standard error; Values in parentheses are lower and upper confidence intervals. Bootstrap resampling= 5000.

In the extended model including artificial intelligence anxiety as a mediator to test the remaining hypotheses, doomscrolling was found to significantly predict artificial intelligence anxiety ( $\beta = 0.29$ ,  $p < 0.001$ ), supporting H2. Furthermore, artificial intelligence anxiety had a significant effect on job-finding anxiety ( $\beta = 0.31$ ,  $p < 0.001$ ), supporting

H3. Despite the inclusion of the mediator, the direct path from doomscrolling to job-finding anxiety remained significant ( $\beta = 0.18$ ,  $p < 0.001$ ). According to the research model, doomscrolling and artificial intelligence anxiety together explain 17% of the variance in job-finding anxiety. The fit indices obtained from the path analysis were within acceptable limits ( $\chi^2/df = 3.40$ ; RMSEA = 0.072; CFI = 0.91; GFI = 0.85; AGFI = 0.82; NFI = 0.88; TLI = 0.90).

A path analysis using the bootstrap method was conducted to examine whether artificial intelligence anxiety mediates the relationship between doomscrolling and job-finding anxiety. The bootstrap results indicated a significant indirect effect of doomscrolling on job-finding anxiety through artificial intelligence anxiety ( $\beta = 0.09$ , 95% CI [0.050–0.136]). These findings support Hypothesis 4, confirming the mediating role of artificial intelligence anxiety in this relationship.

All results are integrated into the research model, which is illustrated in Figure 2.



Standardized beta coefficients have been reported.  $R^2$  = Explained variance, CI = Confidence interval.

Figure 2. Research model and effect values

## Conclusion and Discussion

This study investigated the effects of doomscrolling on job finding anxiety and artificial intelligence anxiety and revealed that artificial intelligence anxiety mediates the relationship between doomscrolling and job finding anxiety.

The results indicate that doomscrolling positively and significantly affects job finding anxiety. These findings suggest that reveal that university students who expect to enter the workforce after completing their education experience an increase in job finding anxiety following the development of a dependency on negative news flow. In other words, individuals who frequently follow adverse global developments through social media tend to exhibit greater pessimism and anxiety regarding

their future employment prospects. Compared to other studies' results, the findings obtained are similar. In particular, it has been stated that exposure to constant negative news on social media during the COVID-19 period increased anxiety about finding a job (Gabriel et al., 2021). Similarly, Rajabimajd et al. (2021) stated that fear related to the events of the COVID-19 period affected future career anxiety.

When examining the effects of doomscrolling on concerns about artificial intelligence, it has been observed that excessive interest in negative news also brings concerns about the purposes for which artificial intelligence will be used and the place it will occupy in our lives. This is because doomscrolling focuses on negative and anxiety-inducing news shared on social media. In this context, it has been revealed that excessive interest in negative news related to artificial intelligence, which has entered our lives very quickly and is expected to become more widespread in the future, increasing the number of people who may lose their jobs, has increased concerns about artificial intelligence. The primary cause of anxiety and fear regarding artificial intelligence stems from misunderstandings about what artificial intelligence is and its capabilities, as well as negative perceptions of artificial intelligence (Johnson & Verdicchio, 2017). The negative perceptions and news stories about artificial intelligence on social media further increase concerns about artificial intelligence. At the same time, the impact of artificial intelligence on the job market, in terms of replacing humans or forcing them to improve their skills, also increases concerns about artificial intelligence (Wang & Wang, 2019). Most of the developments regarding artificial intelligence and the potential negative consequences it may bring are communicated to people through social media tools. Therefore, it is considered a natural consequence that individuals who focus on the negative consequences of artificial intelligence through doomscrolling will also have increased concerns about artificial intelligence.

Another finding of the study is that artificial intelligence anxiety has an amplifying effect on job finding anxiety. According to the findings, individuals who are anxious about applying artificial

intelligence and its role in the future and in working life also experience anxiety about finding a job. Similar studies have also indicated that individuals in AI-focused job markets feel uncertainty about the suitability of their skills and experience anxiety during the job search process (Wang & Wang, 2019; Yazıcı, 2023). In their study, Uçar et al. (2024) revealed the relationship between university students' anxiety about artificial intelligence and their anxiety about unemployment. According to their findings, students have high levels of artificial intelligence anxiety, and there is a positive and significant relationship between artificial intelligence anxiety and unemployment anxiety. In this study, it was observed that the learning anxiety dimension of artificial intelligence anxiety was higher than the other dimensions. AI anxiety also addresses concerns about learning new skills to keep pace with technological developments (Lemay et al., 2020). Therefore, individuals who believe they cannot keep pace with technological developments experience increased AI anxiety and job finding anxiety.

In the process of validating the final hypothesis of the study, it was revealed that artificial intelligence anxiety plays a mediating role in the relationship between doomscrolling and job finding anxiety. In summary, during the research conducted on university students, it was found that a specific part of the effect of doomscrolling on job finding anxiety was mediated by artificial intelligence anxiety. According to this result, it can be stated that young people's anxiety levels regarding finding a job in the future are affected by the levels of anxiety they have towards artificial intelligence, along with the intense negative news they are exposed to on social media.

### **Implications**

This study examined the variables determining university students' concerns about finding employment, focusing on doomscrolling and artificial intelligence anxiety. The results revealed that focusing on negative news on social media and anxiety about artificial intelligence lead to more negative and anxious attitudes toward finding employment. These results again highlight the importance

of using social media effectively and purposefully. This is because constantly focusing on negative news on social media can bring many negative consequences, such as viewing global developments through a negative lens, reducing young people's hopes for their future careers, and increasing their anxiety about artificial intelligence, which is rapidly entering our lives. Therefore, the negative consequences of using social media in this way should be effectively communicated to students, and the importance of using social media more effectively for specific purposes rather than in this way should be highlighted. This information can be provided at the lecture level at universities or through various public service announcements and information processes through the government. In this regard, anxieties resulting from focusing on negative news can be eliminated, hopes for the future can increase, and since negative news is not conveyed to minds regarding job finding, hope and determination in finding a job can increase. Within the scope of the research, it has been observed that concerns about artificial intelligence, its place in our lives, and its future role also affect concerns about finding employment. In this regard, conducting studies to eliminate uncertainty about artificial intelligence and its functions, educating individuals on how to manage artificial intelligence, and explaining to individuals the features of artificial intelligence that facilitate work and working life will reduce concerns in this area. In this context, the evolving AI systems and their roles in professional life can be effectively communicated to students.

### **Limitations and Future Research**

The main limitations of the study are the cross-sectional design and the self-report of the collected data. For this reason, using longitudinal designs in future studies and testing hypotheses with face-to-face interviews and observational data will strengthen the results of the study. Another limitation of the study is that the sample consists of participants studying at only one university. In future studies, selecting samples from different universities and faculties will make the results more generalizable.

Job finding anxiety stems from the high level of uncertainty about future employment and the limited capacity to cope with these uncertainties. In this study, job finding anxiety is explained by doomscrolling and artificial intelligence anxiety, which further trigger uncertainties and negative developments. In future studies, more generalizable results will be obtained by including psychological resources such as coping strategies, hope, resilience and trust in the research model. In addition, testing the moderator role of personality traits in the relationship between job finding anxiety and the variables affecting job finding anxiety will contribute to the literature.

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## RESEARCH ARTICLE

## Well-Being in Academia from Social Science Researchers' Points of View

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## Abstract

*This study examined the well-being of researchers in academia, particularly in the context of fieldwork, with a focus on the challenges they encounter and the institutional support mechanisms available. Drawing from qualitative data generated through in-depth interviews and focus group discussions with researchers, supervisors, and Research Ethics Committee (REC) members, the study highlighted key factors influencing researcher well-being in social sciences. The findings were categorized into three major themes: the impact of experience-sharing, work-life balance, and the challenges of fieldwork. It was seen that researchers would benefit significantly from structured mentorship, peer support, and institutional guidance, during all phases of fieldwork (pre-, during, post). Work-life balance emerged as a critical concern, with many researchers experiencing stress due to excessive workload, and a lack of sufficient supervisory support. Fieldwork itself poses additional challenges, including emotional distress, ethical dilemmas, and bureaucratic obstacles, all of which can negatively impact well-being. This study argued that researcher well-being is an ethical responsibility of both individuals and institutions, necessitating comprehensive training, psychosocial support, and institutional policies aimed at fostering a healthier academic environment. Recommendations included integrating researcher well-being into graduate curricula, enhancing supervisory training, promoting peer support networks, and developing institutional mechanisms to monitor and improve mental health support in academia.*

**Keywords:** Academia, researchers, well-being, fieldwork studies

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## Öz

*Bu çalışma, akademideki araştırmacıların iyi oluşunu, özellikle saha çalışması bağlamında, karşılaştıkları zorluklara ve mevcut kurumsal destek mekanizmalarına odaklanarak incelemiştir. Araştırmacılar, süpervizörler ve etik kurulu üyeleriyle yapılan derinlemesine görüşmeler ve odak grup tartışmaları yoluyla elde edilen nitel verilerden faydalanan çalışma, sosyal bilimlerde araştırmacıların iyi oluşunu etkileyen temel faktörleri vurgulamıştır. Bulgular üç ana tema altında kategorize edilmiştir: deneyim paylaşımının etkisi, iş-yaşam dengesi ve saha çalışmasının zorlukları. Araştırmacıların, saha çalışmasının tüm aşamalarında (öncesi, sırası ve sonrası) yapılandırılmış mentörlük, akran desteği ve kurumsal rehberlikten önemli ölçüde fayda sağlayacağı görülmüştür. İş-yaşam dengesi, birçok araştırmacının aşırı iş yükü ve yeterli danışman desteğinin olmaması nedeniyle stres yaşadığı kritik bir endişe kaynağı olarak ortaya çıkmıştır. Saha çalışmasının kendisi de duygusal sıkıntılar, etik ikilemler ve bürokratik engeller gibi ek zorluklar ortaya çıkarmakta ve bunların hepsi de iyi oluşu olumsuz yönde etkileyebilmektedir. Bu çalışma, araştırmacı iyi oluşunun hem bireylerin hem de kurumların etik bir sorumluluğu olduğunu ve daha sağlıklı bir akademik ortamı teşvik etmeyi amaçlayan kapsamlı eğitim, psikososyal destek ve kurumsal politikalar gerektirdiğini savunmaktadır. Öneriler arasında araştırmacı refahının lisansüstü müfredata entegre edilmesi, danışmanlık eğitiminin geliştirilmesi, akran destek ağlarının teşvik edilmesi ve akademide ruh sağlığı desteğini izlemek ve iyileştirmek için kurumsal mekanizmaların geliştirilmesi yer almaktadır.*

**Anahtar Kelimeler:** Akademi, araştırmacılar, iyi oluş, saha çalışmaları

## Introduction

In the last decade, well-being has been one of the more highlighted issues around the world. With the emergence of the pandemic in 2020, the interest in this issue has increased in the research community. While it was already a growing topic, the impact of the pandemic on global mental health made it more prominent in academic studies. The World Health Organization's (WHO) World Mental Health Report (2022), which includes data from member states, highlights the impact of the pandemic, which saw a 25% increase in anxiety and depressive disorders in its first year. According to the report, 1 in 8 people is living with a mental health problem (p. 37). In addition, The Mental State of the World annual report notes that mental well-being was declining since before the pandemic and has continued to do so in subsequent years (p. 2). The project, which collected data from a web-enabled sample in 71 countries, further highlights that this trend is particularly pronounced among younger generations (p. 11), which states a serious mental health concern (Sapient Labs, 2024).

In this study, we aim to raise awareness about the issue of well-being of researchers in academia. In doing so, we also want to create a space for discussion on how to improve the well-being of researchers in Türkiye by sharing the diverse experiences of researchers in academia. Therefore, it is imperative to explain how well-being is defined and accepted in the context of this study. As a comprehensive view of well-being, the WHO characterizes it as "a positive state experienced by individuals and societies. Similar to health, it is a resource for daily life and is determined by social, economic, and environmental conditions" (WHO, 2021, p. 10).

Different approaches to and definitions of well-being allow the scholars to further create sub-concepts of it. Sirgy (2021) speaks about three philosophical views of happiness. At this point, it is important to clarify that in the literature, well-being, happiness, and life satisfaction are sometimes used interchangeably. The first view mentioned by Sirgy focuses on psychological happiness which is "the experience of positive emotions over time."

From this perspective, Sirgy also talks about subjective well-being, which is having more positive affect than negative affect overall. The second view Sirgy mentions is the prudential happiness, which is more related to a person's personal growth. It also involves a state of both physical and mental well-being. Building on this, Sirgy's final view of happiness is perfectionist happiness, which is a state of well-being that is similar to the second view but with the addition of living a moral life (Sirgy, 2021). In this article, well-being is accepted as the total social, emotional, and physical well-being of individuals.

## Well-Being in Academia

Interestingly, academia reflects a similar critical state of mental health and well-being. Guthrie and colleagues (2017) argued that there are no clear definitions of what mental health and well-being mean in research environments (p. 15), with academics found to be much more vulnerable to mental health problems than other professions, with one of the highest prevalence rates of mental health disorders at 37% (Guthrie et al., 2017, p. 21). Job demands, job insecurity, control over work performed, time management, work-life balance, managerial/supervisory support, role clarity, and exposure to negative attitudes and behaviors from colleagues such as bullying and harassment, are among the major stressors in academia, that lead to long-term mental health problems (Guthrie et al., 2017; as cited in Mahmoudi, 2023). Nature's survey of graduate students also found that 36% of them had "sought help for anxiety or depression related to their PhD" (*The mental health of PhD*, 2019). Beadle and colleagues (2020) shared the results of their survey of PhD researchers at the Leibniz Institutes. They found that 59% of the researchers mentioned experiencing high levels of anxiety in general, and 15% said that they were experiencing moderate to severe depression (p. 83). The problems are said to be related to the workload, supervisory relationship and quality of supervision, financial and job insecurity, and lack of social support.

Advance HE, a charitable foundation based in the UK, conducts an annual Postgraduate Research Experience Survey, which includes a section on well-being. In 2019, it was found that postgraduate

researchers had lower levels of well-being than the general population (Williams, 2019, p. 25). In 2020, the survey focused on the postgraduate researchers' working hours and how this affected their well-being. It was found that part-time researchers were happier overall, and their well-being was better than that of full-time researchers. It is possible that because they are not working full-time, they have time to socialize and relieve stress. In support of this, full-time researchers mentioned feelings of isolation and loneliness, and to address this issue, they suggested that their institutions organize social events to build a sense of community. Differences aside, all graduate researchers highlighted financial difficulties and barriers to timely access to counselling, as many respondents mentioned that counselling services were overbooked (Pitkin, 2020, pp. 29-30). Additionally, the most recent surveys (2023 and 2024) of Advance HE do not cover well-being as the previous surveys did, but in 2024 well-being was discussed in the context of overall graduate researcher satisfaction and indicated a possible improvement in the health and well-being support offered by the institutions (Neves, 2024, p. 43). The Max Planck Society's doctoral network conducts an annual survey of PhD researchers at their institutes. In the 2022 survey, nearly 59% of PhD researchers reported feeling moderate to high levels of anxiety. In addition, 41% of them started experiencing physical symptoms of stress during their PhD (Mourato et al., 2023).

Solms and colleagues (2024a), on the other hand, examined factors that influence the well-being of doctoral researchers and emphasized the effect of "psychological capital," which is a combination of hope, self-efficacy, resilience, and optimism. These characteristics are said to protect the researchers from burnout, and to strengthen their engagement (pp. 14, 17). This study underscores the importance of the impact of both environmental and individual factors on researcher well-being.

The current mental health problems are prevalent worldwide, so, Türkiye is not exempt from them. However, the studies on researchers' well-being are limited in Türkiye. Çakıcı's (2010) master's thesis on the relationship between well-being and burnout of academics working in non-profit universities in Türkiye is one of the studies that

points out that while the relationship between age and well-being is insignificant for all groups, it is interesting that one of the groups with the lowest scores is the youngest age group, which is between 24-29 years old. The Council of Higher Education (CoHE) organized the Youth Mental Health Workshop in 2019, where the increasing mental health issues in universities were discussed. Although the report is not necessarily aimed at researchers, it is still an important study that shows the rising mental health problems in Türkiye. Another related study is a report that evaluates the studies on mobbing in academia in Türkiye. The report is published by Bilim Akademisi, a non-profit organization that aims to be an example of honest academia. In this report, Cinli and her colleagues (2020) emphasized that mobbing is seen in every sector and academia is one of them, as shown by many different studies conducted in universities. In the studies reviewed, there are certain demographic characteristics that are associated with high exposure to mobbing. Younger academics experience more mobbing than their older counterparts, and incidents of mobbing decrease with age. Single and divorced academics are more likely to experience mobbing from their colleagues. And in relation to age, research assistants, who are at the bottom of the academic hierarchy, are exposed to more mobbing. It is obvious that not all researchers are currently working in academic institutions, however, the results are still significant to have an idea about the well-being of researchers in academia.

The National Mental Health Action Plan for 2021-2023, which was prepared by the General Directorate of Public Health of the Ministry of Health, states that the ultimate goal of the plan is to implement an integrated community-based mental health service model in mental health services, in order to monitor, protect and improve the mental health of individuals (General Directorate of Public Health, n.d., p. 9). While the existence of the action plan is valuable in itself, it lacks concrete steps to improve the well-being of individuals, let alone the researchers in academia. The final report of the Workshop on Restructuring the Turkish Higher Education Area, held in 2022 by the aca-

demics of leading universities in Türkiye, mentions the impact of unmerited appointments in universities on researchers. It emphasizes that those who are appointed as such expose those who deserve their appointments to mobbing and psychological harassment, which inevitably affects the well-being of researchers (Atılğan et al. 2022). Kılıç and Şanal Karahan (2023) conducted an online survey with graduate students in their study on researchers in academia. They found that master's students and younger researchers experienced higher levels of anxiety, depression, and academic distress. This proves that researchers at different stages should be approached differently. Pehlivanlı and Eslen-Ziya (2023) emphasize the effects of neoliberal structures, as well as the lack of academic freedom and autonomy, on the mental health of academics in gender studies field. Karadağ and Orhon (2024) focus on the importance of communication for academic and societal well-being. Meanwhile, Deniz and Kocabaş (2024) highlight the positive impact of organizational support on the psychological well-being of academics. It is highly significant that they found title and tenure influence the perception of organizational support on psychological well-being. Garip and Kablan (2024), on the other hand, found that marital status notably affects academic well-being, showing that academics in relationships have better well-being than single academics. Similar to Deniz and Kocabaş, Garip and Kablan also highlighted the negative effects of overbearing administrative tasks. Finally, Pehlivanlı and Eslen-Ziya (2025) emphasize academia's lack of response to physical and emotional distress. This causes academics to internalize systematic gaps as personal shortcomings, perpetuating the cycle of poor mental health and well-being.

### Purpose of the Study

The purpose of this study is to raise awareness in academia and initiate a discussion about researcher well-being, as it remains a growing field in Türkiye. The second purpose is to share the fieldwork experiences of researchers, the challenges they face, and how their well-being has been affected during this process, as fieldwork is

assumed to be a challenging context for researchers. Another purpose of this study is to reflect different views about researcher well-being in academia, specifically by including academic supervisors, and Research Ethics Committee (REC) members, and finally to make recommendations to change the current situation in order to achieve a more supportive academia towards researchers in the fieldwork.

According to the purpose of the study, which is part of an ongoing PhD project, the main research question for this study is "How does fieldwork affect the well-being of academic researchers?" Related to this, the sub-question(s) are:

1. How can the support mechanisms in academia be improved?
2. How can researchers prepare for fieldwork?

### Methodology

The study is designed as a qualitative research because it allows the researcher to gain insights into the complexity of phenomena to better understand the mechanisms and underlying aspects of it (Roller & Lavrakas, 2015, p. 2). Qualitative research is also known to be used to study new topics. Since the well-being of researchers in Türkiye is a new and developing concept that lacks original literature, this study is an important contribution to this gap. The study adopts the interpretive approach, which asserts that reality is constructed through communication and interaction; and the critical approach, which asserts that knowledge involves hierarchical power relations that are brought to awareness in order to question and transform the existing structures (Tracy, 2020, pp. 51-53). In the context of this study, these approaches, along with the use of data generation techniques such as in-depth interviews and focus group discussions, help to focus on understanding the experiences of researchers during fieldwork studies, to advocate for a change towards a better research and training process, for a healthier academic workplace, and to offer experience-based suggestions to further support the change.

## Data Generation Techniques

Semi-structured in-depth interviews and focus group discussions were the primary data collection techniques for this study. In-depth interviews were conducted with the participants using a semi-structured interview guideline either face to face or online, depending on the location of the participant. The guideline consists of five sections, each focusing on a different aspect and stage of the fieldwork process. The first section asked about demographic characteristics and research experience. The second section focused on the details of research experience in the past five years at the time of the interview. The third section consisted of questions about communication between researchers and supervisors. The fourth section asked about support during fieldwork, preparation before fieldwork, and types of different support mechanisms are asked. The final section focused on factors affecting well-being during the fieldwork, such as work-life balance, different emotions, and the ethical responsibilities of researchers and institutions.

While focus groups are traditionally conducted face to face, online focus groups were preferred in this study in order to save travel time and to have the opportunity to include participants from different locations with different experiences (Dayan & Yüksel-Kaptanoğlu, 2022, p. 65). The three focus groups conducted with researchers in academia had 3-6 participants, which is roughly in the range of the ideal number of participants for online focus groups (Willemsen et al., 2023 p. 1814); while Dayan and Yüksel-Kaptanoğlu's (2022) observations that six participants is ideal were mostly confirmed by the researchers' experience.

The focus group sessions began with participants introducing themselves. Then, a fictional story about the challenges a researcher faced during fieldwork was read to the group by the researcher. When the story ended, the discussion was led with two guiding questions: 1) what would the participants do in this situation, and 2) what would/could their institutions do in such a situation.

## Participants

Participants in the study are primarily social science researchers who, at the time of the interview, were conducting, participating or have conducted/participated in a fieldwork study within the past five years. There was no restriction to a specific field, and the aim was to find participants from the social, health, and educational sciences that commonly use fieldwork studies. Within a purposive sampling approach, snowball sampling was also used to reach different participants. This study focuses on 21 of the participants who were in academia at some point, and three of the focus group discussions that involved researchers from academia at different stages. The PhD project, however, consists of 30 participants, resulting in 31 in-depth interviews. Four focus group discussions were also conducted online with different types of researchers. In order to get a holistic overview of academia, 13 researchers, four supervisors, and four Research Ethics Committee (REC) members were involved in the working group. Of the researchers, eight were either PhD students or (recent) graduates, and five were either master's students or (recent) graduates. Most of the participants were women, with only three men in the study group. The ages of the participants ranged from 24 to 67, reflecting different levels of experience in academia. While most are from the social sciences, there are also participants from medicine, health sciences and journalism. A detailed overview of the characteristics of the participants is given in the appendix. This study was approved by the Social Sciences and Humanities Research Ethics Board of Hacettepe University on November 8, 2022. From the beginning to the end of the study, special attention was given to the ethical procedures. To ensure anonymity, each participant was given a codename. To maintain confidentiality, identifying and sensitive information was redacted in both the transcriptions and quotations used in this study. Each participant was informed of their rights regarding participation in the study, with an emphasis on the voluntary nature of the research. Furthermore, consent for audio- and video-recording was obtained before beginning the interview.

The three focus groups consisted of researchers from different fields and at different levels. The first focus group was conducted only with master's level researchers, and there were five women, who incidentally come from sociology. Their ages ranged from 25 to 36. In the second focus group, which was conducted with PhD researchers, there were three women. All participants were in their 30s and came from different scientific fields, namely tourism, education and social work. The third focus group was a hybrid group consisting of six (four women, two men) master's and PhD level researchers. They ranged in age from 23 to 37 and were mostly from the social sciences. Similar to the in-depth interviews, the focus group participants were mostly women, with only two men present in the third focus group. Overall, there were more participants from different scientific fields, but most of them were from the social sciences. The age range of the participants reflects a younger group than the in-depth interviews due to the focus group criteria.

### Data Analysis Technique

After data generation, and the completion of transcription, transcript documents were sent to each participant and feedback was requested. Thereafter, thematic analysis was used as the data analysis technique. Braun and Clarke (2022) define thematic analysis as a technique “for developing, analyzing, and interpreting patterns across a qualitative dataset, which involves systematic processes of data coding to develop themes” (p. 27). Themes are created from codes and can be a “shared idea, meaning or concept” (pp. 33-36). They describe six definitive steps to the thematic analysis: “familiarizing with the data, coding, generating initial themes, developing and reviewing themes, refining, defining and naming themes, and writing the report” (Braun & Clarke, pp. 75-77). In this study, these steps were followed, with the addition of open coding at the coding stage, to generate as many descriptive codes as possible and achieve more accurate themes. To ensure rigor the interview transcripts were sent to the respective participants for member checking. To establish reliability and validity—often referred to as transparency in qualitative research—the researcher translated

and edited the participants' quotations, using them directly in this study to accurately reflect the participants' experiences.

### Findings

The three themes that emerged from the data analysis and are discussed in this article are: the impact of sharing experiences, the impact of work-life balance, and the challenges of fieldwork. It is observed that the needs of researchers differ at each stage of research, so these themes are discussed in terms of three stages of the fieldwork process, beginning with the pre-fieldwork stage, and moving through the fieldwork and post-fieldwork stages. It is also helpful to emphasize that sometimes the stages of fieldwork may overlap and are difficult to distinguish.

### The Impact of Experience-Sharing

The analysis suggests that certain characteristics of researchers are crucial to how they feel prepared for the fieldwork and how it affects their well-being. It can be said that for researchers in academia, who are either master's or doctoral students/graduates, experience and related needs for research support are the most important aspects of the process. Naturally, PhD researchers are expected to acquire certain qualities such as having the necessary knowledge to design and conduct research, organize their fieldwork, and write their dissertation. However, master's level students typically have little to no research experience, and their thesis is their first. These clear differences between master's-level and PhD researchers require different supervisory approaches for them.

The preparation phase for fieldwork is a very promising timeframe in terms of equipping the researcher with the necessary self-support mechanisms, experience, and giving enough time to adjust to the transition. However, existing systems, certain institutions, and characteristics can become a challenge that the researcher must face, sometimes alone. In this study, almost all master's-level researchers emphasized their need for support and guidance from their supervisors, and how the lack of one or both of them made them feel more stressed or lost. Neşe, a master's-level researcher

in sociology who was 26 at the time of the interview, talked about two studies in which she was an interviewer. One was her supervisor's project focusing on Syrian refugees in Türkiye, where she had less control. The other one was a group project for a class on LGBT+ people, where her peers and she had more influence. She described her experiences in these projects as different from each other. In both studies, their supervisor was there as a "controller", however, she felt she had more autonomy in the class project, mentioning that *they did all the work themselves but asked their supervisors when needed* (Neşe, p. 7).

Similarly, Seray, a 26-year-old master's-level researcher in nursing, emphasized the support she received from her supervisor during the process of choosing a thesis topic. Even though the topic she wanted to study was not in her supervisor's area of expertise, they still accepted her as a thesis student and encouraged her to study what she wanted:

*Well, but she supported me because I was inclined towards this field [women's health]. Well, because I hear from many people around me that when it is not the topic of the advisor, the advisor may not want to work on that topic. I am sure they have their own reasons, but my supervisor did not do such a thing. They said, "Well, if you want to work on this topic, I support you," which was very valuable for me. (Seray, p. 7)*

In contrast, however, PhD researchers were more confident in their ability to conduct research; they also emphasized their need for guidance from their supervisors when necessary and sometimes wished that their supervisors were more hands-on with them. Lamia, a 32-year-old PhD graduate in psychology, talked about her feelings about her supervisor(s) monitoring her:

*Yes, I think it's very suffocating. I mean, it's good to check from time to time. I mean, I feel like it has such a very fine line. That's why I said to keep track of, not to hold someone to account, not to never ask, but to keep track of them. Because I think it is a very big job, I mean, writing a 100, 100-page work from scratch. I mean, the article is more organized, even if you read all the literature, you don't need to write*

*it all down, but a PhD is a very big job and very stressful, so it would be nice if we were monitored. (Lamia, p. 20)*

Lamia had two co-advisors because she was studying with a particularly sensitive group. Nevertheless, she felt that neither had given her the care she needed in the dissertation process. On a more serious note, Eray, a PhD in social work who was 37 years old at the time of the interview, had been subjected to mobbing by a member of his dissertation committee, who was an expert on the topic he was studying, which made it difficult for him during this process. He highlighted the support of his supervisor and other committee members during these challenges, how he *"would run to his other professors"* and that *"if it wasn't for them, [he] would be very depressed"* (Eray, Location 22).

The interviews show that while master's level researchers were more doubtful about their abilities and when to ask their supervisors for help, PhD researchers were clearer about their abilities. However, they also needed the support and guidance of their supervisors. At this point, we can see personal differences as Lamia was more passive in expressing her needs, while Eray was more proactive and sought support from his supervisor and other academics. On the other hand, Deren, a 33-year-old PhD researcher in educational sciences who was a participant in FG2, mentioned her doubts about the number of supervisors who do not have enough fieldwork experience to adequately guide PhD researchers and summarized the role of the supervisor as:

*Because they, that person, will be a scientist [PhD student], and since these [critical thinking, questioning] are the basic things of science, the person should do them. Yes, I mean, I don't think there is much need for a supervisor here. Maybe they can pave the way, maybe they can pave the way in terms of questioning things, not in terms of research, but in terms of questioning, critical thinking, yes. (Deren, FG2, p. 10)*

Deren's argument is that by the time the researcher is at the PhD level, they should have the necessary skills to design and conduct research and therefore need less support on this matter from their supervisors in this regard. However, it

should be kept in mind that each master's and PhD program at different universities will equip its students with different skills, and this may result in some researchers lacking in research skills. In order to feel prepared for fieldwork, participants mentioned a number of factors, such as knowing the conditions of the fieldwork, focusing on the specific working group, and the responsibilities of researchers, supervisors, and institutions. The most common point that was raised in the interviews was the sharing of experiences among researchers. Nevra, a 53-year-old supervisor in the field of gender studies, mentioned the importance of sharing experiences before fieldwork:

*For example, let's say you are going to interview children... the things you need to pay attention to may differ. For example, ... students with a background in psychology or social work from different fields can share their experiences in the field with us ... with the students. In other words, we should not necessarily think that the lecturer has experience, and the students do not. (Nevra, p. 23)*

Nevra's emphasis on experience, and that any researcher at any stage can have it, is important. This stresses that research or field experience can come from a researcher's professional life outside of academia; and that the assumption that supervisors are familiar with fieldwork conditions is not always true. Sharing experiences is one way to prepare researchers for fieldwork. In addition, Çisem, a 37-year-old PhD researcher in social work who participated in FG2, mentioned the significance of preparation for the specific working group of the research. She highlighted the ethical responsibility to protect the well-being of participants and to consider their experiences (Çisem, FG2, p. 5). Çisem emphasized that to protect the participants, it is possible to realize the ethical responsibility of the researcher by preparing for the specific working group and its conditions. The interviews point out that experience is often relative to the stage the researcher is at, and that sharing experiences is crucial in preparing researchers for the challenges of fieldwork. On the other hand, Masal, a 29-year-old master's-level researcher in gender studies, struggled because she had to change supervisors during her master's program, and her current supervisor was not an expert in her thesis subject. She said

that she did not ask for support from her supervisor because *"they did not know [her] field process."* Masal emphasized that her supervisor was unfamiliar with her topic, so she was also alone during the analysis phase (Masal, p. 34).

Similarly, Delfin, a 27-year-old PhD researcher in sociology, highlighted the need for support and not to *"be thrown into the field and left"* during fieldwork, especially for novice researchers. She expressed that *"communication should be ensured in the field"* and supervisors should check the researcher's well-being as well as monitor the methodological aspects from time to time (Delfin, p. 29). Many participants indicated that communication before and during fieldwork is key to support. FG1 participant Öznil, a 25-year-old master's-level researcher in sociology, agrees with this, as she also highlighted that discussing the challenges of fieldwork at academic conferences and sharing experiences among researchers has become even more important:

*Well, when we come together in such conferences and symposiums, we fail to transfer the field experience there. ... and transferring the experience there is actually, well, it is necessary to normalize that incompetence. In these kinds of gatherings, in these kinds of sharing, the transfer of different ... experiences that we all experience are very important and very valuable to me ... (Öznil, FG1, Location 98)*

In some interviews, it was pointed out that methodological discussions and curricula are insufficient to prepare researchers for the challenges of fieldwork. Sertap (p. 37), a 34-year-old PhD researcher in political science, also mentioned, echoing Öznil's idea, that it could be *"put in the [text] books how exhausting this process is going to be"*. This is where institutional responsibilities come into play. Universities and their RECs should take steps to ensure the well-being of researchers. According to Ayca, a 37-year-old REC member in the field of law, the first step should be to decide what constitutes a researcher. Then, relevant training should be provided to prepare researchers for fieldwork (Ayca, p. 19).

While RECs have a clear responsibility to train the researchers on ethical values to consider during research and fieldwork, all participants who are or have been REC members pointed out that

being a REC member is a secondary task for academics who already have enough workload. Thus, this could be a possibility if only there were more capacity and potential in universities to thoroughly support researchers. Different institutions such as TÜBİTAK and YÖK are related to academics and researchers. While YÖK is considered the main actor in the implementation of rules and regulations for universities, TÜBİTAK is mainly related to the research conducted. It could be assumed that the well-being of researchers falls under the jurisdiction of these two institutions. On the other hand, universities can support the researchers in various ways. For example, Seray, a 26-year-old master's-level researcher in nursing, struggled to reach participants in factories in a small province in Türkiye because the topic of her thesis was considered obscene by human resources departments. She explained that if the university had provided her with an official document declaring support for her research, stating that *"this issue is important"*, her fieldwork would have been easier, and she would have been able to reach more participants (Seray, pp. 9-10).

In Türkiye, universities generally have a good reputation and are valued for their contribution to the community. So, a simple document of support can help researchers in the field. Researcher well-being is a relatively new issue in Türkiye, and academia is generally slow to embrace new implementations. Therefore, a bottom-up approach to the issue could be a good way to start raising awareness. Like Sila, a 48-year-old PhD researcher in political science, other researchers should be proactive and resourceful in asking for support and *"try[ing] very hard to get that..."* (Sila, p. 13).

### The Impact of Work-Life Balance

An important part of being a researcher is maintaining a balance between work and personal life. Naturally, each researcher has different responsibilities in their personal lives. Of the researchers, only two were currently married and only one had children. Almost half of the researchers were living alone at the time of the interviews and thus had more responsibilities in their personal lives. On the

whole, however, they indicated that they were relatively relaxed about housework, either because they lived alone and were able to postpone certain chores, or because they had understanding spouses who tolerated their absence from chores for the time being, with the exception of Sila. The only participant with a child is Sila, and she emphasized that it was difficult to focus on work during the early years of her child's life. Sertap, a PhD researcher in political science who was 34 at the time of the interview, single, and living with her family, provides a counterpoint. She emphasized that being a PhD researcher while single and without household responsibilities allowed her to focus on her PhD. She further explained that *"if [she] were married ... if [she] had children, it would be very difficult because [she] would have to [take] responsibility for them"* (Sertap, p. 32).

Therefore, it is clear from both lived experiences and assumptions that more responsibilities in one's personal life can interrupt the research process. Delfin, a 27-year-old PhD researcher in sociology who was engaged at the time of the interview, also provided some insight into this issue. She emphasized that having only a researcher identity is a "luxury" because even during an interview you are always thinking about your other responsibilities, and it is *"hard to be there, to be in the moment"*, and is almost impossible to shed other personal identities (Delfin, p. 39).

In addition to inescapable responsibilities, fieldwork is an interruption of the researcher's social and private life. We argue that fieldwork itself is a challenge to researchers' well-being because it forces them to step outside their comfort zones. Therefore, it is crucial to prepare to deal with the difficulties involved. Sometimes, personal differences can make the situation even worse, as the researcher may not be able to take adequate care of themselves physically, mentally, and socially. Eylül, a 28-year-old master's level researcher in psychology, said that the field *"had a negative effect in a negative way because I came back exhausted from there"* (Eylül, pp. 30-31). During the interview, Eylül reiterated the fact that after traveling to different cities for fieldwork, she would feel physically exhausted and unable to get out of bed. This would get to the point where she would not call or

respond to her friends, in addition to not being able to arrange social gatherings with them to relieve the exhaustion. She admitted to losing friends during these periods and expressed the challenges she faced in coping with the reality of fieldwork. These anecdotes underscore the crucial step prior to fieldwork of preparing researchers for the impact of being in the field and providing them with the necessary skills to cope with it.

### The Challenges of Fieldwork

As mentioned above, fieldwork is a demanding context for researchers, regardless of their level of experience. Of course, researchers face various challenges during their research, and how they respond to them is crucial to their well-being. However, in reality, even if the researcher is fully prepared for the fieldwork, they may be affected by unforeseen circumstances, unhelpful people from the community, or uncooperative participants.

Sometimes related to work-life balance, another crucial factor for the well-being of researchers is their personal characteristics and private life. After graduation, there are changes in both academic and personal life that seem to have a significant impact on the well-being of researchers during fieldwork. Getting married, divorced, or becoming a parent bring unique challenges after which some researchers may feel disturbed, while others may feel more empowered, having grown with their trauma.

Lamia, a recent PhD in psychology, and Eray, now an academic researcher in social work, experienced similar life events during their PhD journeys. They were both in their 30s, married and divorced during their doctoral studies, and worked with challenging research groups. However, Lamia is a woman and Eray is a man; Lamia was actively working as a therapist, and Eray was only in academia. They both faced difficulties during their fieldwork, whether it was their working groups or the bullying they endured from their committee members. In the end, they both emphasized that they grew from these experiences, either on their own or with the help of a therapist. They share their stories as:

*If it wasn't for my analyst [therapist], I probably would have quit my PhD 5 times, 10*

*times. Because the doctorate was a process where I felt the helplessness of this patient group, where I was pushed and shoved as a member of the ÖYP, where I thought that I would not find strength in myself, that I would not find it. Both being an assistant and doing a PhD. I think I got a lot of strength from my analyst, my own therapy, telling myself, being heard, thinking about myself. I think I can say that I wouldn't have been here without them. (Lamia, p. 14)*

*So, if you ask in terms of well-being, you know, this process was very challenging for me, I don't know how it happened, but it was a kind of empowerment practice for me that I benefited a lot afterwards, I became very [record is unintelligible] very strong. I mean, the process was tiring, it was challenging, but I can say that the result was positive. (Eray, Location 94)*

As the examples of Lamia and Eray show, similar life and research experiences can still present different challenges for researchers. Indeed, some participants argue that fieldwork can be an escape from personal life. Conversely, fieldwork can invade the researcher's life to the point of being inescapable. Sertap, a PhD level political science researcher studying refugees of different ethnicities, had such an experience during her fieldwork and claimed that if she had more responsibilities in her personal life, she could break away from the field and the participants' stories might not have "engraved in [her] soul" and caused her physical discomfort (Sertap, p. 35).

The repetition of stories also strengthened Sertap's connection to her fieldwork. It almost became a part of her life, which is how certain illnesses later manifested themselves. When asked, Sertap said that she did nothing to prepare for fieldwork, that she just "dove into" the field, and that this is why she was exhausted afterwards (p. 26). Since we have argued that preparation for fieldwork is central to protecting the researcher from these kinds of problems, it seems that lack of experience and not knowing what fieldwork might bring are also challenges that researchers face. Nevra, a 53-year-old supervisor in gender studies, mentioned that her students are sometimes reluctant to go into the field because of their lack of field

experience, in which cases, they offer emotional support (Nevra, p. 12).

Preparing researchers for fieldwork involves logistic, methodological, and psychological support. While none of the participants acknowledged a systemic approach within their universities, their supervisors were sometimes proactive on this issue and provided them with the necessary information. However, Nejat, a 44-year-old supervisor in political science, emphasized the unpredictability of fieldwork, saying that *"Whatever we determine, whatever we think, life is not like that. Field research doesn't work like that either"* (Nejat, p. 15).

Sıla, a 48-year-old PhD candidate in political science studying a sensitive and difficult topic, is an apt example of the unpredictability of fieldwork. Although she mentioned that she anticipated the challenges that this topic might present to her, she was still deeply affected by the secondary sources she used (p. 10). The uncertainty of fieldwork requires an adaptive approach to training researchers to empower them during their research. However, the responsibility for preparation falls mostly on the researcher and sometimes on the supervisor. The university as an institution in Türkiye seems to be failing to equip researchers with crucial yet basic skills and so far, lacks the awareness to change the current situation. But it is also important to look at the problem in a broader sense, because universities can only handle so much of the demand. On the other hand, public institutions such as ministries also have a role to play in fieldwork. For some studies, researchers have to get permission from the relevant ministry or apply to their ethics committees. Three of the participants had to obtain permission from different public institutions that interfered with the researcher's fieldwork process by not allowing audio recording, using relevant and important descriptive demographic information about the participants, and insisting that the interviews take place in the respective institution. These bureaucratic challenges posed various puzzles for the researchers and indirectly helped to shape their identities as researchers and their personal ethical values about research. It is interesting to note that only PhD researchers in the working group were exposed to these decisions, as they were more confident in

their practice and had the ability to make decisions in an ethically responsible way. Where acceptable, they followed the instructions given, however, when these conflicted with the anonymity and confidentiality of their research participants or with the purpose of their study, they did what they thought was ethically sound.

There may also be challenges after the fieldwork is completed. Conducting face-to-face interviews usually requires audio recording, so the researcher has to transcribe it afterwards. The transcription process seems to affect researchers in two ways: the first is more technical and depends on the quality of the recording, making transcription more time-consuming for the researcher. Serpil, a 24-year-old master's level researcher in the field of nutrition, spoke about her experience in this regard:

*Because, as I said, in the transcription process you don't understand what he is saying, you listen to the same recording 50 times, you stop it, you try to write it down. Or, the sound is not clear. Maybe, for example, when you are listening to something that you don't think of right now while I am talking, I wish I had asked you about it [voices get mixed up, not understood]. (Serpil, p. 13)*

Even with a high-quality audio recording, transcription is a laborious step. It becomes even more challenging when the subject matter is sensitive or when participants share emotional and personal aspects of their lives. Mazhar, a 33-year-old PhD researcher in sociology at the time of the interview, shared his experience:

*I mean there ... I was personally very impressed by it. Especially the part that [name] threw, you know, the part that [name] said let's take it out, the part that I mentioned, the impossibility of it, affected me very deeply, I mean, when I was reading those transcriptions, at many points I really teared up, I cried. (Mazhar-2, p. 35)*

The fieldwork process has various aspects that affect researchers mentally, physically, or emotionally. It is also evident that preparation for fieldwork is essential, especially for novice researchers. However, it should also be kept in mind that even if the researcher goes to the field prepared, they

may face challenges that negatively affect their well-being. To overcome such problems, the participants suggested different solutions, which are discussed in the next section.

### Discussion, Conclusion, and Recommendations

Fieldwork is a sensitive context for researchers presenting them with various challenges. Three aspects of fieldwork that affect researchers' well-being were discussed in this study: experience, work-life balance, and challenges. Participants had different ideas on how to overcome these obstacles and create a better research environment for researchers. It is often mentioned that preparing researchers for fieldwork is an essential part of supporting them. In research ethics, the protection of participants is usually accepted as a rule. However, since the last decade of the 20th century and the first decade of the 21st century (Bowtell et al., 2013; Dickson-Swift et al., 2006; Williams et al., 1992), the ethical aspect of researcher protection has been discussed intermittently. Some studies have focused on qualitative researchers (Kumar & Cavallaro, 2018; Parker & O'Reilly, 2013; Paterson et al., 1999; Vincett, 2018) due to the closer relationship between the researcher and the participant and the ethical considerations this brings to research. Nevertheless, this study aimed to include both researchers with quantitative and qualitative fieldwork experience in the social sciences in order to understand their problems and make suggestions to address them. This study argues that protecting researchers is an ethical responsibility for researchers, their supervisors, and their universities. According to the participants, more comprehensive ethics training is needed for researchers to protect themselves. In the current situation, none of the participants' universities offer such comprehensive ethics training that covers every stage of the fieldwork process. Some participants, especially REC members, suggested that RECs could take on this responsibility to thoroughly train researchers. Realistically, however, they also emphasized that since REC members are also academics with varying workloads, it is quite impossible to implement this in the current state. One solution to this problem is to give this responsibility to each

department or institute to integrate into their research ethics curriculum. REC members could provide guidance and, if necessary, train the trainers so that the workload of academics is not overburdened at the same time. This is also emphasized by Atılğan and colleagues (2022) and YÖK (2022). These reports emphasized the need to include science ethics, epistemology, and philosophy of science as mandatory courses in the postgraduate curriculum. In addition, they stated that RECs should be independent to be effective and should cover all types of ethical violations. It is important to add that there is also a lack of methodological curricula to inform and prepare researchers for fieldwork. Some participants suggested including the challenges of fieldwork in methodology courses to compensate for this. The need to develop methodology courses is also highlighted in the YÖK report (2022). It is also crucial to share experiences through textbooks, conferences and other academic events.

Another effective way to both share experiences and provide support is to form and participate in peer support groups. Panayidou and Priest (2021) found that after eight weeks of co-facilitating doctoral support groups, participants' subjective well-being scores increased. In addition, the study by de Villiers Scheepers and colleagues (2023) showed that such peer groups are helpful for researchers to keep their motivation high and feel a sense of community during their research. There were participants who reported feeling alone during their research, so peer groups may also be beneficial to alleviate these feelings. At this point, the question of whose responsibility it is to form these groups can be raised. It is possible to form these groups among volunteer researchers, as de Villiers Scheepers and colleagues (2023) did. However, the university could take the initiative to create a systematic support mechanism by forming these groups. It is also important to create a wellness-oriented, awareness-raising atmosphere in the university so that researchers can feel safe to share their challenges in these groups. Otherwise, according to one of the participants, in the current academic environment in Türkiye, researchers do not trust each other and fear that their ideas will be stolen or that they will have to compete for opportunities. These groups could be formed as part of a broader, university-

based researcher support unit that is independent and multidisciplinary. This unit was discussed in the interviews, and participants agreed that it would be beneficial for researchers. It could include psychosocial, academic writing, project writing, financial guidance, and different types of support that researchers need. In some universities, various units offering different types of support to researchers in these areas exist, so in these universities, coordinating these separate units to offer more comprehensive support could be a solution. It is essential to keep in mind that this unit should be independent so that researchers can seek advice in a safe environment. As studies by Muro and colleagues (2022) and Solms and colleagues (2024b) have demonstrated, intervention programs aimed at enhancing researchers' well-being are effective. It is essential to provide researchers with the skills to manage themselves effectively. However, it is also important to keep in mind that the effects of these interventions may take some time to be seen.

Work-life balance is an important issue in researchers' well-being, and young researchers in particular may find it difficult to maintain it. Several studies have identified various factors that impact work-life balance and, consequently, overall well-being. The study by Milicev and colleagues (2023) highlights the value of a PhD. However, as a stressor, it is a possible disruptor of work-life balance and positive emotions. To avoid this, it is recommended to model a healthy work-life balance. On the other hand, as conveyed by Muro and colleagues (2022), workload and complexity are emphasized as factors influencing the decrease in well-being (as cited in Muro et al., 2022, p. 2). Kılıç and Şanal Karahan (2023) also identified a similar problem among PhD students, indicating that they have to schedule social events in advance due to the workload of the program, which further complicates the issue of psychological problems within the cohort (as cited in Kılıç & Şanal Karahan, 2023). In this study, experience is also mentioned as a factor affecting the well-being of researchers. Preparing researchers in social sciences for fieldwork and providing them with opportunities to gain field experience are also mentioned by participants. Browning and colleagues (2014, 2016) focus on the development of early-career researchers (ECRs),

employing different methodologies. While they define ECRs as PhD researchers with less than five years of experience, what they implement and highlight can also be generalized to PhD researchers. In their 2014 study, Browning and colleagues conducted face-to-face workshops with ECRs and focused on enhancing their research skills. They later highlighted institutional support as essential for the development of researchers (Browning et al., 2016). In addition, Boeren and colleagues (2015) reviewed publications on mentoring of ECRs and again emphasized the value of mentoring and urged the academic community to better identify what mentoring encompasses.

Mentoring relationships are crucial for young researchers such as graduate students. Another recommendation from one of the participants is a committee or system to oversee the student-supervisor relationship during graduate school. The relationship between the graduate student and the supervisor is crucial, but sometimes complicated. There are times when students have problems with their supervisors, and usually there is no place for them to report this. Therefore, it is essential that this committee be independent in order to protect the confidentiality of both parties. However, due to academic politics and hierarchy in some universities, this committee should be well thought out when it is formed to avoid further conflict.

This study examines and discusses aspects of fieldwork that influence researchers' well-being. Participants shared their ideas on how to promote researchers' well-being and raise awareness in academia. More experienced participants, such as REC members and supervisors, expressed their thoughts more realistically, emphasizing the capacity and ability of universities to enforce new regulations. To create or provide such support mechanisms and make them sustainable, universities need financial and human resources. Therefore, the first step towards researchers' well-being could be to train and empower researchers and equip them with methodological and psychosocial skills. A bottom-up approach seems to be the more fruitful way to ensure researchers' well-being.

During the interviews, participants were asked whether researchers and their institutions are responsible for the well-being of researchers. While

most participants agreed that this is indeed true, institutions such as YÖK and TÜBİTAK definitely have responsibilities in this issue. YÖK's workshop on improving PhD education is a positive step towards improving the field of research in academia. However, a research or working group on researchers' well-being in these institutions has yet to be formed. In the future, it is crucial to continue studies on researcher well-being in Türkiye and to provide practical solutions, training, and prevention and intervention programs for researchers at all levels. It is also important to consider what the ethical responsibilities each stakeholder, whether individual or institutional, should promote to improve researcher well-being.

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## APPENDIX

| Participant | Sex | Age | Field             | Education | Researcher ID |
|-------------|-----|-----|-------------------|-----------|---------------|
| Sevgi       | F   | 32  | Demography        | PhD       | Researcher    |
| Delfin      | F   | 27  | Sociology         | PhD       | Researcher    |
| Masal       | F   | 29  | Women's Studies   | Master's  | Researcher    |
| Lamia       | F   | 32  | Psychology        | PhD       | Researcher    |
| Eray        | M   | 37  | Social work       | PhD       | Researcher    |
| Necla       | F   | 56  | Medical ethics    | PhD       | REC member    |
| Mazhar      | M   | 33  | Sociology         | PhD       | Researcher    |
| Bade        | F   | *   | Demography        | PhD       | REC member    |
| Nehir       | F   | 38  | Law               | PhD       | REC member    |
| Seray       | F   | 26  | Nursing           | Master's  | Researcher    |
| Serpil      | F   | 24  | Nutrition         | Master's  | Researcher    |
| Sertap      | F   | 34  | Political Science | PhD       | Researcher    |
| Hale        | F   | 31  | Gerontology       | PhD       | Researcher    |
| Neşe        | F   | 26  | Sociology         | Master's  | Researcher    |
| Eylül       | F   | 28  | Psychology        | Master's  | Researcher    |
| Nevra       | F   | 53  | Women's Studies   | PhD       | Supervisor    |
| Nejat       | M   | 44  | Political Science | PhD       | Supervisor    |
| Azra        | F   | 46  | Journalism        | PhD       | Supervisor    |
| Aycan       | F   | 37  | Law               | PhD       | REC member    |
| Zara        | F   | 43  | Int. Relations    | PhD       | Supervisor    |
| Sıla        | F   | 48  | Political Science | PhD       | Researcher    |

RESEARCH ARTICLE

# Artificial Intelligence Awareness Scale Development Study

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## Abstract

*The aim of the study is to develop a valid and reliable measurement tool to measure employees' perceptions of artificial intelligence awareness. In the first stage of the three-stage scale development study, in-depth interviews were conducted. As a result of the content analysis of the data obtained from the interviews, a 41-item proposition pool was created. In the second stage, a draft of the items was created and the scale was structured by consulting expert opinions in order to ensure meaning, face and scope validity. In the last stage, the scale was evaluated and a 14-item draft scale was created. As a result of the pilot application conducted on 132 employees working in the healthcare sector using the draft scale, it was decided to remove one item from the scale. Then, the final scale consisting of 13 items was reached: 139 employees in the automotive sector and 152 employees in the logistics sector. As a result of the analysis, a 13-item one-dimensional scale emerged. The CFA server determined that the scale provided an acceptable level of fit. Cronbach's Alpha values were 0.834 in the healthcare sector; It was calculated as 0.810 in the automotive sector and 0.867 in the logistics sector, and the scale was found to be valid and reliable. The scale is an important measurement tool to be used to analyze individuals' awareness of AI in measuring the level of individual awareness, determining educational needs, conducting attitude analysis, developing policies and strategies, and academic research.*

**Keywords:** Artificial Intelligence, Artificial Intelligence Perception, Artificial Intelligence Awareness, Scale Development, Scale

## Öz

*Bu çalışmada, çalışanların yapay zekâ farkındalığına ilişkin algılarını ölçmek üzere geçerli ve güvenilir bir ölçüm aracı geliştirmek amaçlanmıştır. Üç aşamalı ölçek geliştirme çalışmasının ilk aşamasında derinlemesine görüşmeler yapılmıştır. Bu görüşmelerden elde edilen verilerin içerik analizi sonucunda 41 maddelik önerme havuzu oluşturulmuştur. İkinci aşamada maddelerin taslağı oluşturulmuş ve anlam, görünüş ve kapsam geçerliliğini sağlamak amacıyla uzman görüşlerine başvurularak ölçek yapılandırılmıştır. Son aşamada ölçek değerlendirilmiş ve 14 maddelik taslak ölçek oluşturulmuştur. Taslak ölçek kullanılarak sağlık sektöründe çalışan 132 çalışan üzerinde yapılan pilot uygulama sonucunda ölçekten bir maddenin çıkarılmasına karar verilmiştir. Daha sonra 13 maddeden oluşan nihai ölçeğe ulaşılmıştır: Otomotiv sektöründe 139 çalışan ve lojistik sektöründe 152 çalışan. Yapılan analizler sonucunda 13 maddelik tek boyutlu bir ölçek ortaya çıkmıştır. CFA sunucusu ölçeğin kabul edilebilir düzeyde uyum sağladığını belirlemiştir. Cronbach's Alpha değerleri sağlık sektöründe 0,834; otomotiv sektöründe 0,810 ve lojistik sektöründe 0,867 olarak hesaplanmış olup ölçeğin geçerli ve güvenilir olduğu bulunmuştur. Ölçek, bireysel farkındalık düzeyinin ölçülmesinde, eğitim ihtiyaçlarının belirlenmesinde, tutum analizlerinin yapılmasında, politika ve stratejiler geliştirilmesinde, akademik araştırmalarda bireylerin yapay zekaya ilişkin farkındalıklarının analiz edilmesinde kullanılabilecek önemli bir ölçüm aracıdır.*

**Anahtar Kelimeler:** Yapay Zekâ, Yapay Zekâ Algısı, Yapay Zekâ Farkındalığı Ölçek Geliştirme, Ölçek

## Introduction

Today, artificial intelligence (AI) technologies have become an essential component of digital transformation and have begun to make their presence felt across a broad spectrum—from daily life to the business world, from healthcare to education (Awad et al., 2020). The rapidly increasing influence of AI has created a critical need for awareness regarding how individuals and institutions perceive AI technologies, and to what extent they recognize the opportunities and risks associated with them (West et al., 2020). AI awareness not only facilitates a conscious evaluation of the innovations brought by AI but also contributes to a better understanding of its ethical, security-related, and workforce-related impacts (Floridi et al., 2020).

AI awareness is a broad concept that encompasses individuals' knowledge, perceptions, and attitudes toward AI technologies. Measuring this awareness is important for understanding individuals' levels of knowledge about AI, their attitudes toward these technologies, and their awareness of potential risks (Cath et al., 2018). The aim of this study is to develop a valid and reliable scale to measure individuals' levels of AI awareness. The scale development process was designed in light of existing studies in the literature on AI awareness and the societal impacts of AI (Bostrom et al., 2021).

Measuring AI awareness is also crucial for developing strategies to increase public knowledge about these technologies and to minimize their potential negative effects (Jobin et al., 2020). In this context, the AI Awareness Scale to be developed is expected to serve as a significant tool in both academic research and practical applications. The scale can be used to evaluate the effectiveness of educational programs aimed at increasing awareness of AI technologies and to determine the approaches of individuals and institutions toward these technologies (Müller, 2020; Tegmark, 2021).

## Conceptual Framework

This section addresses the concepts related to the topic of the scale, particularly artificial intelligence and its applications.

## Artificial Intelligence

In 1950, British mathematician Alan Turing proposed an experiment known as the Turing Test in his article "Computing Machinery and Intelligence." This test was designed to determine whether a computer could think like a human (Russell et al., 2021). In 1956, researchers such as John McCarthy, Marvin Minsky, Nathaniel Rochester, and Claude Shannon gathered at Dartmouth College and laid the foundations of AI research (LeCun et al., 2021). During the 1970s and 1980s, an approach known as expert systems was developed in the field of AI. These systems were designed to transfer the knowledge of human experts into computer programs and were used in decision-making processes. Throughout the 1980s and 1990s, research in AI focused heavily on machine learning, which aims to enhance the ability of computers to learn from data. Significant algorithms and techniques were developed during this period (Haenlein et al., 2019).

In its broadest definition, artificial intelligence refers to a computer or a computer-controlled machine's ability to perform tasks that are typically associated with high-level mental processes such as reasoning, inference, generalization, and learning from past experiences (Nabiyev, 2016). The term "Artificial Intelligence," coined in 1955 by retired Stanford professor John McCarthy, was defined by him as the science and engineering of making intelligent machines (Youdong et al., 2014). AI is a branch of computer science and involves developing computer programs to perform tasks that would otherwise require human intelligence. AI algorithms tackle and provide solutions to problems involving learning, perception, problem-solving, language understanding, and logical reasoning (Saleh, 2019).

Since the primary goal of AI research is to develop systems that can think and make decisions like humans, the structure and functioning of the biological brain have served as inspiration for researchers in this field (Marcus, 2019). One of the foundational developments in AI, inspired by biological neurons (nerve cells), was the McCulloch-Pitts neuron, proposed in 1943 by Warren S. McCulloch and Walter Pitts (Hassabis et al., 2020).

This model represents a simple binary variable that can be in an “on” or “off” state and is capable of performing basic logical functions such as AND, OR, and NOT (Kartal, 2021).

AI is an integration of computer science and physiology. In simple terms, intelligence is the computational part of the ability to achieve goals in the world (Zador, A. M., 2019). It is the ability to memorize and comprehend, recognize patterns, make adaptive decisions, and imagine and learn from experience (Borana, 2016).

Many AI techniques used for developing decision-making strategies are discussed in the literature. Since the 1980s, when AI started to gain prominence, the majority of studies have been algorithm-based (Ghahramani, 2020). Knowledge-based AI applications have evolved since the 1990s and are now widely used. The most significant advantage of these approaches over algorithm-based systems is that the problem definition and solution are independent of each other, and the learning process requires a more structured design (Lake et al., 2021).

The most commonly used AI techniques are listed below (Nabiyev, 2016):

- Heuristic approaches
- Fuzzy logic
- Expert systems
- Artificial neural networks
- Genetic algorithms
- Machine learning
- Reinforcement learning
- Deep learning approaches

There are many ways to build AI, some of which are illustrated Figure 1 (Saleh, 2019):

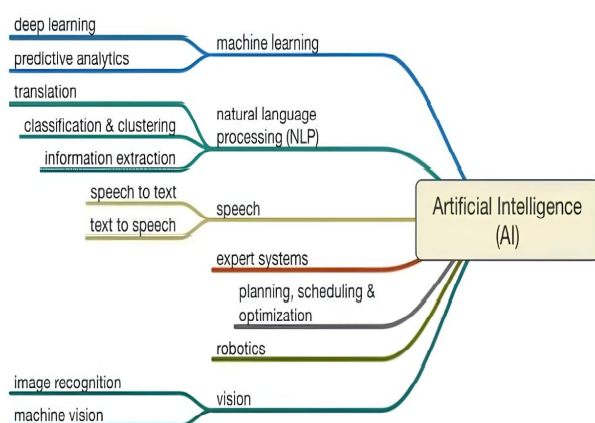


Figure 1. Artificial Intelligence

## Applications for Artificial Intelligence

Artificial intelligence (AI) is a rapidly developing technology that has revolutionized many sectors in recent years. Defined as computer systems endowed with human-like thinking abilities, AI attracts attention with its capacity to perform complex tasks and its learning ability. The wide range of AI applications has caused a significant transformation in the world of technology. The main areas where AI is used are listed below (Chen et al., 2022):

**Healthcare:** AI has made a significant impact in the medical field by accelerating diagnosis and treatment processes (Razzak et al, 2018). In areas such as early disease detection, personalized treatment plans, and drug discovery, robotic surgery, patient monitoring and management, AI assists healthcare professionals by analyzing large datasets (Esteva et al., 2017; Zhang & Liu, 2020; Yamg et al., 2020; Chen et al., 2021; Mishra & Li, 2022). For example, thanks to image processing technologies, high accuracy rates can be achieved in cancer diagnosis (Asan & Choudhury, 2021; Bickmore et al., 2021).

**Finance:** The finance sector uses AI in many areas such as investment analysis, risk management, fraud detection, and customer service (Yang et al., 2021). AI algorithms help analyze large datasets to predict market trends and develop investment strategies. Additionally, chatbots provide 24/7 customer support (Asatiani et al., 2023).

**Automotive:** Autonomous vehicles are one of the most striking examples of AI in the automotive industry. With the help of sensors and AI algorithms, vehicles can perceive their surroundings and move safely. These technologies not only contribute to the development of driverless cars but also bring innovations in traffic management and road safety (Garikapati, 2024).

**Retail:** The retail sector uses AI technologies to enhance customer experience. Recommendation systems offer personalized shopping experiences, while processes such as inventory management and demand forecasting are optimized with AI.

Furthermore, AI-powered chatbots and virtual assistants provide instant support to customers (Shankar et al., 2023).

**Education:** In the field of education, AI is used to personalize learning experiences. Intelligent tutoring systems can monitor student performance, identify weak areas, and offer suggestions accordingly. AI-supported language learning applications also offer students an interactive and effective learning environment (Ghali et al., 2018).

**Art and Creativity:** AI holds great potential in the fields of art and creativity. AI-supported applications can create new works in fields such as music, painting, and literature. For instance, music composed, or paintings created by AI can inspire human creativity (Elgammal, 2023).

**Industry and Manufacturing:** As a key component of Industry 4.0, AI enhances efficiency by automating production processes (Bogue, 2020). Robots equipped with AI algorithms can carry out complex production tasks more quickly and accurately: Smart manufacturing systems, predictive maintenance, quality control, supply chain management, simulation and modeling (Xu et al., 2018; Jayaraman & Keoleian, 2020; Zang, 2021; Wamba & Akter, 2020; Hsu et al., 2021). In addition, AI is used in maintenance processes to predict machine failures in advance (Zhang et al., 2022).

**Service Sector:** AI applications in the service sector offer significant innovations in enhancing customer experience, improving operational efficiency, and enabling personalized services. Some prominent AI applications that are becoming widespread in the service sector are as follows: Customer services and chatbots; personalized services; automated content creation; tourism and travel; education and learning (Wang et al., 2020; Gatt et al., 2018; Jannach et al., 2016; Adamopoulou et al., 2020; Zheng et al., 2021).

In sectors such as healthcare, finance, automotive, retail, education, art, and industry, AI applications provide significant benefits in terms of efficiency, accuracy, speed, and innovation. It is ex-

pected that AI technologies will continue to develop and become more widespread in the future. This is likely to have even greater impacts on society and the economy. For these reasons, it is important to raise individual and societal awareness of AI, identify existing shortcomings, and work on improvements.

### Awareness and AI awareness

Awareness can be defined as the development of a conscious attention and perception of an individual's internal states, environmental stimuli and the interactions between these two areas (Chen et al., 2025). Artificial intelligence (AI) awareness is an individual's knowledge about the existence, functioning, usage areas and effects of AI technologies and the ability to interpret this information in a meaningful way in their daily life (Owsley and Greenwood, 2024). Awareness is related to sub-concepts such as attention, consciousness, intuition and knowledge level and is a multidimensional structure with these aspects. Basically, Awareness involves the process of an individual having knowledge about an object, event or process and making sense of this information by processing it at the cognitive level (Dolgikh, 2024). This conceptual structure can be examined under three main headings: situational awareness, cognitive awareness and emotional awareness (Endsley and Jones, 2024). This awareness requires a more holistic understanding that is not limited to technical knowledge, but also includes ethical, social and cultural impacts (Owsley and Greenwood, 2024). Therefore, AI awareness; it is a multi-layered structure consisting of cognitive (what AI is and how it works), behavioral (ability to interact with AI technologies) and critical (evaluating the social consequences of AI) components (Chen, 2025). In today's digitalizing world, increasing these awareness levels of individuals are of great importance in terms of promoting the conscious and ethical use of technology.

The artificial intelligence awareness scale developed in this study is built based on the conceptual structure described above. The scale aims to measure individuals' level of knowledge about AI tech-

nologies, their attitudes towards technological applications, and their evaluations of the social effects of these technologies. In this context, a special emphasis has been placed on the cognitive and critical components of mindfulness; The approach has been adopted that it is not only necessary to have technological knowledge, but also to use this knowledge in a meaningful and responsible way. Thus, the scale developed is aimed to be based on a solid theoretical basis and to produce valid and reliable results in practice.

### **Artificial Intelligence Awareness Scale Development Process and Method**

This section includes the research problem, the scale development process, and the population and sample of the study.

#### **Research Problem**

AI technologies are rapidly evolving and becoming more complex, making it difficult for individuals and society to understand them. An awareness scale can help assess how well this complexity is understood by measuring individuals' knowledge, perceptions, and attitudes toward AI technologies. The impact of AI is felt not only in the technology sector but also in healthcare, education, law, and the workforce. This broad impact necessitates that individuals and organizations understand both the potential opportunities and risks of AI. A scale that measures awareness can help determine how these effects are perceived and to what extent society is prepared for them.

Along with the development of AI, concerns about ethics and safety have also increased. Misuse or uncontrollable outcomes of AI systems can have serious societal impacts. An awareness scale can measure how sensitive individuals are to these ethical and safety issues, contributing to better risk management. Measuring awareness levels is essential to identify areas that require more education and awareness-raising efforts. A scale developed on AI awareness can identify knowledge gaps and make educational programs more effective. Public awareness of AI is also a key factor in forming public policies. An AI awareness scale al-

lows policymakers to understand the public's concerns and needs and to make appropriate regulations accordingly. The adoption of AI technologies is directly related to individuals' attitudes toward them. An awareness scale can reveal how ready society is for these technologies and which factors play a role in the adoption process.

For these reasons, the AI Awareness Scale will be an important tool to help individuals and society better understand AI technologies consciously and effectively and to adapt to the changes brought by these technologies.

#### **Scale Development Process**

The AI Awareness Scale was developed by applying the three-stage scale development process proposed by Schwab. The stages of this process are as follows: 1) Generating the item pool, 2) Structuring the scale, 3) Evaluating the scale (Schwab, 2013). In the first stage, expert academics from fields such as business administration, computer engineering, organizational management, strategic management, and management information systems were consulted regarding employee awareness of AI. A focus group was formed with participation from these academics as well as managers/employees from the healthcare, manufacturing, and service sectors. The focus group, consisting of 9 members, discussed key issues in measuring AI awareness among employees, the criteria that should be used, and the appropriate language for scale items (Çalışkan, 2022; Demir & Akpınar, 2016). Additionally, interviews were conducted with the focus group members using semi-structured questions. The qualitative data obtained were analyzed using content analysis, and a 41-item pool was created. This item pool provided a comprehensive framework for measuring employee AI awareness. The items focused on key areas such as AI systems, mobile and smart devices, AI application areas, and smart enterprises — all considered to be essential aspects of the concept of "employee AI awareness."

In the second stage, a draft scale was created using the 41-item pool. Opinions were gathered from six experts in Turkish language, business administration, management information systems, strategic management, industrial engineering, and

computer engineering. The aim was to test the content validity of the items. Content validity refers to whether the items used in the measurement tool are quantitatively and qualitatively sufficient for measuring the intended characteristics. Expert opinions are commonly used to assess this (Başkale, 2016; Büyüköztürk, 2007: 167-182). The experts evaluated the draft scale based on criteria such as sensitivity, measurability, language coherence, content relevance, and clarity. Thus, it was ensured that the scale items addressed the core aspects of AI awareness, were adaptable to various sectors and activities, and were based on concrete and measurable objectives. It was important that the language of the items be clear and understandable so that the sample could easily grasp their meanings during implementation. According to the Lawshe method, items with a content validity ratio of zero or below were eliminated. Duplicate items or those expressing the same idea were removed or merged. The structuring of the scale was carried out in three sessions. In the first session, the scale was reduced to 23 items; in the second session, to 16 items. In the third session, a 14-item draft scale form was finalized. The resulting "Artificial Intelligence Awareness Scale Draft Form" is presented below in Table 1.

In the third phase, a two-step study was conducted to evaluate the scale. In the first step, a pilot application of the draft version of the "Artificial Intelligence Awareness Scale" was carried out in the healthcare sector. Quantitative data were collected through online and face-to-face surveys. In the pilot study, data were obtained from 132 participants working in the healthcare sector. After analyzing the collected data, it was decided to remove item 5 from the draft scale. As a result, the final version of the scale consisted of 13 items.

In the second step, the finalized scale items were administered to two separate study groups. To ensure the scale could be applicable across various sectors, it was decided to apply it in two different sectors instead of only one. Accordingly, the scale was administered to 139 employees in the automotive sector and 152 employees in the logistics sector. The data were analyzed using IBM SPSS and AMOS software. Exploratory and confirmatory

factor analyses were conducted. Based on the analysis results, the one-dimensional structure of the 13-item Artificial Intelligence Awareness Scale was confirmed through confirmatory factor analysis. The findings indicated that the scale had an acceptable level of fit, and that it was a valid and reliable measurement tool. Participants evaluated the scale items using a 5-point Likert scale ranging from "1. Strongly Disagree" to "5. Strongly Agree." The Likert-type scale is a method used to measure individuals' attitudes with high reliability and validity (Tekindal, 2009; Tavşancıl, 2006).

**Table 1. Draft Form of the Artificial Intelligence Awareness Scale**

| Number of Scale Items | Scale Items                                                                                                                                    |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| I1                    | Artificial intelligence is a concept created by utilizing natural intelligence.                                                                |
| I2                    | Systems operating based on artificial intelligence are used in perception management.                                                          |
| I3                    | While shopping, AI-based systems help me determine the product I will buy.                                                                     |
| I4                    | The main purpose of AI systems is to make human life easier.                                                                                   |
| I5                    | AI-based systems have no significant impact on commercial activities.                                                                          |
| I6                    | Tasks that would take humans a long time to complete are performed by AI systems very quickly and without errors.                              |
| I7                    | Data obtained from mobile devices I interact with (phone, computer, etc.) is used by AI systems.                                               |
| I8                    | The use of AI-based systems is becoming widespread in various sectors such as education, health, security, industry, agriculture, and tourism. |
| I9                    | Today, AI techniques are used in production and management activities in businesses.                                                           |
| I10                   | Our consumption tendencies can be predicted using AI techniques, and we receive feedback based on the information obtained.                    |
| I11                   | AI-powered robots are used to facilitate business operations.                                                                                  |
| I12                   | AI techniques are used for solving problems such as image processing, facial recognition, and similar issues.                                  |
| I13                   | The main software component of unmanned aerial vehicles and similar smart air stations is AI algorithms.                                       |
| I14                   | Almost all of our searches on the internet produce results using AI algorithms.                                                                |

The internal consistency of the scale was assessed using the Cronbach's Alpha method. The survey designed for this study consisted of two parts: The first part included four demographic

items such as gender, age, educational background, and marital status. The second part included the 13-item Artificial Intelligence Awareness Scale. To assess the construct validity of the scale, both validity and reliability were tested, and confirmatory and exploratory factor analyses were performed for this purpose.

### Population and Sample of the Study

Ethical approval for the study was obtained from Giresun University Rectorate's Ethics Committee for Social Sciences and Engineering Sciences Research, with the decision dated 06.11.2024 and numbered 10/GD-1. A random sample was used and quantitative research was conducted using both online and face-to-face data collection methods. Among the survey forms collected, 44 were found to be incomplete or incorrectly filled out and were therefore excluded from the evaluation—11 from the healthcare sector, 15 from the automotive sector, and 18 from the logistics sector. As a result, 132 forms from the healthcare sector (pilot study), 139 from the automotive sector, and 152 from the logistics sector were included in the evaluation. According to Bryman and Cramer (2012), in scale development studies, the number of participants should be at least 5 to 10 times the number of items in the scale. Since the scale used in this study consisted of 13 items, the minimum required number of participants is 130 ( $13 \times 10 = 130$ ). Therefore, reaching 139 participants in the automotive sector and 152 in the logistics sector indicates that the sample size was sufficient. The population of the study consisted of employees in the production and service sectors. The demographic characteristics of the participants from the healthcare sector (pilot study) and from the production and service sectors are presented in Table 2.

When examining the demographic characteristics of the participants in the healthcare sector, 50.8% were male, 45.5% were between the ages of 18 and 24, 65.2% held an associate degree, and 57.6% were single. According to the demographic characteristics of the participants in the automotive sector, 74.8% were male, 47.5% were between the ages of 18 and 24, 64.7% held an associate degree, and 66.9% were single. In the logistics sector, 59.9%

of the participants were female, 62.5% were between the ages of 18 and 24, 61.2% held an associate degree, and 76.3% were single. Table 3 below presents the distribution of agreement levels with the items of the Artificial Intelligence Awareness Scale across the healthcare, automotive, and logistics groups.

**Table 2. Distribution of demographic characteristics of the health automotive and service group**

|                    |                   | Healthcare<br>(n=132) |      | Automotive<br>(n=139) |      | Logistics<br>(n=152) |      |
|--------------------|-------------------|-----------------------|------|-----------------------|------|----------------------|------|
|                    |                   | n                     | %    | n                     | %    | n                    | %    |
| Gender             | Male              | 67                    | 50,8 | 104                   | 74,8 | 61                   | 40,1 |
|                    | Female            | 65                    | 49,2 | 35                    | 25,2 | 91                   | 59,9 |
| Age                | 18-24             | 60                    | 45,5 | 66                    | 47,5 | 95                   | 62,5 |
|                    | 25-34             | 44                    | 33,3 | 54                    | 38,8 | 36                   | 23,7 |
|                    | 35-44             | 20                    | 15,2 | 10                    | 7,2  | 10                   | 6,6  |
|                    | 45 and over       | 8                     | 6,1  | 9                     | 6,5  | 11                   | 7,2  |
| Education<br>Level | High school       | 6                     | 4,5  | 16                    | 11,5 | 16                   | 10,5 |
|                    | Associate degree  | 86                    | 65,2 | 90                    | 64,7 | 93                   | 61,2 |
|                    | Bachelor's degree | 24                    | 18,2 | 29                    | 20,9 | 39                   | 25,7 |
|                    | Postgraduate      | 16                    | 12,1 | 4                     | 2,9  | 4                    | 2,6  |
| Civil<br>status    | Married           | 56                    | 42,4 | 46                    | 33,1 | 36                   | 23,7 |
|                    | Single            | 76                    | 57,6 | 93                    | 66,9 | 116                  | 76,3 |

When Table 3 is examined, the three items with the highest levels of agreement in the healthcare sector are: "Artificial intelligence techniques are used for solving problems such as image processing, facial recognition, and similar tasks. (4.13)", "The use of artificial intelligence-based systems is becoming widespread in various sectors such as education, healthcare, security, industry, agriculture, and tourism. (4.08)", and "The main software component of unmanned aerial vehicles and similar smart air stations consists of artificial intelligence algorithms. (4.09)". The three items with the lowest levels of agreement are: "AI-based systems have no meaningful impact on commercial activities. (2.48)", "AI-based systems help me decide what product to buy while shopping. (3.61)", and "Tasks that would take humans a long time can be performed quickly and flawlessly by AI systems. (3.77)".

In the automotive sector, the three items with the highest levels of agreement are: "The use of AI-based systems is becoming widespread in various sectors such as education, healthcare, security, industry, agriculture, and tourism. (4.12)", "The

main goal of AI systems is to make human life easier. (4.04)", and "Data obtained from mobile devices I interact with are used by AI systems. (4.04)".

that would take humans a long time can be performed quickly and flawlessly by AI systems. (3.61)".

**Table 3. Distribution of Participation Levels for the Artificial Intelligence Awareness Scale Items**

| Group      | Item                                                                                                                                           | 1  |      | 2  |      | 3  |      | 4  |      | 5  |      | Ort  | ss   |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------|----|------|----|------|----|------|----|------|----|------|------|------|
|            |                                                                                                                                                | n  | %    | n  | %    | n  | %    | n  | %    | n  | %    |      |      |
| Health     | Artificial intelligence is a concept created by utilizing natural intelligence.                                                                | 4  | 3,0  | 9  | 6,8  | 13 | 9,8  | 74 | 56,1 | 32 | 24,2 | 3,92 | 0,94 |
|            | Systems operating based on artificial intelligence are used in perception management.                                                          | 3  | 2,3  | 9  | 6,8  | 25 | 18,9 | 71 | 53,8 | 24 | 18,2 | 3,79 | 0,90 |
|            | While shopping, AI-based systems help me determine the product I will buy.                                                                     | 7  | 5,3  | 16 | 12,1 | 22 | 16,7 | 63 | 47,7 | 24 | 18,2 | 3,61 | 1,08 |
|            | The main purpose of AI systems is to make human life easier                                                                                    | 4  | 3,0  | 8  | 6,1  | 20 | 15,2 | 62 | 47,0 | 38 | 28,8 | 3,92 | 0,98 |
|            | AI-based systems have no significant impact on commercial activities.                                                                          | 28 | 21,2 | 52 | 39,4 | 20 | 15,2 | 24 | 18,2 | 8  | 6,1  | 2,48 | 1,19 |
|            | Tasks that would take humans a long time to complete are performed by AI systems very quickly and without errors.                              | 1  | 0,8  | 14 | 10,6 | 23 | 17,4 | 71 | 53,8 | 23 | 17,4 | 3,77 | 0,89 |
|            | Data obtained from mobile devices I interact with (phone, computer, etc.) is used by AI systems.                                               | 2  | 1,5  | 3  | 2,3  | 27 | 20,5 | 63 | 47,7 | 37 | 28,0 | 3,98 | 0,85 |
|            | The use of AI-based systems is becoming widespread in various sectors such as education, health, security, industry, agriculture, and tourism. | 2  | 1,5  | 7  | 5,3  | 11 | 8,3  | 70 | 53,0 | 42 | 31,8 | 4,08 | 0,87 |
|            | Today, AI techniques are used in production and management activities in businesses.                                                           | 0  | 0,0  | 6  | 4,5  | 23 | 17,4 | 72 | 54,5 | 31 | 23,5 | 3,97 | 0,77 |
|            | Our consumption tendencies can be predicted using AI techniques, and we receive feedback based on the information obtained.                    | 0  | 0,0  | 6  | 4,5  | 23 | 17,4 | 73 | 55,3 | 30 | 22,7 | 3,96 | 0,77 |
| Automotive | AI-powered robots are used to facilitate business operations.                                                                                  | 1  | 0,8  | 7  | 5,3  | 21 | 15,9 | 74 | 56,1 | 29 | 22,0 | 3,93 | 0,81 |
|            | AI techniques are used for solving problems such as image processing, facial recognition, and similar issues.                                  | 0  | 0,0  | 3  | 2,3  | 19 | 14,4 | 68 | 51,5 | 42 | 31,8 | 4,13 | 0,74 |
|            | The main software component of unmanned aerial vehicles and similar smart air stations is AI algorithms.                                       | 0  | 0,0  | 7  | 5,3  | 14 | 10,6 | 71 | 53,8 | 40 | 30,3 | 4,09 | 0,79 |
|            | Almost all of our searches on the internet produce results using AI algorithms.                                                                | 1  | 0,8  | 5  | 3,8  | 21 | 15,9 | 66 | 50,0 | 39 | 29,5 | 4,04 | 0,82 |
|            | Artificial intelligence is a concept created by utilizing natural intelligence.                                                                | 5  | 3,6  | 9  | 6,5  | 20 | 14,4 | 69 | 49,6 | 36 | 25,9 | 3,88 | 0,99 |
|            | Systems operating based on artificial intelligence are used in perception management.                                                          | 0  | 0,0  | 7  | 5,0  | 44 | 31,7 | 59 | 42,4 | 29 | 20,9 | 3,79 | 0,83 |
|            | While shopping, AI-based systems help me determine the product I will buy.                                                                     | 8  | 5,8  | 13 | 9,4  | 32 | 23,0 | 65 | 46,8 | 21 | 15,1 | 3,56 | 1,04 |
|            | The main purpose of AI systems is to make human life easier.                                                                                   | 4  | 2,9  | 3  | 2,2  | 17 | 12,2 | 75 | 54,0 | 40 | 28,8 | 4,04 | 0,87 |
|            | Tasks that would take humans a very long time to complete are performed by AI systems very quickly and without errors.                         | 5  | 3,6  | 14 | 10,1 | 30 | 21,6 | 71 | 51,1 | 19 | 13,7 | 3,61 | 0,97 |
|            | Data obtained from the mobile devices I interact with are used by AI systems.                                                                  | 2  | 1,4  | 3  | 2,2  | 17 | 12,2 | 83 | 59,7 | 34 | 24,5 | 4,04 | 0,77 |
| Logistics  | The use of AI-based systems is becoming widespread in various sectors such as education, health, security, industry, agriculture, and tourism. | 1  | 0,7  | 6  | 4,3  | 13 | 9,4  | 75 | 54,0 | 44 | 31,7 | 4,12 | 0,80 |
|            | Today, AI techniques are used in production and management activities in businesses.                                                           | 0  | 0,0  | 4  | 2,9  | 23 | 16,5 | 83 | 59,7 | 29 | 20,9 | 3,99 | 0,70 |
|            | Our consumption tendencies can be predicted using AI techniques, and we receive feedback based on the information obtained.                    | 4  | 2,9  | 3  | 2,2  | 20 | 14,4 | 79 | 56,8 | 33 | 23,7 | 3,96 | 0,85 |
|            | AI-powered robots are used to facilitate business operations.                                                                                  | 1  | 0,7  | 8  | 5,8  | 25 | 18,0 | 75 | 54,0 | 30 | 21,6 | 3,90 | 0,83 |
|            | AI techniques are used for solving problems such as image processing, facial recognition, and similar issues.                                  | 0  | 0,0  | 7  | 5,0  | 14 | 10,1 | 79 | 56,8 | 39 | 28,1 | 4,08 | 0,76 |
|            | The main software component of unmanned aerial vehicles and similar smart air stations is AI algorithms.                                       | 1  | 0,7  | 8  | 5,8  | 27 | 19,4 | 64 | 46,0 | 39 | 28,1 | 3,95 | 0,88 |
|            | Almost all of our searches on the internet produce results using AI algorithms.                                                                | 2  | 1,4  | 9  | 6,5  | 34 | 24,5 | 60 | 43,2 | 34 | 24,5 | 3,83 | 0,92 |
|            | Artificial intelligence is a concept created by utilizing natural intelligence.                                                                | 4  | 2,6  | 8  | 5,3  | 24 | 15,8 | 78 | 51,3 | 38 | 25,0 | 3,91 | 0,92 |
|            | Systems operating based on artificial intelligence are used in perception management.                                                          | 3  | 2,0  | 11 | 7,2  | 30 | 19,7 | 73 | 48,0 | 35 | 23,0 | 3,83 | 0,93 |
|            | While shopping, AI-based systems help me determine the product I will buy.                                                                     | 7  | 4,6  | 19 | 12,5 | 37 | 24,3 | 51 | 33,6 | 38 | 25,0 | 3,62 | 1,13 |
| Logistics  | The main purpose of AI systems is to make human life easier.                                                                                   | 1  | 0,7  | 6  | 3,9  | 31 | 20,4 | 74 | 48,7 | 40 | 26,3 | 3,96 | 0,83 |
|            | Tasks that would take humans a very long time to complete are performed by AI systems very quickly and without errors.                         | 6  | 3,9  | 13 | 8,6  | 33 | 21,7 | 66 | 43,4 | 34 | 22,4 | 3,72 | 1,03 |
|            | Data obtained from the mobile devices I interact with are used by AI systems.                                                                  | 3  | 2,0  | 8  | 5,3  | 16 | 10,5 | 91 | 59,9 | 34 | 22,4 | 3,95 | 0,85 |
|            | The use of AI-based systems is becoming widespread in various sectors such as education, health, security, industry, agriculture, and tourism. | 0  | 0,0  | 9  | 5,9  | 19 | 12,5 | 76 | 50,0 | 48 | 31,6 | 4,07 | 0,82 |
|            | Today, AI techniques are used in production and management activities in businesses.                                                           | 1  | 0,7  | 4  | 2,6  | 26 | 17,1 | 71 | 46,7 | 50 | 32,9 | 4,09 | 0,81 |
|            | Our consumption tendencies can be predicted using AI techniques, and we receive feedback based on the information obtained.                    | 1  | 0,7  | 9  | 5,9  | 21 | 13,8 | 79 | 52,0 | 42 | 27,6 | 4,00 | 0,85 |
|            | AI-powered robots are used to facilitate business operations.                                                                                  | 3  | 2,0  | 9  | 5,9  | 24 | 15,8 | 73 | 48,0 | 43 | 28,3 | 3,95 | 0,93 |
|            | AI techniques are used for solving problems such as image processing, facial recognition, and similar issues.                                  | 3  | 2,0  | 5  | 3,3  | 10 | 6,6  | 73 | 48,0 | 61 | 40,1 | 4,21 | 0,86 |
|            | The main software component of unmanned aerial vehicles and similar smart air stations is AI algorithms.                                       | 1  | 0,7  | 10 | 6,6  | 22 | 14,5 | 64 | 42,1 | 55 | 36,2 | 4,07 | 0,91 |
|            | Almost all of our searches on the internet produce results using AI algorithms.                                                                | 1  | 0,7  | 9  | 5,9  | 14 | 9,2  | 69 | 45,4 | 59 | 38,8 | 4,16 | 0,87 |

1: Strongly disagree, 2: Disagree, 3: Neutral, 4: Agree, 5: Strongly agree

The two items with the lowest levels of agreement are: "AI-based systems help me decide what product to buy while shopping. (3.56)" and "Tasks

In the logistics sector, the three items with the highest levels of agreement are: "AI techniques are used to solve problems such as image processing and facial recognition. (4.21)", "Almost all of the

searches we make on the internet produce results using AI algorithms. (4.16)", and "The use of AI-based systems is becoming widespread in various sectors such as education, healthcare, security, industry, agriculture, and tourism. (4.07)". The two items with the lowest levels of agreement are: "AI-based systems help me decide what product to buy while shopping. (3.62)" and "Tasks that would take humans a long time can be performed quickly and flawlessly by AI systems. (3.72)". In all three sectors, the items with the highest levels of agreement are generally focused on the application and impact of AI in specific domains.

## Results

The data were analyzed using SPSS 27.0 software with a 95% confidence level. Frequency (n) and percentage (%) values were reported for categorical (qualitative) variables, and mean (M) and standard deviation (SD) values for numerical (quantitative) variables. Exploratory Factor Analysis (EFA) was conducted to determine the factor structure of the scale. The structure of the scale was examined using Confirmatory Factor Analysis (CFA) based on the study data. The Cronbach's Alpha reliability coefficient was calculated.

### Exploratory Factor Analysis (EFA)

Exploratory Factor Analysis was conducted to determine the construct validity of the scales used in the study. According to Büyüköztürk (2007), when the total correlation of scale items and the factor loading value are 30% or higher, the items successfully differentiate participant responses. To assess the suitability of the sample for factor analysis, the KMO and Bartlett's tests were applied. The KMO coefficient was calculated to test sample adequacy, and Bartlett's test was used to assess the assumption of normal distribution. Whether to proceed with factor analysis was determined based on the result of the Bartlett test. For factor analysis to be conducted, the KMO value must be at least 0.50 and the Bartlett's test result must be statistically significant (Jeong, 2004: 70). After the factor analysis, factor loadings were examined to decide whether to assign items to specific factors or remove them from the scale. Additionally, in the

item-total correlation analysis, each item's correlation coefficient must be greater than 0.300.

EFA was applied in responses received from a total of 291 people, including 139 employees in the automotive sector and 152 employees in the logistics sector.

### Reliability Analysis

The Cronbach's Alpha coefficient has been calculated to test the reliability level of the scale. The value of the Cronbach's Alpha coefficient ranges between 0 and 1. Each value range of the Cronbach's Alpha coefficient indicating the reliability level of the scale is as follows (Nunnally, 1967, 248): Cronbach's Alpha = ,00  $\leq$   $\alpha$  < ,40 the scale is not reliable. Cronbach's Alpha = ,40  $\leq$   $\alpha$  < ,60 the scale has low reliability. Cronbach's Alpha = ,60  $\leq$   $\alpha$  < ,80 the scale is fairly reliable. Cronbach's Alpha = ,80  $\leq$   $\alpha$  < 1,00 the scale is highly reliable.

### Confirmatory Factor Analysis (CFA)

To determine model adequacy, CFA was performed, and multiple fit indices were used. These indices help identify whether there are differences between the theoretical model and the empirical data, and highlight strengths and weaknesses. Commonly used indices include the Chi-Square Goodness of Fit Test, Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Comparative Fit Index (CFI), Root Mean Square Residual (RMR or RMS), and Root Mean Square Error of Approximation (RMSEA) (Cole, 1987; Sümer, 2000).

CFA was applied in responses received from a total of 291 people, including 139 employees in the automotive sector and 152 employees in the logistics sector.

## Findings

Table 4 below presents the results of the item-total correlation analysis.

According to the item-total correlation analysis results of the Artificial Intelligence Awareness Scale presented in Table 4, the item with the lowest correlation coefficient is item 5: "Artificial intelligence-based systems have no significant impact on commercial activities." This item was removed

prior to the EFA. The correlation coefficients of the remaining 13 items are high ( $r > 0.300$ ). Table 5 below presents the KMO and Bartlett's test results of the scale.

**Table 4. Item-Total Correlation**

| Item                                                                                                                                              | Item-Total Correlation | Cronbach's Alpha if Item Deleted |
|---------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|----------------------------------|
| I1 Artificial intelligence is a concept created by utilizing natural intelligence.                                                                | 0,495                  | 0,774                            |
| I2 Systems operating based on artificial intelligence are used in perception management.                                                          | 0,412                  | 0,782                            |
| I3 While shopping, AI-based systems help me determine the product I will buy.                                                                     | 0,444                  | 0,779                            |
| I4 The main purpose of AI systems is to make human life easier.                                                                                   | 0,379                  | 0,785                            |
| I5 AI-based systems have no significant impact on commercial activities.                                                                          | -0,088                 | 0,834                            |
| I6 Tasks that would take humans a long time to complete are performed by AI systems very quickly and without errors.                              | 0,317                  | 0,789                            |
| I7 Data obtained from mobile devices I interact with (phone, computer, etc.) is used by AI systems.                                               | 0,379                  | 0,784                            |
| I8 The use of AI-based systems is becoming widespread in various sectors such as education, health, security, industry, agriculture, and tourism. | 0,523                  | 0,772                            |
| I9 Today, AI techniques are used in production and management activities in businesses.                                                           | 0,608                  | 0,767                            |
| I10 Our consumption tendencies can be predicted using AI techniques, and we receive feedback based on the information obtained.                   | 0,576                  | 0,770                            |
| I11 AI-powered robots are used to facilitate business operations.                                                                                 | 0,519                  | 0,773                            |
| I12 AI techniques are used for solving problems such as image processing, facial recognition, and similar issues.                                 | 0,559                  | 0,772                            |
| I13 The main software component of unmanned aerial vehicles and similar smart air stations is AI algorithms.                                      | 0,555                  | 0,771                            |
| I14 Almost all of our searches on the internet produce results using AI algorithms.                                                               | 0,439                  | 0,780                            |

When the results of the EFA for the Artificial Intelligence Awareness Scale in Table 5 are examined, the KMO value is found to be 0.851, which is greater than 0.50.

**Table 5. KMO and Bartlett's Test Results for the Scale**

|                 |                |         |
|-----------------|----------------|---------|
| KMO             |                | 0,851   |
|                 | X <sup>2</sup> | 482,337 |
| Bartlett's Test | Sd             | 91      |
|                 | P              | <0,001  |

This indicates that the sample size is sufficient for factor analysis (KMO > 0.500). The result of the

Bartlett's test was calculated as  $X^2 = 482.337$  and found to be significant ( $p < 0.05$ ), indicating that the condition of normal distribution is met. Based on the outcomes of the KMO and Bartlett tests, it has been determined that the data used in the study are suitable for factor analysis of the Artificial Intelligence Awareness Scale. The Scree Plot (Eigenvalue distribution) is presented in Figure 2 below.

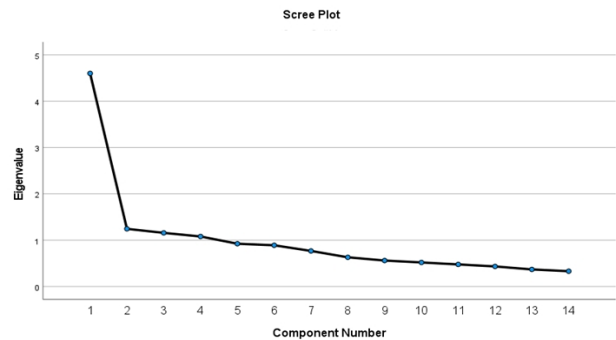


**Figure 2. Scree Plot (Distribution of Eigenvalues)**

Following the confirmation that the scale is suitable for factor analysis, an examination of its structure was conducted. Three sub-dimensions with eigenvalues greater than 1 were identified. However, in the analyses, sub-dimensions consisting of only one item were observed in the 2- and 3-factor structures. Additionally, the explained variance ratios of these sub-dimensions were found to be low. Similar results were obtained with different rotation methods. As shown in the Scree Plot in Figure 2, a single-factor structure is appropriate for the scale. Accordingly, the Artificial Intelligence Awareness Scale was evaluated as a single-factor structure. Table 6 presents the results of the EFA of the scale.

According to the results of Figure 2 and Table 6, it was decided that the Artificial Intelligence Awareness Scale consists of a single factor and 13 items. The factor loadings of the scale range between 0.381 and 0.721, and the total explained variance rate was calculated as 35.296%. There are no items in the scale with low factor loadings, that fail to represent the scale, or that are not distinctive (Factor loading > 0.300).

**Table 6. Results of EFA for the Scale**

| Item No | Statements                                                                                                                                     | Factor Loading | Explained Variance Ratio |
|---------|------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------------------------|
| I1      | Today, AI techniques are used in production and management activities in businesses.                                                           | 0,721          |                          |
| I2      | AI techniques are used for solving problems such as image processing, facial recognition, and similar issues.                                  | 0,714          |                          |
| I3      | Our consumption tendencies can be predicted using AI techniques, and we receive feedback based on the information obtained.                    | 0,679          |                          |
| I4      | The use of AI-based systems is becoming widespread in various sectors such as education, health, security, industry, agriculture, and tourism. | 0,676          |                          |
| I5      | The main software component of unmanned aerial vehicles and similar smart air stations is AI algorithms.                                       | 0,658          |                          |
| I6      | AI-powered robots are used to facilitate business operations.                                                                                  | 0,638          |                          |
| I7      | Artificial intelligence is a concept created by utilizing natural intelligence.                                                                | 0,595          | 35,296                   |
| I8      | Almost all of our searches on the internet produce results using AI algorithms.                                                                | 0,574          |                          |
| I9      | While shopping, AI-based systems help me determine the product I will buy.                                                                     | 0,543          |                          |
| I10     | Systems operating based on artificial intelligence are used in perception management.                                                          | 0,491          |                          |
| I11     | Data obtained from mobile devices I interact with (phone, computer, etc.) is used by AI systems.                                               | 0,482          |                          |
| I12     | The main purpose of AI systems is to make human life easier.                                                                                   | 0,451          |                          |
| I13     | Tasks that would take humans a long time to complete are performed by AI systems very quickly and without errors.                              | 0,381          |                          |

CFA was applied on the responses received from a total of 291 people, including 139 employees in the automotive sector and 152 employees in the logistics sector. The fit indices of the CFA and the results of the CFA model fit are presented below in Table 7 (Meydan & Şeşen, 2015; Tabachnick & Fidell, 2012).

**Table 7. Fit Indices of the Artificial Intelligence Awareness Scale for CFA**

| Index              | Good Fit | Acceptable Fit | DFA Results |
|--------------------|----------|----------------|-------------|
| X <sup>2</sup>     | X        | X              | 91,758      |
| sd                 | X        | X              | 61          |
| X <sup>2</sup> /sd | ≤ 3      | ≤ 5            | 1,504       |
| GFI                | ≥ 0,95   | ≥ 0,90         | 0,969       |
| AGFI               | ≥ 0,90   | ≥ 0,85         | 0,953       |
| CFI                | ≥ 0,97   | ≥ 0,90         | 0,976       |
| RMR                | ≤ 0,05   | ≤ 0,08         | 0,028       |
| RMSEA              | ≤ 0,05   | ≤ 0,08         | 0,035       |

Table 7 presents the CFA fit indices calculated for the Artificial Intelligence Awareness Scale. According to these results, the Chi-square goodness of fit, GFI, AGFI, CFI, RMR, and RMSEA indices indicate a good model fit. The validity of the scale has been confirmed, and the scale is consistent with the data obtained. Below, Figure 3 shows the path diagram generated in the CFA, and Table 8 presents the CFA results

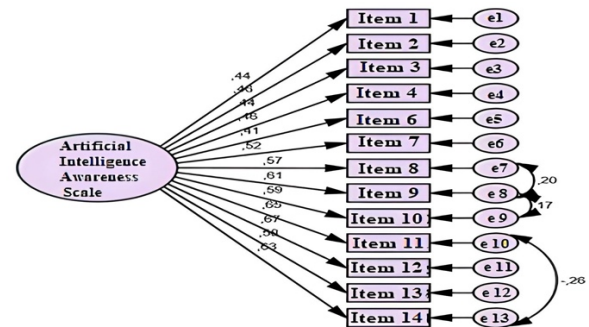


**Figure 3. Roadmap Created in CFA**

**Table 8. CFA Results**

| Scale                                   | Item   | $\beta$ | sh    | t     | p      |
|-----------------------------------------|--------|---------|-------|-------|--------|
| Artificial Intelligence Awareness Scale | Item1  | 0,443   |       |       |        |
|                                         | Item2  | 0,457   | 0,131 | 7,373 | <0,001 |
|                                         | Item3  | 0,442   | 0,173 | 6,587 | <0,001 |
|                                         | Item4  | 0,463   | 0,145 | 6,773 | <0,001 |
|                                         | Item6  | 0,410   | 0,150 | 6,286 | <0,001 |
|                                         | Item7  | 0,521   | 0,141 | 7,235 | <0,001 |
|                                         | Item8  | 0,570   | 0,148 | 7,560 | <0,001 |
|                                         | Item9  | 0,615   | 0,143 | 7,817 | <0,001 |
|                                         | Item10 | 0,587   | 0,150 | 7,669 | <0,001 |
|                                         | Item11 | 0,646   | 0,166 | 7,951 | <0,001 |
|                                         | Item12 | 0,674   | 0,155 | 8,156 | <0,001 |
|                                         | Item13 | 0,584   | 0,157 | 7,663 | <0,001 |
|                                         | Item14 | 0,630   | 0,168 | 7,860 | <0,001 |

The AVE and CR values of the Artificial Intelligence Awareness Scale are given in Table 9 below.

**Table 9. Artificial Intelligence Awareness Scale AVE and CR Values**

| Scale                                   | AVE   | CR    |
|-----------------------------------------|-------|-------|
| Artificial Intelligence Awareness Scale | 0.301 | 0.845 |

For the Artificial Intelligence Awareness Scale, the AVE (Average Variance Extracted) value was calculated as 0.301 and the CR (Composite Reliability) value as 0.845. Bagozzi et al. (1991) stated

that convergent validity is ensured when all items forming the scale factor are significant. Additionally, it has been emphasized that even if the AVE value is below 0.5, convergent validity can still be considered acceptable as long as the CR value exceeds 0.7 (Huang et al., 2013; Burić et al., 2016). The analysis results show that the CR value of the scale exceeds 0.7. Based on these findings, it can be concluded that the convergent validity of the scale is established. Table 10 below presents the reliability results.

**Table 10. Reliability Analysis Results**

| Group      | Cronbach's Alpha |
|------------|------------------|
| Health     | 0,834            |
| Automotive | 0,810            |
| Logistics  | 0,867            |

As shown in Table 10, the reliability coefficient of the Artificial Intelligence Awareness Scale exceeds 0.800 across all groups. This indicates that the scale has a very high level of reliability. Descriptive statistical values for the Artificial Intelligence Awareness Scale are presented in Table 11 below.

**Table 11. Descriptive Statistics of the Artificial Intelligence Awareness Scale**

| Group      | n   | Mean | sd   | Level | Skewness | Kurtosis |
|------------|-----|------|------|-------|----------|----------|
| Health     | 132 | 3,94 | 0,50 | 78,76 | -0,76    | 1,65     |
| Automotive | 139 | 3,90 | 0,48 | 78,05 | -0,30    | 0,74     |
| Logistics  | 152 | 3,96 | 0,56 | 79,27 | -0,72    | 0,71     |

According to Table 11, participants from the healthcare sector showed a high level of agreement with the statements related to artificial intelligence, with an average agreement rate of 78.76%. This indicates that the majority of participants in this sector have a positive attitude toward artificial intelligence and acknowledge its benefits. Similarly, participants in the automotive sector also demonstrated a high level of agreement, with an average of 78.05%. This suggests a general acceptance of artificial intelligence in this sector as well, although slightly lower than in the healthcare sector. The logistics sector showed the highest average agreement level with AI-related statements at 79.27%. This implies that participants in the logistics sector

have an even more positive view of artificial intelligence compared to the other sectors and perceive its potential in their field to be high. While the logistics sector had the highest average agreement level (79.27%) and the automotive sector had the lowest (78.05%), the agreement rates across all sectors were quite close and above 78%. This indicates that artificial intelligence is broadly accepted and perceived positively across all three sectors.

The "Artificial Intelligence Awareness Scale" developed as a result of this study is presented below in Table 12.

**Table 12. Artificial Intelligence Awareness Scale**

| Number of Scale Items | Scale Items                                                                                                                                    |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| I1                    | Artificial intelligence is a concept created by utilizing natural intelligence.                                                                |
| I2                    | Systems operating based on artificial intelligence are used in perception management.                                                          |
| I3                    | While shopping, AI-based systems help me determine the product I will buy.                                                                     |
| I4                    | The main purpose of AI systems is to make human life easier.                                                                                   |
| I5                    | Tasks that would take humans a very long time to complete are performed by AI systems very quickly and without errors.                         |
| I6                    | Data obtained from the mobile devices I interact with are used by AI systems.                                                                  |
| I7                    | The use of AI-based systems is becoming widespread in various sectors such as education, health, security, industry, agriculture, and tourism. |
| I8                    | Today, AI techniques are used in production and management activities in businesses.                                                           |
| I9                    | Our consumption tendencies can be predicted using AI techniques, and we receive feedback based on the information obtained.                    |
| I10                   | AI-powered robots are used to facilitate business operations.                                                                                  |
| I11                   | AI techniques are used for solving problems such as image processing, facial recognition, and similar issues.                                  |
| I12                   | The main software component of unmanned aerial vehicles and similar smart air stations is AI algorithms.                                       |
| I13                   | Almost all of our searches on the internet produce results using AI algorithms.                                                                |

## Discussion

In the study, a single-factor Artificial Intelligence Awareness Scale consisting of 13 items was developed.

The literature has been examined, and it has been seen that the studies on AI are generally scale

development or application studies for the health and education sector. The scale developed in this study is a measurement tool that can be used in all sectors.

Brougham and Haar (2018) developed a new measurement tool "STARA (Smart Technology, Artificial Intelligence, Robotics, and Algorithms) awareness" that describes how employees perceive technological developments in terms of their own jobs and careers, how they prepare for these possible changes, and to what extent their jobs can be modified by such technologies. It was found that STARA awareness was negatively associated with organizational commitment and career satisfaction, and positively related to turnover intentions, cynicism and depression.

Bakir et al. (2025) focused on raising AI awareness to increase employee engagement in the hospitality industry. They emphasized the importance of employee retention by providing insights to facilitate positive awareness of AI applications in the workplace. They stated that AI can cause negative concerns for employees, such as threats to change jobs, job insecurity, and higher turnover.

The Artificial Intelligence Awareness Level Scale for Teachers, which consists of the sub-dimensions of "Associating, Belief and Attitude, Theoretical Knowledge, Practical Knowledge", was developed by Ferikoğlu and Akgün in 2022.

"Artificial Intelligence Awareness Survey" was developed by Yılmaz (2021). The questionnaire consists of four sections: (1) introductory information section, (2) section questioning students' artificial intelligence usage status and internet usage status, (3) section questioning AI awareness, (4) open-ended questions section questioning students' thoughts on future artificial intelligence applications, and a total of 40 items.

## Conclusion

The Artificial Intelligence Awareness Scale is an innovative tool developed to measure society's level of knowledge and attitudes toward AI technologies. In this study, a three-stage scale development process was completed. In the first stage of the process, in-depth interviews were conducted. Based on the content analysis of these interviews, an initial pool of 41 items was created. In the second

stage, a draft of the scale was formed, and expert opinions were sought to ensure semantic, face, and content validity. In the final stage, the scale was evaluated and refined into a 14-item draft version. A pilot study was then conducted with 132 employees in the healthcare sector, resulting in the removal of one item. Subsequently, the final 13-item version of the scale was administered to 139 employees in the automotive sector and 152 employees in the logistics sector. The data collected were analyzed using IBM SPSS 21 and AMOS 21 through CFA and EFA. The analyses revealed a single-factor structure consisting of 13 items. CFA results indicated that the scale has an acceptable level of model fit. Cronbach's Alpha values were calculated as 0.834 for the healthcare sector, 0.810 for the automotive sector, and 0.867 for the logistics sector, confirming the scale's validity and reliability. As a result of this study, a significant tool has been introduced to measure employees' awareness of artificial intelligence across various sectors. This scale enables a better understanding of the societal impacts of AI technologies and facilitates the measurement of awareness levels toward these technologies.

With the rapid advancement of AI technologies and their increasing societal impact, the need for such an awareness measurement tool is evident in the literature (Floridi et al., 2020; Jobin et al., 2019). In this context, the developed scale addresses this gap by providing a means to identify individuals' knowledge gaps and misconceptions about AI. Additionally, the use of this tool can yield valuable insights into how AI technologies are perceived by the general public, thereby informing the development of educational programs and public policies (Cath et al., 2018). Moreover, the analysis results obtained from administering the scale across different sectors demonstrate that it can be applied universally across various industries. While this study represents an important first step in developing and implementing strategies to increase AI awareness, it would be beneficial for future studies to apply the scale to broader sample groups to further enhance its validity and reliability.

The developed scale is a powerful instrument that can be used to evaluate the effectiveness of educational and awareness programs, shape public policy, and understand how AI technologies are

being accepted by society. The Artificial Intelligence Awareness Scale will serve as a fundamental tool in efforts to increase social awareness of AI's social and economic impacts and to manage these impacts effectively. The development and application of such awareness measurement tools have the potential to help society make the best use of AI technologies while minimizing possible risks.

During the scale development process, a pilot application was carried out on 132 employees working in the health sector, and then 139 employees in the automotive sector and 152 employees in the logistics sector were reached in the applications made with the final scale. These sample numbers are one of the limitations of the research. In future research, scale can be applied in different sectors and by reaching a higher sample number.

One of the theoretical contributions of this study is to clarify the conceptual ambiguities in literature by considering artificial intelligence awareness as a multidimensional structure. The developed scale allows us to measure not only the technical knowledge of individuals about AI, but also their sensitivity to the ethical, social and cultural effects of these technologies. In this respect, the study provides a theoretical framework for understanding the critical thinking levels of individuals about AI technologies and contributes to areas such as digital literacy and technology ethics. The social significance of the scale is that it supports individuals to interact consciously and responsibly with AI technologies; This can have broader social implications, such as shaping education policies, addressing digital inequalities, and increasing participation in technology-based decision-making.

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RESEARCH ARTICLE

# Burnout and Self-Compassion Experiences of Non-Governmental Organization Employees

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## Abstract

*The aim of this study is to explore in-depth the experiences of burnout and self-compassion among individuals working in non-governmental organizations (NGOs). The study was conducted between November 2024 and December 2024 using a qualitative research method. A phenomenological design was employed, and semi-structured interviews were conducted face-to-face and online with 10 volunteer participants. The data obtained from these interviews were analyzed using thematic analysis, resulting in the identification of four main themes. These themes are: the factors leading to compassion fatigue, the manifestation of burnout, self-compassion, and the visible aspect of self-compassion. NGO workers are at risk of burnout due to heavy workloads, emotional labor, and resource shortages. Self-compassion is considered an important psychological resource in coping with such challenging work conditions. Furthermore, it was identified as an effective strategy for alleviating emotional burdens, managing stress, and maintaining psychological well-being. The findings are expected to contribute to the development of individual and organizational intervention programs aimed at supporting the well-being of professionals working in the NGOs.*

**Keywords:** Compassion fatigue, burnout, self-compassion, non-governmental organizations, thematic analysis

## Öz

*Bu araştırmanın amacı, sivil toplum kuruluşlarında çalışan bireylerin tükenmişlik ve öz şefkat deneyimlerini derinlemesine incelemektir. Çalışma Kasım 2024- Aralık 2024 tarihleri arasında gerçekleştirilerek nitel araştırma yöntemiyle yürütülmüştür. Fenomenolojik desenle yürütülen bu çalışmada 10 gönüllü katılımcıyla yüz yüze ve çevrimiçi yolla yarı yapılandırılmış görüşmeler gerçekleştirilmiştir. Görüşmeler sonucunda elde edilen veriler, tematik analiz yöntemiyle incelenmiş ve sonucunda 4 ana tema açığa çıkmıştır. Bu temalar; şefkat yorgunluğuna neden olan konular, tükenmişliğin yansıması, öz şefkat ve öz şefkatin görünür yüzü olarak adlandırılmıştır. Sivil toplum çalışanları, yoğun iş yükü, duygusal emek ve kaynak yetersizlikleri nedeniyle tükenmişlik riskiyle karşı karşıyadır. Öz şefkat, bu tür zorlayıcı iş koşullarıyla başa çıkmada önemli bir psikolojik kaynak olarak değerlendirilmektedir. Öte yandan, öz şefkatin bireylerin duygusal yüklerini hafifletmede, stresle başa çıkmada ve psikolojik iyilik hallerini sürdürmede etkili bir strateji olarak kullanıldığı belirlenmiştir. Elde edilen bulguların, sivil toplum alanında çalışan profesyonellerin iyi oluşunu desteklemeye yönelik bireysel ve kurumsal müdahale programlarının geliştirilmesine katkı sağlayacağı düşünülmektedir.*

**Anahtar Kelimeler:** Şefkat yorgunluğu, tükenmişlik, öz şefkat, sivil toplum kuruluşu, tematik analiz

## Introduction

Non-governmental Organization workers face the danger of burnout due to factors such as intense work tempo, psychological burdens, lack of resources and the difficulties of working with the group they serve. Despite this situation having negatively effects on both their job performance and individual well-being, the possible role of self-compassion in coping with burnout has not been sufficiently researched.

NGOs operate in various fields for the welfare of the society such as: education, health care, disaster relief and human rights (Şahin & Öztürk, 2008). Furthermore, NGO organizations play an important role in communicating the needs arising in the society to the state, finding solutions to social problems and raising awareness throughout the society (Bedük, Usta, & Hocaoglu, 2006).

Although these organizations work as professional employees, they work on a voluntary basis and do not seek profit (Akıncı, 2014). It has been revealed that the nature of the work and the systematization of these organizations can increase the workload and stress levels of their employees.

With the increasing number of professionals working in the civilian field, the workplace practices of organizations are also changing. It has been observed that practices such as long working hours and uncertain job expectations can lead to problems such as burnout and depression in employees (Akyüz, 2010). This situation makes it necessary to examine the necessary mechanisms such as self-compassion, which is a method of coping with situations such as burnout, in order to maintain the functionality of NGO employees.

Burnout is explained by factors such as the prolonged time spent with the people the individual works and serves in the work environment, frequent interaction, increasing the number of people he/she serves and the disadvantageous situations of these people (Torun, 1995). Burnout at work is also defined as a decrease in energy and a negative attitude towards oneself, colleagues and beneficiaries (Cieslak et al., 2008). The extent of burnout is not independent from factors such as role ambiguity, conflicts and increased workload in the work environment (Sürgevil, 2006). As a result of these factors, it is seen that the burnout experience

manifests itself with negative behaviors such as low motivation and loss of tolerance (Maslach & Jackson, 1981). In addition, it has been observed that psychological symptoms such as loss of attention and focus, disengagement from work and intolerance accompany this experience (Maslach & Jackson, 1996). It has been observed that NGO workers, especially those working with disadvantaged groups, experience these symptoms more frequently (Şahin, 2019). Therefore, it is of great importance to examine the burnout levels of NGO workers. The role of self-compassion, which acts as a buffer in coping with burnout, in these processes, will also be discussed. Self-compassion is the state of accepting one's own negativity and pain with an uncritical approach (Neff, 2016). Self-compassion means that individuals are compassionate and understanding towards themselves in difficult times. There are 3 elements that point to self-compassion: self-kindness, mindfulness, and a sense of common humanity (Neff, 2003a). Individuals coping through self-compassion recognize and accept their mistakes, failures and imperfections (Neff, 2003b). It has been observed that individuals' coping with stress and burnout is facilitated by self-compassion and symptoms are reduced (Özpeynirci & Kırmızı, 2020). It has been observed that self-compassion contributes to the individual's psychological well-being (Neff et al., 2007). At the same time, self-compassion has been found to facilitate individuals to cope with difficult situations, to regulate emotions and to play a protective role (Dev et al., 2018; Gilbert, 2009). It is thought that the protective effect of self-compassion will have a positive effect on the burnout experienced by individuals working in NGO organizations.

This qualitative study aims to understand the burnout and self-compassion experiences of professionals working in NGO organizations in depth. The main purpose of the research is to reveal the perceptions, feelings and experiences of NGO employees on this issue and to provide suggestions for the field in the light of these findings. For this purpose, the research question was determined as follows:

*"What kind of experiences do NGO workers have when coping with burnout and self-compassion?"*

Although there is an increasing number of studies on the relationship between these two concepts in the literature, there is limited research on the subjective experiences of individuals working in the NGO sector. By focusing on the burnout and self-compassion experiences of NGO workers in Turkey, this study aims to raise awareness by drawing attention to the challenges and burnout faced by NGO workers. The potential of the concept of self-compassion in combating burnout will be examined and practical recommendations will be developed. Finally, it is anticipated that it will provide strategies to help NGO organizations and relevant stakeholders support their employees' psychological well-being and reduce the risk of burnout.

The World Health Organization (2019) included the concept of occupational burnout in the International Classification of Diseases and defined it as a syndrome that develops as a result of long-term and ineffective management of work stress (World Health Organization, 2019). The concept of burnout first emerged in the 1970s. Over time, it has been understood that this concept has many effects and has begun to be considered as a multidimensional psychological structure. In the absence of intervention, burnout negatively affects mental and physical health, causing the stress factors encountered in the professional life of the individual to disrupt daily functionality (Brenninkmeijer & Van Yperen, 2003; McCormack et al., 2018). Burnout is a condition that negatively affects not only the individual himself/herself but also his/her interpersonal relationships and self-perception (Maslach & Leiter, 2016; Maslach, Schaufeli, & Leiter, 2001). Burnout experienced at work is generally explained by work-related environmental and psychological factors (Schaufeli & DeWitte, 2017). In general, burnout shows a unified structure; however, it is explained through four basic dimensions that directly affect professional performance (Schaufeli et al., 2023). The first one is characterized by physical fatigue and mental emotion regulation difficulties. This may also negatively affect the individual's work performance due to attention and memory problems. Emotional disorder is characterized by intense and involuntary experience of emotions such as anger and sadness in the work environment. Mental distancing, which is an effort

to reduce burnout, is manifested by an emotional distance between the individual and the job, not taking the job seriously or indifferent behavior (Schaufeli et al., 2023). Although individuals working in different sectors are vulnerable to burnout, this situation can be more challenging especially for professional groups aiming to provide services to people (Maslach, Schaufeli, & Leiter, 2001). Especially therapists and mental health professionals have been found to have higher rates of burnout (Yang & Hayes, 2020). Similarly, employees working in NGO organizations that provide services to disadvantaged individuals and groups are also thought to be more vulnerable to burnout. This may be caused not only by emotional burden but also by factors such as unrealistic workload (Reed et al., 2020), stressful working environments (World Health Organization, 2019), and inconsistent job expectations. Individual factors or challenges that are not directly related to work can be effective in the occurrence of burnout; however, the literature suggests that the main causes of burnout are the imbalance between high job demands and insufficient resources (Taris, Ybema, & Van Beek, 2017). The effects of burnout are especially alarming in professions that provide direct assistance to people, such as health care. An individual's ability to show compassion to others without experiencing emotional burnout is an important factor in service delivery. This is directly related to the meaning of work, especially for individuals working in NGO organizations (Shoji et al., 2016; Scanlan & Still, 2019).

### Self-Compassion

Self-compassion is defined as an introverted state of compassion that involves taking care of oneself and helping oneself when faced with the experience of suffering by reducing the effects of burnout (Neff, 2003a). Accordingly, self-compassion involves not avoiding pain, being kind to oneself and acting with the desire to heal. Although self-compassion is directed towards oneself, it also includes a kind and non-judgmental understanding of the suffering of others. In this way, one can see one's own experience as the common experience of humanity (Neff, 2003a). Research shows that high

levels of self-compassion contribute to an individual's well-being, and that there is a lower tendency to think and ruminate about negative life events (Johnson & O'Brien, 2013). Therefore, it is thought that increasing the self-compassion levels of individuals may contribute to less psychological distress by supporting psychological well-being.

### **Burnout and Self-Compassion**

Self-compassion, which is one of the important topics of positive psychology, is considered as an effective approach in preventing and reducing burnout symptoms, especially in professional groups that constantly interact with people such as healthcare professionals (Atkinson, et al., 2017). In a cross-sectional study conducted by Lathren et al. (2019), high levels of self-compassion were found to be associated with low levels of perceived stress in a sample of US adolescents. Similarly, a study conducted with a sample of nurses in a hospital in New Zealand showed that high self-compassion was associated with low job stress (Dev et al., 2020). In a study conducted with nurses in Iran, it was concluded that self-compassion has a reducing effect on perceived stress and burnout levels (Abdollahi, 2021)

Individuals working in non-governmental organizations spend high levels of emotional labor due to their direct contact with social problems and this increases the risk of burnout. This burnout observed in individuals working in the helping professions can negatively affect not only individual well-being but also the quality of service delivery. In recent years, self-compassion has emerged as a protective psychological resource for coping with such stress-related negativity (McCade et al., 2021).

Studies conducted in various professional groups show that individuals with high levels of self-compassion have significantly lower burnout levels (Atkinson et al., 2017); (Hashem & Zeinoun, 2020). However, some studies also suggest that the effect of self-compassion on burnout may vary indirectly or contextually. For example, it is suggested that self-compassion may have indirect effects through positive psychological functioning rather than directly reducing burnout (Shaheen et al., 2020).

Moreover, varying levels of relationships have been found between different sub-dimensions of burnout (emotional exhaustion, depersonalization, low personal accomplishment) and different components of self-compassion (self-kindness, perception of common humanity, mindfulness, etc.) (Liu et al., 2024). This suggests that this relationship is not a unidirectional and direct relationship, but a dynamic that is sensitive to context and individual differences.

However, research on the effect of self-compassion on burnout in the Turkish context, especially among civil society employees, is quite limited. Therefore, this study aims to fill this gap and contribute to a better understanding of the related protective mechanisms by examining the relationship between self-compassion and burnout more closely in the civil society sector.

### **Method**

#### **Research Design**

This study was conducted with a phenomenological design within the framework of qualitative research method in order to understand the burnout experiences of individuals working in NGO and their strategies to cope with this situation through self-compassion. Phenomenology is an approach that aims to explore the phenomena experienced by individuals, the meaning and effects of these phenomena in their lives (Groenewald, 2004). In the study, the participants' subjective perceptions and experiences of self-compassion and burnout processes were examined. The data collection process was carried out through semi-structured interviews. The thematic qualitative analysis method was used in the study, which aimed to reveal the implicit thoughts and perceptions of the participants within the framework of the research questions. Thematic analysis, as defined by Braun and Clarke (2006), is a flexible method that enables the systematic identification, analysis and reporting of patterns or themes within data sets. This method is recognized as an effective tool for understanding complex data sets in social sciences. The data collected during the research process were meticulously analyzed and a detailed coding process was

carried out in order to create meaningful themes. In the coding phase, open codes were first created, and then the relationships between these codes were evaluated and broader categories and themes were developed. To minimize the effects of their subjectivity on the analysis, the researchers took care to act with a reflexive approach (Creswell, 2013).

### Sample

In this study, 10 participants were involved. Since the aim of qualitative research is to deeply understand a phenomenon, it does not require large sample sizes as in quantitative studies. What matters is reaching meaningful and recurring themes from the data. Data saturation was achieved as the flow of new information decreased and existing themes began to repeat during the interviews. This point of saturation, frequently emphasized in qualitative research, indicates that adding more participants would not make a meaningful contribution to the study (Guest et al., 2006). Additionally, the number of participants recommended in similar studies in the qualitative research literature typically ranges between 6 and 12 (Guest et al., 2006); (Vasileiou et al., 2018). In this study, 10 participants were deemed sufficient both theoretically and practically, as the study group had experience on the specific topic and shared similar characteristics. In conclusion, the amount of data required for in-depth analysis was achieved, and thus limiting the study to 10 participants was found to be both meaningful and sufficient.

### Participants

Civil society workers in Turkey have to strike a complex balance between societal expectations and institutional limitations. Especially the psychological pressure of working in the field after disasters, inadequacy of support mechanisms and social resistance encountered from time to time can negatively affect the psychological health of employees. In this context, the study included 10 volunteer participants between the ages of 25-60, working in non-governmental organizations in Turkey and working in this field for at least one

year. The participants were selected through purposive stratified sampling to increase the diversity of burnout and self-compassion experiences. The general purpose of the study, confidentiality principles and voluntariness principles during the data collection process were explained in detail to the individuals participating in the study, and their written consent was obtained within the framework of ethical rules. This approach both ensures the protection of participants' rights and increases the reliability of the research. In conclusion, this study aims to make a unique and important contribution to the literature in this field by shedding light on the burnout and self-compassion experiences of NGO workers working in the field after the earthquake in Turkey. The demographic and professional profiles of the participants provide a comprehensive basis for interpreting the findings and developing practical recommendations.

### Data Collection

The ethics committee permission required before data collection was obtained from Hasan Kalyoncu University. Data were collected through semi-structured, online and face-to-face interviews, between November-December 2024. 4 participants preferred face-to-face interviews, and 6 participants preferred online interviews. Interviews were conducted in a quiet and uninterrupted room. The interview duration varied between 20-30 minutes. The semi-structured questions for the interview were prepared within the framework of the literature and expert opinions. The questions asked were focused on the following themes:

"How does the stress you experience in the work environment affect you?"

"What challenges contribute to your burnout when working with beneficiaries?"

"How do you cope with burnout through self-compassion?"

Prior to the study, 2 pilot interviews were conducted and the interview process and questions were updated based on these interviews.

### Data Analysis

Data collection and data analysis were conducted simultaneously. The audio recordings obtained

from the interviews were directly transcribed. The reliability and verifiability of the results were ensured by recording and reporting the stages of the study and the process in detail. The transcripts were anonymized and analyzed using MAXQDA software. The data obtained from the interviews were analyzed by thematic analysis method. In the analysis, the thematic analysis process proposed by Braun and Clarke (2006) was followed. Firstly, the audio recordings were transcribed, then all data were re-read and coded. During the coding process, emerging themes related to self-compassion and burnout were identified. As a result of the analysis, self-compassion levels of NGO workers, their experiences of burnout and the role of self-compassion in preventing burnout were identified as the main themes. An inductive approach was adopted in the data analysis process. This means that codes derived directly from the data aim to preserve the authenticity of the thoughts and perceptions expressed by the participants (Patton, 2002). Inductive coding allows the researcher to explore the internal dynamics of the data and uncover unexpected themes (Thomas, 2006). The coding process involves uncovering both surface and deeper layers of meaning through careful reading and revision of the data. In this process, implicit meanings, contextual clues and social dynamics in participant statements were also considered. Subsequently, the relationships between these codes were identified and transformed into themes by grouping them in a meaningful way within the framework of the main questions of the research. Thematic analysis ensures that the research accurately reflects the participants' unique experiences and perceptions (Nowell, Norris, White, & Moules, 2017).

## Findings

### Participant Profile

Some demographic information about the participants constituting the data set of the study is given in the table below. The names of the participants were kept confidential, and the abbreviation "K" was used for participant confidentiality.

**Table 1. Distribution of participants according to age, gender and marital status**

| Participant | Age | Gender | Marital Status |
|-------------|-----|--------|----------------|
| K1          | 26  | Woman  | Single         |
| K2          | 33  | Woman  | Single         |
| K3          | 29  | Woman  | Married        |
| K4          | 35  | Woman  | Married        |
| K5          | 29  | Woman  | Married        |
| K6          | 31  | Woman  | Single         |
| K7          | 32  | Woman  | Single         |
| K8          | 27  | Male   | Single         |
| K9          | 26  | Woman  | Married        |
| K10         | 26  | Woman  | Single         |

Table 1 presents the distribution of age, gender and marital status of the individuals who participated in the study. A total of 10 people participated in the study. The ages of the participants ranged between 26 and 35. The youngest participants were 26 years old (P1, P9, P10), while the oldest participant was 35 years old (P4). When the gender distribution is analyzed, it is seen that most of the participants were female (n=9) and only one participant was male (n=1). This shows that the study was conducted with a sample of predominantly female participants. In terms of marital status, 5 of the 10 participants were single and 5 were married. The age range of the single participants was between 26-33, while for the married participants it was between 26-35. This finding shows that the sample has a balanced distribution in terms of marital status.

### Discovered Themes and Categories

The codes discovered during the analysis phase were grouped under four main themes. These themes are "Issues Causing Compassion Fatigue", "Reflection of Burnout", "Self-Compassion" and "The Visible Face of Self-Compassion".

#### *Theme "Issues Causing Compassion Fatigue"*

Two sub-themes were identified under the theme of "Issues Causing Compassion Fatigue".

The codes discovered under the first sub-theme "Difficulties Experienced While Working with Beneficiaries" are:

"Combating Peer Bullying", "Limited Domain", "Working with Children with Insufficient Self-Care Skills", "Reaching Parents", "Theoretical

knowledge that does not work in practice", "Working with children who are reluctant to participate", "Working with children who lack cognitive flexibility", "Finding creative practices", "Coping with difficulties in the process", "Setting limits in the relationship with children".

- (...) and when she relates a difficult experience, the feeling that there is nothing she can do and that feeling of helplessness and hopelessness can be a bit challenging. (P9, Limitation of Sphere of Influence)
- We encounter children who are out of school, but unfortunately we cannot do anything. I have difficulty in this area (P5, Reaching Parents)

The codes discovered under the other sub-theme "Organizational Burnout Factors" are:

"Difficulties of Teamwork", "Unfair Workload Distribution", "Managerial Change", "Difficulty of Work Group", "Crisis Management", "Change Process", "Lack of Preventive Techniques", "Lack of Clarity in Decisions", "Difficulties caused by Teammates", "Role Confusion", "Disadvantageous Physical Working Environment and Deficiencies", "Communication with Managers", "Managing and Job Responsibilities".

- But how does it affect me when it is sudden? For example, I have a session in an hour, I need to be ready for it, I need to be ready, but normally I don't have anything on my calendar. I get an e-mail, come on, we have a meeting. There will be this training, everything is gone. I mean, it turned upside down, my order was disrupted, it happens like this. I mean, I have such stress. (P8, Crisis Management)
- I mean, I can say the same thing with my coworkers in terms of governance skills, I have difficulty in managing these two together since I am also a manager somewhere in the title of coworker. (P1, Role Confusion in the Work Environment)

## 2. "Reflection of Burnout" Theme

Under the theme "Reflection of Burnout", there are three sub-themes: "Psychological Reflections of Burnout", "Reflection of Burnout on Work Environment" and "Reflection of Burnout on Daily Life".

In the sub-theme of "Reflection of Burnout on Work Environment", there are the codes:

"Concern of Decrease in Work Efficiency", "Efforts not to Reflect Negative Emotions to Beneficiaries", "Sharing Feelings with Children", "Excessive Focus on Work in Case of Burnout", "Teammates' Support for Burnout Management", "Reflection of Burnout on Work Environment" and "Involuntary Reflection of Burnout on Work Environment".

The sub-theme "Reflection of Burnout on Daily Life" includes the codes "Inability to Allocate Time for Daily Life due to Burnout", "Efforts not to Reflect Burnout on Social Life", "Reluctance in Communication" and "Reflection of Burnout at Home".

The codes in the sub-theme "Psychological Reflections of Burnout" are "Feelings of Sadness and Anger", "Anger due to Not Being Understood", "General Burnout Expressions", "Somatic Symptoms of Anxiety", "Frustration", "Need to Stop", "Feeling of Isolation", "Feeling of Tiredness", "Feeling of Physical and Psychological Fatigue", "Restlessness", "Feeling of Professional Inadequacy", "Negative Emotional Fullness", "Decreased Motivation", "Stuck", "Insensitivity", "Embarrassment" and "Emotional Collapse".

- I think not, I always have a different approach towards children. I try not to reflect my mood to my friends around me in general. (P7, Reflection of Burnout on Work Environment\Non-Reflection of Burnout on Work Environment)
- (...) but unfortunately we cannot do that here. We have to control and regulate this. Sometimes I notice this in myself, I realize that I become harsh when I express an expectation from the other party. (P3, Reflection of Burnout on Work Environment\Involuntary Reflection of Burnout on Work Environment)
- Even though I try not to move home, I always move him home in the evening because we spend more time at work than at home during the day (...) (P1, Reflection of Burnout on Daily Life\Reflection of Burnout at Home)
- (...) and even though I am at home late at night, I get very tired during the day. Actually, instead of saying that I get very tired, it would be more accurate to say that I get mentally tired because

*it is very stressful.* (P7, Feeling of Physical and Psychological Fatigue)

- *When I feel personally unsuccessful, I see it that way when I lack knowledge.* (P9, Feeling of Professional Inadequacy)

### 3. The theme of "Self-Compassion"

Under the theme of "self-compassion", the sub-themes of "Kindness to Self", "Awareness" and "Common Experience of Humanity" were found.

Under the sub-theme of "Being Kind to oneself", the codes are:

"Self-rewarding", "Self-criticism", "Awareness of Needs", "Positive Self-suggestion", "Self-justice and Self-kindness", "Inadequate Self-compassion Efforts", "Feelings of Unworthiness", "Feelings of Inadequacy" and "Feelings of Failure".

Codes under the sub-theme "Awareness": "Being Aware of the Domain", "Not Making Negativity an Agenda", "Being Aware of Strengths", *Common Experience of Humanity*, "Not Making Comparisons Due to Working in Different Conditions", "Seeking Justice for Injustice within the Organization", "Workload Differences with Other Organizations", "Not Being Aware of Differences in Theory and Practice", "Differences in Experience", "High Job Satisfaction", "Better Working Conditions than Other Organizations", "Contempt due to Experience Differences", "Inconsistency of CSO Organizations in Action", "Inconsistency of CSO Employees in Action", "Deficiencies of General CSO Organizations", "Sharing Common Feelings", "Exchange of Ideas among Employees", "Organization Development" and "Volunteer Based Working Environment".

- *The place where I work now is a difficult place, but there are places that are more difficult* (P4, Better Working Conditions than Other Organizations)
- *I mean, I have problems just like everyone else.* (P8, Sharing Common Feelings)
- *I don't compare the problems or fields in the province where I work with a friend working in another province.* (P7, Not Making Comparisons Due to the Existence of Different Conditions)

- *If I am part of the issue, I criticize myself* (P3, Self-criticism)
- *(...) so I do things that are good for me* (P4, Being Aware of Needs)
- *I mean, when it doesn't turn out the way I want, I console myself by saying that it's good health.* (P8, Positive Self-Suggestion)

### 4. Theme "The Visible Face of Self-Compassion"

The codes discovered under the theme of "The Visible Face of Self-Compassion" are "Painting Activities", "Leaving it to Time", "Looking for a Suitable Time for Solution", "Waiting for Sudden Negative Emotions to Fade", "Watching TV Series", "Communication within the Framework of Hierarchical Structure", "Planned Work", "Playing Games", "Coping with Stress by Connecting to the Work", "Open Communication with the Team", "Suppressing Emotions", "Harmful Habits", "Getting Professional Support", "Spending Time with the Children", "Listening to Music", "Breathing Exercises", "Individual Psychotherapy Practices", "Harmonious Approach to People with Different Temperaments", "Altruism", "Getting Away from the Environment", "Diction Lesson", "Playing Tennis", "Knitting", "Aroma Therapy Practices", "Facial Yoga", "Emotional Eater", "Evaluating Possibilities", "Spending Time with oneself", "Walking", "Reading", "Colleague Support" and "Social Support".

- *There is nothing that I have experienced so far, but if there is, I prefer to talk about it. Probably, I mean, I prefer to be in open communication again.* (P4, Open Communication with the Team)
- *If there are situations where I don't feel very good, I try to go out, get clean and come back.* (P6, Distancing from the Environment)
- *I mean, if it is not something very special, I share it directly with my friends in my social circle.* (P8, Social Support)
- *(...) I also have a very close friend who works in a different NGO, who works in the area of the container, but in a different place, and I tell him about it, I usually get ideas from him.* (P2, Colleague Support)

## Discussion and Conclusion

In this study, the burnout and self-compassion experiences of NGO workers were examined using a qualitative method. The results show that burnout experiences are multidimensional, affecting psychological, daily and professional life. Particularly, themes such as "compassion fatigue" and "organizational burnout factors" revealed the challenges faced by workers. However, self-compassion was found to be prominent as a coping mechanism and individuals were able to reduce the effects of burnout through self-compassion practices. Self-compassion strategies such as self-rewarding, positive suggestion, breathing exercises, and seeking social support were found to be the most prominent self-compassion strategies. These results suggest that self-compassion is an important tool for coping with workload and emotional strain.

According to the codes revealed under the theme of "Reflection of Burnout", it was found that burnout is reflected in different ways in psychological, daily and professional life. For example, one participant stated that the feeling of burnout was not only limited to the work environment but also carried this situation to the home environment. This observation aligns with previous research emphasizing that burnout symptoms often extend beyond the workplace and contribute to impaired overall life satisfaction and mental health (Hashem & Zeinoun, 2020; McCade, et al., 2021). Thus, it is understood that the effects of burnout are not limited to professional life but also reflect on personal relationships and daily routines.

In addition, it was observed that employees reflected their burnout experiences in the work environment either voluntarily or involuntarily. Another theme, "Issues Causing Compassion Fatigue", revealed that NGO workers may face various challenges in their work and that these challenges may contribute to burnout symptoms. Among these challenges, under the sub-theme of difficulties with beneficiaries, other factors were mentioned in addition to the difficulties caused by organizational factors of burnout. Some of them being: difficulties in reaching parents, inability to apply theoretical knowledge in practice, working with children who are reluctant to participate, and working with difficult children. In parallel with

this finding, it has been observed that NGO organizations may contribute to the increased risk of burnout by making it difficult for employees to do their jobs effectively because they usually work with limited resources (Ardahan, 2010). Similarly, the existing literature confirms that limited access to organizational resources and unclear role expectations increase emotional burnout in such professional groups (Arı & Erdoğan, 2022; Slatten, et al., 2020). The alignment between the findings and existing research indicates the need for organizational improvements in NGOs to reduce burnout risks.

NGO workers and teachers are occupational groups that require intense emotional labor and human interaction. Therefore, the likelihood of experiencing burnout is high in both groups (Seferoğlu et al., 2014). The literature indicates that burnout causes employees to experience reluctance toward their work and loss of energy (Solak, 2020).

Additionally, it has been observed that the experience of burnout can cause individuals to distance themselves from themselves and their work and to have negative feelings toward the individuals they benefit from (Leiter & Maslach, 1988). These findings support the findings of the study.

As indicated in the themes of "Self-Compassion" and "Coping Techniques with Self-Compassion" in the light of the findings obtained from the participants, self-compassion emerged as a coping tool for NGO workers to cope with the challenges they face at work and prevent burnout. Strategies such as positive self-talk, breathing exercises, and seeking social support have been particularly effective. Additionally, self-compassion has been found to play a mediating role in reducing burnout levels, linking to improvements in various positive psychological traits such as optimism, curiosity, and personal growth (Shaheen et al., 2020). Furthermore, recent studies have consistently shown that self-compassion contributes to reducing emotional burnout and desensitization while also increasing job satisfaction and a sense of accomplishment (Nazari et al., 2024; Gerber & Anaki, 2020; Román-Calderón et al., 2022). It is noted that self-compassion can positively influence team relation-

ships by enabling employees to be more understanding toward themselves and others, thereby providing greater benefits for beneficiaries.

Coaston (2017) emphasizes the importance of self-compassion for counselors to combat burnout and offers important insights that may also apply to NGO workers. Like counselors, NGO workers may perceive burnout as a personal failure. However, the underlying causes of burnout often go beyond individual factors. As seen in the findings, systemic factors such as busy work schedules, uncertain expectations, emotional burden and lack of resources were found to be significant contributors to burnout. In a study conducted by Atkinson et al. (2017) with healthcare professionals working with veterans, they concluded that employees with high self-compassion have a lower risk of experiencing burnout and when they do, their burnout symptoms decrease. In addition, according to another study, it was observed that the effects of compassion fatigue and burnout in child protection workers in Colorado were reduced through self-compassion (Conrad & Kellar-Guenther, 2006). In a similar study, it was found that positive self-compassion contributed to the reduction of burnout by increasing job satisfaction in emergency service workers (Jang et al., 2022). Nazari et al. (2024) concluded that people with high self-compassion help to cope with burnout by helping them to maintain a balanced mood. According to the findings obtained from the literature, it has been observed that self-compassion has similarly protective reflections in professional groups that aim to benefit people such as health professionals, social workers, teachers, psychotherapists, as well as NGO workers.

In another study, it was found that self-compassion contributed positively to the job performance of nurses and healthcare professionals and reduced burnout (Dev, et al., 2018). Coaston (2017) defines self-compassion as "an individual's displaying an understanding, kind and supportive attitude towards their own pain and failures". Self-compassion is seen as an important resource for coping with difficulties and stress and a protective factor against burnout.

As a finding that supports the sub-theme of adaptive approach to people with different temperaments in the theme of the visible face of self-compassion; it was observed that individuals with high levels of self-compassion behaved more understanding, kind and calm instead of reacting to negative situations. They were also found to be better at dissipating their dysfunctional, demotivating thoughts and accepting their own and others' shortcomings without judgment (Abdollahi et al., 2020; Ferrari et al., 2018). It is thought that individuals with this mindset will be less likely to experience burnout at work. On the other hand, it is thought that individuals with low levels of self-compassion may experience self-blame, judgment, less empathy, and a greater tendency toward introversion rather than sociability (Montero-Marin et al., 2020). An individual with such a mindset appears to have a high likelihood of experiencing burnout.

Coaston (2017) suggests various practices for mind, body and spirit to develop self-compassion. Following this, silencing internal criticism and treating oneself like a supportive friend during difficult times will help strengthen self-compassion. In addition to individual practices, organizational interventions such as self-compassion training and mindfulness programs have been found to significantly reduce burnout rates across various occupational groups (Lyon & Galbraith, 2023; Begin et al., 2024). In this context, encouraging NGO management to integrate such programs is considered necessary for creating a work environment that supports employee well-being. Finally, he said that recognizing that pain and failure are part of the universal human experience can reduce feelings of isolation and shame. The definition of self-compassion, as well as methods such as positive thinking, spending time in nature, and engaging in creative activities, also supported the use of self-compassion as a tool for coping with burnout. In line with all these findings, it is observed that participants' coping resources with self-compassion resemble Coaston's (2017) findings.

Looking at the limitations of this study, the fact that the study was conducted only with NGO workers limits the sample group. In addition, the insufficient number of qualitative studies on this

subject made it difficult to conduct this study. The lack of both national and global resources that fully address the burnout and self-compassion experiences of NGO workers is also considered among the limitations of this study. Despite all these limitations, the fact that the study was conducted with a limited sample group and a qualitative method provides important findings as it will contribute to the literature and the visibility of the NGO field.

As a result, it is thought that self-compassion can reduce the negative effects of burnout by strengthening individuals' coping with stress. Furthermore, it can help stress. Furthermore, it can help employees develop a more positive attitude towards their jobs and increase job satisfaction. Since the sample sizes were not equal between male and female participants in this study, a gender-based comparison could not be made. Therefore, it is recommended to pay attention to equal distribution of sample groups in future studies.

In addition, this study is research examining the experiences of self-compassion and burnout among NGO employees. Based on the findings, it is thought that self-compassion plays an important role in preventing burnout and increasing well-being, especially among NGO employees. In a study conducted with social service professionals, it was clearly emphasized that the prevention of burnout and compassion fatigue is the responsibility of employer institutions, as compassion fatigue can also affect clients or beneficiaries (Hick-Pass, 2022). Therefore, organizations should develop self-compassion-themed programs to prevent or reduce burnout. These programs can include mindfulness training, self-compassion meditation, stress management techniques and support groups. Looking at organizational measures to cope with burnout through self-compassion, it was concluded that equal workload distribution and practicing self-compassion practices significantly reduced employees' burnout experiences (Cocker & Joss, 2016). Another study found that providing employees with self-compassion practices as part of training also reduced burnout symptoms (Slocum-Gori et al., 2013; Hicks-Pass, 2022). In line with the findings of this study, it is also recommended that managers create an open communication and understanding work environment in the workplace

to help employees showing signs of burnout. Current evidence supports the critical importance of transparent management practices and equitable working conditions in preventing burnout (Slatten et al., 2020; Slocum-Gori et al., 2013).

Further research is needed to better understand the relationship between self-compassion and burnout. In particular, more studies should be conducted to determine how effective self-compassion is in reducing burnout among NGO employees in Turkey. In addition to the relationship between self-compassion and burnout, future studies may also examine other variables such as job satisfaction, organizational commitment, and job performance. These studies could help NGOs improve the well-being of their employees and organizational effectiveness.

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## RESEARCH ARTICLE

# Digital Crisis Management in Online News Media: How Organizational Response Strategies and Executive Communication Shape Public Sentiment in HuffPost Headlines

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## Abstract

Digital news cycles have collapsed the “golden hour” of corporate crisis response into mere minutes, yet evidence of how specific strategies fare in headline-driven online news media remains scarce. A comprehensive analysis was conducted on 31,877 HuffPost headlines published between 2012 and 2022, from which 1,047 items referring to organizational crises were identified, with a focused subset of 79 headlines that explicitly mention both the focal organization and its response strategy. Through mixed-methods content analysis, it was found that apology and corrective-action statements are more than twice as likely to attract neutral or positive headline framing compared to denial or blame-shifting messages. Executive visibility functions as an amplifier: CEO-fronted apologies increase neutral framing by 29 percentage points, whereas CEO-issued denials intensify negative framing by 15 points. Hierarchical regression analysis reveals that 48% of the variance in headline framing can be explained by strategy-crisis alignment, response timing (within 24 hours), transparency level, and executive involvement. Effects vary by industry, firm size, and prior reputation, with technology companies and high-reputation incumbents deriving the greatest benefit from transparent, executive-led apologies. The timeframe selection (2012-2022) captures the digital maturation phase in online news and encompasses significant evolution in crisis types. Based on these findings, organizations are recommended to prioritize accommodative strategies, respond within 24 hours, align strategy selection with crisis type, and strategically deploy executive voices. This study extends Situational Crisis Communication Theory to headline-level digital contexts and offers evidence-based guidance on effective crisis communication in the online news environment.

**Keywords:** Digital Crisis Communication, Response Strategies, Executive Involvement, Online Headline Framing, Public Sentiment.

## Öz

Dijital haber döngüleri, kurumsal kriz müdahalesinin “altın saatini” sadece dakikalara indirmiştir, ancak belirli stratejilerin manşet odaklı çevrimiçi haber medyasında nasıl bir performans gösterdiğine dair kanıtlar yetersiz kalmaktadır. Bu çalışmada, 2012-2022 yılları arasında yayınlanan 31.877 HuffPost manşeti üzerinde kapsamlı bir analiz gerçekleştirilmiş, bu manşetlerden kurumsal krizlere atıfta bulunan 1.047 öge tespit edilmiş ve hem odak kuruluştan hem de müdahale stratejisinden açıkça bahseden 79 manşetten oluşan odaklanmış bir alt küme oluşturulmuştur. Karma yöntem içerik analizi yoluyla, özür ve düzeltici eylem ifadelerinin, inkar veya suçlu başka yöne çekme mesajlarına kıyasla nötr veya olumlu manşet çerçevelemesini çekme olasılığının iki katından fazla olduğu bulunmuştur. Yönetici görünürlüğü bir güçlendirici olarak işlev görmektedir: CEO önderliğindeki özürler nötr çerçevelemeyi yüzde 29 puan artırırken, CEO tarafından yayınlanan inkârlar negatif çerçevelemeyi 15 puan yoğunlaştırmaktadır. Hiyerarşik regresyon analizi, manşet çerçevelemedeki varyansın %48’inin strateji-kriz uyumu, yanıt zamanlaması (24 saat içinde), şeffaflık düzeyi ve yönetici katılımı ile açıklanabileceğini ortaya koymaktadır. Etkiler sektöre, firma büyüklüğüne ve önceki itibara göre değişmekte olup, teknoloji şirketleri ve yüksek itibara sahip kuruluşlar şeffaf, yönetici liderliğindeki özürlerden en büyük faydayı sağlamaktadır. Seçilen zaman dilimi (2012-2022), çevrimiçi haberlerdeki dijital olgunlaşma aşamasını ve kriz türlerindeki önemli evrimi kapsamaktadır. Bu bulgulara dayanarak, kuruluşlara uzlaşmacı stratejilere öncelik vermeleri, 24 saat içinde yanıt vermeleri, strateji seçimini kriz türüyle uyumlu hale getirmeleri ve yönetici seslerini stratejik olarak kullanmaları önerilmektedir. Bu çalışma Durumsal Kriz İletişimi Teorisi’ni manşet düzeyindeki dijital bağlamlara genişletmekte ve çevrimiçi haber ortamında etkili kriz iletişimi konusunda kanıta dayalı rehberlik sunmaktadır.

**Anahtar Kelimeler:** Dijital Kriz İletişimi, Tepki Stratejileri, Yönetici Katılımı, Çevrimiçi Manşet Çerçeveleme, Kamuoyu Duyguları.

## Introduction

The accelerated growth of digital media platforms has transformed crisis communication, compressing response times from days to mere minutes while subjecting organizational responses to unprecedented levels of scrutiny and amplification (Austin et al., 2012; Frandsen & Johansen, 2017; Tække, 2017; Frandsen & Johansen, 2020). In this rapidly evolving environment, organizations face new challenges in selecting appropriate crisis response strategies and determining optimal spokesperson deployment to protect their reputations and maintain stakeholder trust. The result is an increasingly compressed crisis lifecycle, in which organizational responses are rapidly and extensively evaluated by both journalists and the general public (Schultz et al., 2011). In such circumstances, organizations must respond promptly and effectively, as any misstep or delay can rapidly escalate reputational damage, ultimately impacting stakeholder trust and corporate legitimacy (Coombs, 2007).

Despite the growing importance of real-time digital communication, predominant theoretical frameworks such as Benoit's (1997) Image Repair Theory and Coombs's (2007) Situational Crisis Communication Theory have not been fully contextualized to account for the heightened velocity and interactivity of digital channels (Avery et al., 2010). While these frameworks have significantly advanced our understanding of how organizational responsibility, crisis history, and prior reputation influence response choice, they were largely developed in a media environment characterized by less rapid feedback mechanisms (Bundy et al., 2017). Consequently, a critical question emerges regarding the extent to which these established theories can be generalized to high-velocity digital news contexts, where real-time commentary and viral sharing can quickly magnify public reactions.

There is a significant gap in current research on crisis communication due to limited large-scale, longitudinal studies examining how crisis response strategies are depicted in news headlines. Headlines, particularly those featured on influential online platforms, have been shown to shape

audience perceptions and frame issues well beyond the scope of full article content (Blom & Hansen, 2015; Tenenboim-Weinblatt & Neiger, 2018). This framing effect is amplified in the digital ecosystem, where headlines are frequently disseminated via social media or mobile notifications, functioning as stand-alone representations of crises that can trigger emotional, cognitive, or behavioral responses from readers (Kaye, 2005). However, there is a paucity of comprehensive empirical studies analyzing how different response strategies are depicted and interpreted in these headlines.

Furthermore, the role of executive visibility in crisis communication has garnered increasing attention but has yet to be systematically explored through large-scale, cross-industry data. Chief executive officers and other senior leaders have the capacity to either mitigate or exacerbate reputational repercussions, depending on the content and delivery of their crisis responses (Gruber et al., 2015; Yang et al., 2010). While anecdotal case studies indicate that high-profile executive statements may personalize and humanize an organization's response, they can also draw intensified criticism if perceived as insincere or evasive (Carroll, 2013). Studies examining how executive involvement affects media story presentation are crucial for both theory and practice.

Despite the growing importance of digital news platforms in shaping public perception of organizational crises, empirical evidence regarding how specific response strategies and executive communication choices influence headline framing remains limited. Previous studies have examined crisis communication primarily through case studies or experimental designs, but large-scale analyses of how response strategies are presented in actual digital news headlines are notably absent from the literature.

This study addresses three fundamental research questions:

1. How do different organizational response strategies (apology, denial, justification, information sharing, and corrective action) influence headline framing and tonal outcomes in digital news coverage of crises?

2. In what ways does executive involvement, particularly CEO visibility, moderate the relationship between crisis response strategies and media framing?
3. How do organizational attributes, including industry, size, and prior reputation, influence the effectiveness of response strategies in shaping online media discourse?

The purpose of this study is to analyze how organizational crisis response strategies and executive communication practices influence public sentiment as reflected in digital news headlines. Specifically, this research examines a decade of HuffPost headlines (2012-2022) to identify patterns in how different response approaches are framed in online media coverage.

This study examines 31,877 HuffPost headlines from 2012 to 2022, including 1,047 that mention organizational crises and 79 that discuss a specific company and its response strategy. The longitudinal scope spans a decade marked by significant shifts in public expectations for corporate accountability and transparency, allowing for temporal comparisons of evolving crisis communication norms (Macnamara, 2017; Cheng, 2018). The emphasis on headlines offers an innovative perspective, as it highlights the initial framing cues that readers typically encounter (Blom & Hansen, 2015).

During this timeframe (2012-2022), news consumption patterns shifted dramatically toward digital platforms, with significant increases in digital news consumption and compressed news cycles. Our analysis specifically focused on the North American and European organizational crisis landscape as covered by HuffPost, examining how Fortune 500 companies and other major organizations responded to crises in a digital-first news environment. This timeframe and geographic focus allowed analysis of crisis communication practices during a period of increased corporate accountability expectations following major inflection points including the emergence of social media as a dominant communication channel.

This research makes significant contributions to both crisis communication theory and practice. Theoretically, it extends Situational Crisis Com-

munication Theory to digital headline contexts, examining how established principles operate in high-velocity news environments. Practically, the findings provide evidence-based guidance to communication professionals and executives on selecting optimal response strategies and determining appropriate levels of leadership visibility during crises in the digital age.

This research contributes to existing literature by demonstrating the relevance of established frameworks such as SCCT and Image Repair Theory when applied to headline-level analyses in real-time, interactive digital contexts. It highlights the importance of executive involvement as a factor that can either strengthen or weaken the effects of different response strategies. By incorporating organizational contingencies such as industry, firm size, and prior reputation, the study offers a more nuanced understanding of how and when certain crisis communication strategies are most effective. These insights aim to refine theoretical models and inform practitioners on strategic considerations for responding to crises in the modern digital news ecosystem.

## Literature Review

### Reputation Management and Crisis Communication

Organizational reputation represents a valuable intangible asset that requires careful management during crisis situations. The intersection of reputation management and crisis communication has significant implications for how stakeholders perceive and respond to organizations experiencing crises (Mira et al., 2015). Corporate reputation can be conceptualized as the collective evaluation of an organization by its stakeholders based on direct and indirect experiences over time (Gupta & Pande, 2022). During crises, this accumulated reputational capital can serve as either a buffer or liability, influencing how stakeholders attribute responsibility and respond to organizational messaging (Chunxia et al., 2022).

Situational Crisis Communication Theory, developed by Coombs, provides a comprehensive framework for understanding how crisis response

strategies should align with crisis types, organizational responsibility, and prior reputation to minimize reputational damage (Gupta & Pande, 2022). SCCT posits that organizations should select response strategies based on the level of crisis responsibility attributed to them by stakeholders. When applied to digital contexts, SCCT suggests that transparency and accountability become even more critical in environments where information spreads rapidly and audience feedback is immediately visible (Dhar & Bose, 2022).

Empirical research has identified several reputation management strategies that prove effective during crises. Montgomery and Cowen (2024) found that the credibility of organizational statements during rumor crises significantly impacts stakeholder perceptions, with transparent communication enhancing trust and reducing reputational damage. Similarly, Hinsberg and Lamanna (2024) demonstrated that in high-risk industries, appropriate response methods such as ingratiation, mortification, or corrective action strategies can be highly effective in protecting organizational reputation, dependent on an organization's stakeholders, perceived responsibility, reputation, and crisis history.

The timing of crisis response has emerged as a critical factor in reputation management. Studies show that rapid responses correlate with more neutral media framing than delayed responses, suggesting that the traditional "golden hour" of crisis communication has compressed in digital environments (Cairns et al., 2013). Executive involvement in reputation management has been shown to significantly influence crisis outcomes, with CEO-delivered messages enhancing organizational credibility when aligned with stakeholder expectations regarding leadership communication (Montgomery & Cowen, 2024).

### Foundational Theoretical Perspectives

Situational Crisis Communication Theory serves as the primary theoretical foundation for crisis communication research. This framework posits that strategic decisions between various courses of action, including denial, excuse, justification, apology, or corrective action, are influenced by crisis

responsibility, organizational crisis history, and reputation (Coombs, 2007). According to SCCT, crises perceived to be the organization's fault typically warrant accommodative strategies, such as apologies or corrective measures, as these are more likely to restore stakeholder trust. Conversely, when external factors contribute to the crisis, denial or minimal justification may be sufficient. Although SCCT has been rigorously evaluated in diverse contexts, concerns persist regarding the extent to which its assumptions apply in high-velocity environments facilitated by online media (Avery et al., 2010).

Complementing SCCT, Image Repair Theory offers a taxonomy of rhetorical strategies ranging from denial and evasion of responsibility to bolstering and mortification that organizations employ to protect or restore their public image (Benoit, 1997). IRT emphasizes that the perceived severity and type of crisis dictate which image repair strategies are appropriate and moderate their effectiveness. Both SCCT and IRT emphasize the significance of selecting crisis responses aligned with stakeholders' perceptions of responsibility and harm. However, neither framework was originally designed to account for the heightened interactivity and speed characteristic of the digital age (Frandsen & Johansen, 2017).

Recent scholarship endeavors to establish linkage between these theoretical frameworks and newer conceptual lenses emphasizing dialogic engagement and transparency. Research grounded in dialogic theory and relationship management highlights how public expectations have evolved beyond conventional unidirectional communication models, necessitating more interactive exchanges during crises (Kent & Taylor, 2002). However, the body of work exploring these dynamics in digital contexts remains limited in scope, often focusing on short-term or single-case analyses. Consequently, growing consensus suggests the need to adapt established crisis communication theories to better account for modern conditions of immediacy, interactivity, and virality that can magnify reputational risks.

## Digital Amplification and the Social-Mediated Crisis Communication Model

The Social-Mediated Crisis Communication model posits that contemporary crisis arenas are no longer shaped solely by traditional media outlets. Instead, the proliferation of user-generated content, influencer activity, and real-time interactions among stakeholders profoundly influences crisis narratives (Austin et al., 2012). While the SMCC Model was originally developed to understand crisis communication in social media environments, this study extends its application to examine how organizational crises are framed in online news media headlines. HuffPost, as a digital-native news platform, represents an important component of the broader digital media ecosystem discussed in the SMCC Model, though it differs from social media platforms in its editorial gatekeeping and content structures.

SMCC emphasizes that various social media actors, including eyewitnesses, content sharers, and algorithmic gatekeepers, have the capacity to transform localized incidents into globally visible controversies in a matter of hours. Empirical evidence indicates that stakeholders frequently utilize social media platforms for immediate perspectives while continuing to rely on legacy media outlets for verification and more in-depth reporting (Liu et al., 2011).

A fundamental implication of the SMCC model is that digital ecosystems necessitate enhanced transparency and expediency. Comparative studies have demonstrated that identical crisis messages, when disseminated via highly interactive social channels, tend to elicit more critical evaluations from the public than when they appear in less interactive, more hierarchical media (Schultz et al., 2011; Utz et al., 2013). This phenomenon can be attributed to the increased visibility of audience feedback and the potentially viral spread of user-generated criticism. Systematic reviews on crisis communication consistently highlight transparency and dialogic cues as protective factors that can buffer against negative emotional reactions (Veil et al., 2011; Valentini et al., 2022).

In this broader digital milieu, specific response strategies such as apology and corrective action

have been shown to be effective in mitigating stakeholder anger and restoring brand favorability, particularly in value-driven crises involving ethical lapses (Claeys et al., 2010; Kim & Cameron, 2011; Kiambi & Shafer, 2016). However, field-based investigations have revealed mixed outcomes, where seemingly transparent disclosures can exacerbate public criticism if the timing or tone is deemed inappropriate (Coombs et al., 2016). Crisis management strategies should address stakeholders' rational, emotional, and moral concerns to effectively manage social evaluations (Iqbal et al., 2024).

## Executive Involvement and Organizational Contingencies

The role of executive involvement in crisis communication has emerged as a pivotal domain of inquiry. Leadership scholarship suggests that authentic and morally grounded admissions from chief executive officers can significantly influence stakeholder forgiveness and help rebuild organizational trust (George, 2015). Experimental and qualitative studies suggest that leader-authored messages have a narrative processing effect, whereby stakeholders interpret the message through the perceived ethos of the individual leader (Gruber et al., 2015). However, should leaders adopt defensive or evasive stances, particularly in interactive digital forums, their visibility may be counterproductive by inflaming criticism and inviting scrutiny of their personal credibility (Carroll, 2013).

Another factor requiring examination is the influence of headline-level framing in shaping public perception. Headlines encapsulate crisis narratives in compact, shareable formats that often circulate independently from full article content (Blom & Hansen, 2015). Techniques such as forward referencing and strategic use of emotive language can act as clickbait, escalating outrage and driving early reputational judgments (Kaye, 2005; Stephens et al., 2005). In the digital era, this issue assumed salience given the ability of social media to disseminate headlines rapidly and to a global audience, potentially distorting an organization's intended narrative in a crisis.

Organizational contingencies such as industry sector, firm size, and preexisting reputation further condition crisis response effectiveness. In accordance with "Velcro Theory," organizations with historically tarnished reputations tend to attract harsher media scrutiny and more severe stakeholder attributions of blame (Deephouse & Carter, 2005). Comparative research reveals that technology and consumer-facing brands, which often operate under high transparency expectations, face greater reputational risks when crises arise (Bundy et al., 2017). Firms with abundant resources tend to implement more intricate, multi-faceted crisis responses, but this heightened visibility can paradoxically result in more severe criticism (Maitlis & Sonenshein, 2010).

## Methodology

### Data Collection and Sampling

This study employed quantitative content analysis of HuffPost headlines spanning 2012 to 2022. The dataset comprised 31,877 unique news headlines, each including publication date, category, author, and short description. This timeframe captures the digital maturation phase in online news, encompassing significant evolution in crisis types and organizational communication practices.

HuffPost was selected as the data source for several methodological reasons. As a digital-native news source, HuffPost consistently ranks among the top 10 most-visited news websites in the United States, with substantial reach and influence in online media ecosystems. The comprehensive archiving system allowed for systematic data collection across the full ten-year period without sampling gaps that affect many other digital news sources.

We acknowledge specific limitations regarding generalizability. Following Etikan et al.'s (2016) framework for purposive sampling in media research, this represents a purposive rather than probabilistic sample of the broader digital news ecosystem. HuffPost occupies the 'mixed' category of sources that combine news reporting with opinion content, with an audience that skews center-

left politically, potentially influencing crisis framing patterns. These characteristics mean that while our findings offer valuable insights into crisis communication framing within a major digital news outlet, caution should be exercised in generalizing results across the entire media ecosystem.

### Filtering and Sample Construction

A systematic multi-stage filtering process was employed following established content analysis methodologies in crisis communication research. Crisis identification utilized a comprehensive keyword list including terms such as "crisis," "scandal," "controversy," "apology," "backlash," "lawsuit," "accusation," "protest," and "boycott," yielding 1,047 crisis-related headlines from the initial dataset.

Organizational focus filtering identified headlines mentioning specific organizations using both generic organizational terms and specific major organization names derived from Fortune 500 listings. This process resulted in 79 headlines representing the intersection of organizational entities and crisis situations with explicitly mentioned response strategies.

### Coding Framework

A systematic coding framework was developed to categorize data according to four primary dimensions, derived from established theoretical models and validated content analysis approaches in crisis communication literature. The framework included crisis type (product/service failures, ethical/reputational issues, legal challenges, environmental incidents, financial improprieties, leadership controversies, social/political conflicts, data/privacy breaches, health/safety concerns), response strategy (denial, apology, justification, information-sharing, blame attribution, corrective action), executive involvement (direct attribution, indirect attribution, executive as subject, no executive mention), and tenor of discourse (hostile, negative, neutral, positive).

Supplementary coding captured organizational attributes including industry sector, organiza-

tional size, prior reputation, and crisis history. Operational definitions were established for each category with specific linguistic markers and indicators to ensure coding consistency.

### Reliability and Validity

Two independent coders analyzed all 79 headlines meeting inclusion criteria after completing a 20-hour training program and conducting a pilot test on 150 headlines not included in the final sample. Weekly calibration sessions addressed coding discrepancies throughout the analysis period.

Intercoder reliability was assessed using Cohen's kappa, with values demonstrating strong reliability across all coding dimensions: crisis type ( $\kappa = 0.88$ ), response strategy ( $\kappa = 0.91$ ), executive involvement ( $\kappa = 0.86$ ), and tenor of discourse ( $\kappa = 0.82$ ). All coefficients exceeded Krippendorff's recommended threshold of 0.80 for reliable content analysis.

Content validity was established through alignment with established theoretical frameworks in crisis communication, specifically Coombs' Situational Crisis Communication Theory and Benoit's Image Repair Theory. Construct validity was addressed through multidimensional measurements of key concepts and triangulation with existing literature.

### Data Analysis

The analytical approach combined qualitative content analysis with quantitative statistical procedures. Initial coding of headlines was conducted using NVivo 12 software, applying a directed content analysis approach wherein predetermined categories based on Situational Crisis Communication Theory were used while allowing for emergent categories.

Qualitative codes were systematically transformed into numerical variables using a predefined codebook, with coding consistency verified through double-entry verification. Descriptive statistics were generated using IBM SPSS Statistics version 27 to identify patterns in crisis types, response strategies, and discourse tenor.

Inferential statistical testing examined relationships between categorical variables using chi-square tests of independence with Bonferroni-adjusted post-hoc analysis. For ordinal data, Mann-Whitney U tests assessed differences between groups. These non-parametric tests were selected due to the ordinal nature of the data and non-normal distribution confirmed through Shapiro-Wilk tests.

The Mann-Whitney U test specifically examined whether executive involvement in crisis responses significantly impacted headline framing. Headlines with executive attribution ( $n = 45$ ) were compared against those without executive attribution ( $n = 34$ ) using headline framing scores measured on a four-point ordinal scale (hostile=1, negative=2, neutral=3, positive=4). The test revealed a statistically significant difference ( $U=1247$ ,  $p=0.024$ ,  $r=0.29$ ), with executive-attributed headlines receiving more neutral framing.

Hierarchical multiple regression analysis identified predictor variables for headline framing outcomes. Variables were entered in three blocks: crisis characteristics, response strategies, and organizational attributes. Multicollinearity was assessed through Variance Inflation Factor analysis, with all values below 2.5, indicating acceptable levels.

To examine changes in response patterns over the decade studied, the dataset was divided into two time periods (2012-2016 and 2017-2022) and compared using z-tests for independent proportions. All statistical tests employed a significance threshold of  $p < 0.05$ , with effect sizes calculated following Cohen's guidelines to indicate practical significance beyond statistical significance.

## Results

### Distribution of Crisis Types

The analysis of HuffPost headlines from 2012 to 2022 revealed distinct patterns in the types of organizational crises receiving media coverage. From the 1,047 crisis-related headlines identified, several dominant crisis categories emerged (Figure 1).

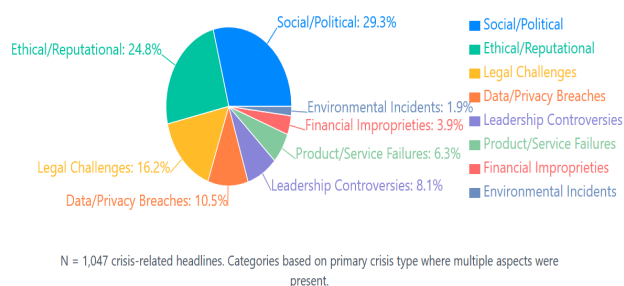


**Figure 1. Distribution of Organizational Crisis Types in HuffPost Headlines (2012-2022)**

Social/political crises constituted the largest category (29.3%), reflecting the increasingly politicized nature of corporate activities during this period. These headlines frequently centered on organizational responses to societal issues such as racial justice movements, political controversies, and public policy debates. Ethical/reputational crises followed closely (24.8%), encompassing incidents involving perceived moral failures, cultural insensitivity, and stakeholder backlash.

Legal challenges (16.2%) formed the third most common crisis type, including lawsuits, regulatory investigations, and compliance violations. Data/privacy breaches (10.5%) represented a growing area of concern, primarily involving technology companies and consumer data protection issues. Leadership controversies (8.1%), product/service failures (6.3%), financial improprieties (3.9%), and environmental incidents (1.9%) constituted the remaining crisis categories.

This distribution underscores the evolving nature of organizational crises in the digital era, with increasing emphasis on social responsibility, ethical conduct, and data stewardship rather than traditional operational or product-related failures.

## Response Strategy Analysis

### Frequency of Strategy Deployment

Across the dataset, organizations employed a variety of response strategies when addressing crisis situations (table 1). Information-sharing emerged as the most common approach (32.5%), characterized by factual statements without evaluative content. Apology strategies followed (24.7%), involv-

ing explicit expressions of regret or acknowledgment of wrongdoing. Corrective action statements (18.9%) outlined specific steps organizations were taking to address issues or prevent recurrence.

**Table 1. Frequency of Crisis Response Strategies in HuffPost Headlines (2012-2022)**

| Response Strategy   | Frequency (n) | Percentage (%) | Most Common Crisis Type            | Executive Involvement (%) |
|---------------------|---------------|----------------|------------------------------------|---------------------------|
| Information-sharing | 34            | 32.5           | Data/privacy breaches (42.3%)      | 18.7                      |
| Apology             | 26            | 24.7           | Ethical/reputational (53.2%)       | 45.3                      |
| Corrective action   | 20            | 18.9           | Product/service failures (47.6%)   | 32.8                      |
| Denial              | 12            | 11.3           | Social/political conflicts (38.4%) | 25.6                      |
| Justification       | 10            | 9.8            | Legal challenges (42.1%)           | 19.2                      |
| Blame attribution   | 3             | 2.8            | Environmental incidents (33.3%)    | 14.8                      |
| Total               | 105*          | 100            | -                                  | -                         |

Denial strategies (11.3%) and justification approaches (9.8%) were utilized less frequently, suggesting a general trend toward acceptance and transparency rather than defensive positioning. Blame attribution (2.8%) was the least common strategy, appearing primarily in complex multi-actor crises.

### Strategy Effectiveness by Crisis Type

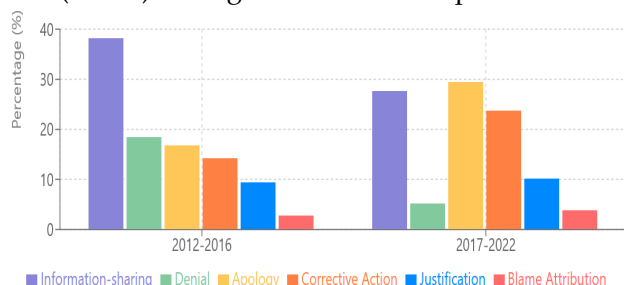
The relationship between crisis types and response strategy revealed significant patterns in media framing ( $\chi^2 = 37.82$ ,  $p < 0.001$ ). For ethical/reputational crises, apology strategies were associated with more neutral subsequent coverage (73.2% neutral framing compared to 42.8% for non-apology strategies). Data breaches showed a similar pattern, with transparent information-sharing strategies correlating with reduced negative framing.

Conversely, denial strategies in social/political crises were associated with more hostile or nega-

tive framing in subsequent coverage (68.4% negative framing compared to 31.7% for non-denial strategies). This suggests that audience expectations for organizational responses may vary significantly based on crisis type, with greater accountability expected in value-based controversies.

### Temporal Trends in Response Strategies

Analysis of response strategies across the decade revealed an evolution in organizational approaches to crisis management (Figure 2). From 2012-2016, information-sharing (38.2%) and denial (18.5%) strategies appeared more frequently, while from 2017-2022, apology (29.4%) and corrective action (23.8%) strategies became more prevalent.



The chart shows the percentage distribution of different response strategies during two time periods, illustrating the shift toward more accountable approaches (apology and corrective action) in recent years.

**Figure 2. Temporal Trends in Crisis Response Strategies (2012-2022)**

This shift coincides with increased public expectations for corporate accountability and transparency, particularly following high-profile cases such as the 2018 Facebook-Cambridge Analytica scandal. The data suggest organizations have adapted their crisis response approaches to align with evolving stakeholder expectations and digital media scrutiny.

### Executive Involvement in Crisis Response

#### Frequency and Nature of Executive Visibility

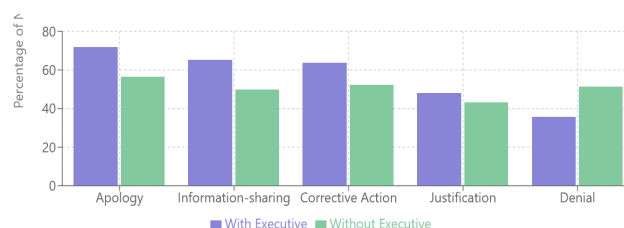
Executive involvement was identified in 78 crisis-related headlines (7.4% of the total crisis sample). Of these, 45.3% featured direct attribution to named executives, 28.7% referenced unnamed leadership (e.g., "company executives"), and 26.0% discussed executives as subjects rather than communicators.

Chief Executive Officers were the most frequently mentioned executive type (62.8%), followed by presidents (15.4%), founders (10.3%), and other C-suite positions (11.5%). This concentration of visibility around CEOs aligns with their symbolic role as organizational figureheads and ultimate decision-makers.

### Impact on Media Framing

The presence of executive voices in crisis responses demonstrated a significant association with headline framing (Mann-Whitney U = 1247,  $p = 0.024$ ). Headlines with direct executive attribution showed more balanced framing, with 58.2% neutral coverage compared to 42.7% for headlines without executive voices. This suggests that executive visibility may legitimize organizational responses in the eyes of media gatekeepers.

However, this relationship was moderated by response strategy type (Figure 3). Executive involvement combined with apology strategies yielded the most neutral framing (71.9% neutral), while executive denial strategies resulted in more negative framing (64.3% negative) than organizational denials without executive attribution (48.7% negative). This indicates that executive visibility may amplify both positive and negative effects of various response strategies.



The chart illustrates how executive involvement influences headline framing across different response strategies. For most strategies, executive involvement results in more neutral/positive framing, except for denial strategies where executive visibility appears counterproductive.

**Figure 3. Percentage of Neutral/Positive Framing by Response Strategy and Executive Involvement**

### Case Analysis: High-Profile Executive Responses

Qualitative analysis of high-profile cases revealed distinctive patterns in executive crisis management approaches. For example, Facebook's Mark Zuckerberg's personal apologies following data privacy scandals ("Mark Zuckerberg Extends Facebook Apology Tour With European Gig," May

2018) represented direct CEO involvement in reputation management. Similarly, Goya CEO's political statements and subsequent consumer boycott ("Goya Foods CEO Doubles Down On Trump Support As Boycott Grows," July 2020) demonstrated how executive communication can directly trigger or exacerbate crises.

These cases illustrate the double-edged nature of executive visibility in crisis situations, where leadership voices can either humanize organizational responses or personally embody corporate transgressions.

### **Tenor of Discourse Analysis**

#### ***Overall Distribution***

Analysis of discourse tenor in crisis-related headlines revealed a predominance of neutral framing (64.5%), followed by negative framing (28.2%), hostile framing (5.3%), and positive framing (2.0%). This distribution suggests that while HuffPost coverage tends toward factual presentation, there remains significant evaluative content in crisis reporting.

The distribution varied substantially by news category, with Politics (42.3% negative framing) and Business (37.8% negative framing) sections demonstrating more critical coverage than Entertainment (18.9% negative framing) and Technology (22.4% negative framing) sections.

#### ***Relationship Between Response Strategy and Discourse Tenor***

Cross-tabulation of response strategies and discourse tenor revealed significant associations ( $\chi^2 = 42.16$ ,  $p < 0.001$ ). Apology strategies were associated with more neutral discourse (75.6% neutral framing), while denial strategies corresponded with more negative and hostile framing (58.3% combined negative/hostile framing).

Temporal analysis demonstrated a moderation effect, with the relationship between strategy and framing weakening over time (Spearman's  $\rho = 0.41$  in 2012-2016 compared to  $\rho = 0.29$  in 2017-2022). This suggests increasing complexity in media re-

sponse to crisis communication, potentially reflecting greater skepticism toward organizational messaging in recent years.

### ***Linguistic Features of Crisis Headlines***

Qualitative analysis of headline language revealed distinct linguistic patterns associated with different discourse tenors:

- Hostile framing employed strong evaluative verbs (e.g., "slams," "blasts," "rips") and emotionally charged nouns (e.g., "outrage," "fury," "disaster").
- Negative framing utilized more moderate critical language (e.g., "criticizes," "questions," "fails") and problem-oriented terms (e.g., "issue," "problem," "controversy").
- Neutral framing featured factual verbs (e.g., "says," "announces," "responds") and descriptive rather than evaluative modifiers.
- Positive framing incorporated supportive language (e.g., "praises," "welcomes," "applauds") and resolution-focused terms (e.g., "addresses," "resolves," "improves").

These linguistic patterns provide insight into the subtle ways media framing shapes public perception of organizational crises and responses.

### **Organizational Attributes and Response Effectiveness**

#### ***Industry Differences***

Cross-industry comparison revealed significant variations in both crisis types and response effectiveness (Figure 4). Technology companies faced predominantly data privacy (42.3%) and ethical/reputational crises (31.7%), with apology strategies producing more favorable coverage (68.3% neutral framing). Retail organizations encountered more product/service (37.8%) and social/political crises (28.5%), with corrective action strategies yielding the most balanced coverage (72.1% neutral framing).

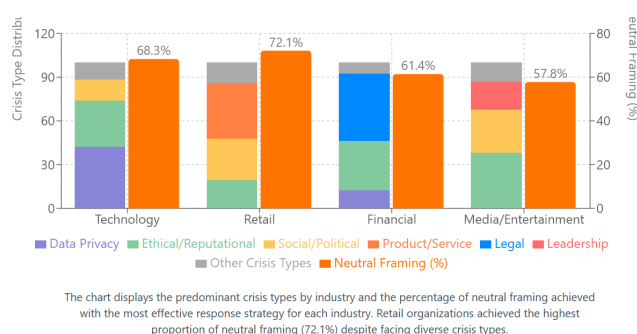


**Figure 4. Industry Differences in Crisis Types and Response Effectiveness**

Financial institutions dealt primarily with legal (46.2%) and ethical crises (33.7%), with transparent information-sharing strategies proving most effective (61.4% neutral framing). These patterns suggest that response effectiveness is partly contingent on industry-specific stakeholder expectations and crisis types.

### Organizational Size and Resources

Analysis of organizational size (based on Fortune 500 status as a proxy) revealed that larger organizations received more critical coverage overall (35.7% negative framing compared to 24.3% for smaller organizations). However, larger organizations also demonstrated more sophisticated response strategies, with greater use of multi-channel approaches and executive involvement.

This paradoxical finding suggests that while prominent organizations face greater scrutiny, they also possess resources to manage crises more effectively, potentially mitigating reputational damage despite more critical initial coverage.

### Prior Reputation Effects

Qualitative analysis of organizations with established reputational challenges revealed a "velcro effect," where new crises adhered more readily to existing negative perceptions. For example, Facebook's privacy issues consistently received more critical framing (47.3% negative) than similar issues at less controversial companies (28.9% negative).

Conversely, organizations with strong positive reputations demonstrated greater resilience, with

crises framed more neutrally and apology strategies receiving more favorable coverage. This suggests that prior reputation serves as both a risk factor and protective factor in crisis situations.

### Synthesis: Predictors of Effective Crisis Response

Multiple regression analysis identified four significant predictors of neutral or positive media framing in crisis coverage:

- Response strategy appropriateness ( $\beta = 0.43$ ,  $p < 0.001$ ): Alignment between crisis type and response strategy emerged as the strongest predictor of favorable coverage.
- Response timing ( $\beta = 0.37$ ,  $p < 0.001$ ): Earlier responses (within 24 hours) correlated with more neutral framing than delayed responses.
- Transparency level ( $\beta = 0.29$ ,  $p = 0.003$ ): Organizations providing comprehensive information received more balanced coverage than those offering limited details.
- Executive involvement ( $\beta = 0.22$ ,  $p = 0.017$ ): Strategic executive visibility, particularly when paired with apology or corrective action strategies, positively influenced media framing.

These findings suggest that effective crisis management in digital media environments requires both strategic content decisions (appropriate strategy selection and transparency) and process considerations (timely response and strategic executive involvement).

### Discussion

The comprehensive analysis of HuffPost headlines over a decade (2012-2022) provides significant insights into how organizational crisis responses are framed in digital media and which strategies most effectively mitigate reputational damage. This discussion interprets these findings through established theoretical frameworks while acknowledging the unique dynamics of contemporary digital media ecosystems.

## Response Strategy Effectiveness in Digital Environments

The temporal shift observed from 2012-2016 to 2017-2022, with organizations increasingly employing apology and corrective action strategies, suggests an evolutionary adaptation to changing stakeholder expectations. This trend corresponds with what Macnamara (2017) describes as the "transparency turn" in organizational communication, characterized by growing public demand for authentic corporate accountability. Organizations appear to be responding to this shift by adopting more forthright crisis communication approaches, reflecting recognition that digital amplification makes defensive strategies increasingly untenable.

The effectiveness of apology strategies must be understood in context. Our finding that apologies yield better outcomes in ethical/reputational crises (73.2% neutral framing) than in product/service failures (58.6% neutral framing) suggests that stakeholder expectations vary by crisis type. This nuance aligns with findings from Claeys et al. (2010), who demonstrated that response appropriateness—the alignment between crisis type and response strategy—significantly influences stakeholder evaluations. In digital environments, this "matching principle" appears even more consequential, as inappropriate responses can trigger rapid backlash amplified through social sharing.

Based on these findings, we recommend evidence-based practices for organizations managing crises in digital media environments. Organizations should prioritize apology and corrective action strategies in their crisis communications, as our data show these approaches generate significantly more neutral media coverage (75.6% and 69.8% neutral framing, respectively) than defensive strategies. Strategy effectiveness varies by crisis type, suggesting organizations should deploy full apologies with explicit acknowledgment of responsibility for ethical/reputational crises, emphasize corrective actions and tangible remedies for operational and product failures, and focus on transparent information-sharing combined with corrective actions for data breaches. Given our finding that response timing significantly impacts

media framing, organizations should develop crisis response protocols that enable authorized statements within the first 24 hours.

## Executive Involvement as Strategic Amplifier

Perhaps the most intriguing finding concerns the moderating effect of executive involvement on crisis response effectiveness. The data reveals that executive-led apologies yield significantly better outcomes (71.9% neutral framing) than organizational apologies without executive attribution (53.4% neutral framing), while executive denials produce worse outcomes (64.3% negative framing) than organizational denials (48.7% negative framing). This suggests that executive visibility functions as an amplifier of response strategy effects, intensifying both positive and negative outcomes. A recent Turkish case study by Kuşku Özdemir (2024) analyzing the Patisswiss crisis demonstrates how mismanaged spokespersonship on social media platforms can rapidly escalate minor product issues into significant reputation crises, further supporting our finding that executive visibility functions as a critical amplifier in crisis communication.

This dual effect can be understood through leadership authenticity theory (George, 2015). When executives personally acknowledge wrongdoing and express genuine remorse, they humanize the organization and signal commitment to addressing the issue. Conversely, when executives attempt to deny responsibility or shift blame, they may appear evasive or dishonest, undermining organizational credibility. This aligns with research by Gruber et al. (2015), who found that leader-authored crisis messages are evaluated based on perceived authenticity rather than mere content.

Our analysis further reveals that executive involvement is particularly beneficial in technology companies (29 percentage point increase in neutral framing with executive apologies) and consumer-facing industries (24 point increase), but less impactful in financial services (11 point increase). This industry variation may reflect differing stakeholder expectations—technology companies are often personified by visionary founders and CEOs, making executive communication particularly salient during crises.

## Digital Media Dynamics and Organizational Contingencies

The prominence of social/political crises (29.3%) and ethical/reputational issues (24.8%) in our dataset underscores a fundamental shift in what constitutes organizational crises in the digital era. Traditional operational failures have been superseded by values-based controversies that reflect broader societal tensions. This evolution aligns with Austin et al.'s (2012) Social-Mediated Crisis Communication model, which emphasizes the role of digital platforms in connecting organizational behavior to broader social issues.

The linguistic analysis of headline framing reveals sophisticated mechanisms through which news outlets signal evaluative stances. Hostile framing employs emotionally charged verbs that prime readers for outrage, while neutral framing utilizes descriptive language that presents organizational responses without judgment. This finding extends Blom and Hansen's (2015) work on headline techniques by demonstrating how linguistic choices specifically shape perceptions of organizational crises and responses.

Our findings reveal that crisis response effectiveness is contingent upon organizational characteristics including industry, size, and prior reputation. The "Velcro effect" observed in organizations with tarnished reputations confirms Deephouse and Carter's (2005) assertion that prior reputation acts as both risk factor and protective barrier during crises. This effect appears particularly pronounced in digital contexts, where algorithmic curation and audience memory can rapidly connect new incidents to established narratives.

Industry differences in both crisis types and response effectiveness highlight the importance of sector-specific crisis communication strategies. Technology companies faced predominantly data privacy (42.3%) and ethical issues (31.7%), while retail organizations encountered more product/service (37.8%) and social/political crises (28.5%). These variations reflect different stakeholder priorities and operational vulnerabilities across sectors.

## Theoretical and Practical Implications

This study makes several important theoretical contributions to crisis communication literature. First, it demonstrates that established frameworks like SCCT and Image Repair Theory retain explanatory power in digital contexts but require adaptation to account for accelerated timelines, increased transparency expectations, and the moderating role of executive involvement. Second, the research substantiates the Social-Mediated Crisis Communication model by providing empirical evidence of how digital media influences crisis framing and organizational response effectiveness.

The regression analysis identifies four key predictors of favorable crisis coverage—response strategy appropriateness ( $\beta = 0.43$ ), timing ( $\beta = 0.37$ ), transparency ( $\beta = 0.29$ ), and executive involvement ( $\beta = 0.22$ )—which together explain 48% of variance in headline framing. This suggests that while digital media has transformed crisis communication dynamics, organizations retain substantial agency in shaping how their responses are framed.

For practitioners, this research offers evidence-based recommendations for managing crises in digital media environments. Organizations should align response strategies with crisis type, favoring apology and corrective action for ethical/reputational crises while considering more informational approaches for operational issues. Leadership visibility should be strategically calibrated, with executives delivering apologies and corrective action plans but delegating defensive messaging to organizational spokespersons when necessary. The significant impact of rapid, transparent responses underscores the importance of crisis preparedness and clear communication protocols that enable organizations to respond within the critical first 24 hours.

## Conclusion

This study has provided a systematic examination of how organizational response strategies and executive communication influence public sentiment in digital media coverage of corporate crises. Through comprehensive analysis of HuffPost

headlines over a ten-year period (2012-2022), we have identified clear patterns in response effectiveness and reputation management that expand existing crisis communication theories and offer practical guidance for organizations navigating the digital media landscape.

Our finding that apology strategies yield more neutral media framing (75.6%) aligns with Coombs and Holladay's (2008) assertion that accommodative strategies are most effective in reputation-threatening crises. However, our study extends this understanding by demonstrating that in digital news contexts, the effectiveness gap between apology and denial strategies (33.9 percentage points) is substantially larger than the 18-point difference reported in traditional media studies (Kim & Sung, 2014). The amplification effect of executive involvement, where CEO-delivered apologies increased neutral framing by 29 percentage points, provides empirical support for Gruber et al.'s (2015) theoretical proposition that leadership visibility functions as a crisis response multiplier.

Several significant findings emerge from our analysis. First, accommodative strategies—particularly apology (75.6% neutral framing) and corrective action (69.8% neutral framing)—consistently generate more balanced media coverage than defensive approaches like denial (41.7% neutral framing). This effect is especially pronounced for ethical and reputational crises, suggesting that digital media environments amplify stakeholder expectations for organizational accountability and transparency.

Second, executive visibility functions as a powerful moderating variable that can either enhance or undermine crisis response effectiveness. CEO-delivered apologies increase neutral framing by 29 percentage points compared to organizational apologies without executive attribution, while CEO denials intensify negative framing by 15 points. This "amplification effect" demonstrates that leadership communication serves as more than mere messaging—it signals organizational authenticity and commitment during critical moments.

Third, organizational contingencies significantly influence crisis communication outcomes.

Industry context shapes both the predominant crisis types faced and the effectiveness of various response strategies. Prior reputation creates either vulnerability or resilience during crises, with established reputational challenges making organizations more susceptible to negative framing despite similar response approaches.

Fourth, the temporal analysis reveals an evolution in crisis communication practices, with organizations increasingly adopting transparent, accommodative approaches over the past decade. This shift reflects growing recognition of digital media dynamics, where defensive strategies that might have succeeded in traditional media environments often backfire amid heightened scrutiny and rapid information dissemination.

### Limitations and Future Research

This study has several methodological limitations that should be acknowledged. The focus on headline-level analysis, while providing insights into initial framing cues, does not capture the full nuance of article content or reader interpretation processes. The exclusive focus on HuffPost limits cross-platform comparisons that could reveal how crisis framing varies across different media ecosystems. While the coding framework achieved strong reliability ( $\kappa > 0.80$  across dimensions), the subjective nature of framing analysis introduces potential interpretive bias.

The 2012-2022 timeframe was selected to capture the digital maturation phase in online news, during which social media integration and algorithmic distribution became dominant features of the news ecosystem. This period encompasses several major evolution points in organizational crisis types, including the emergence of data privacy and social justice as dominant crisis categories, allowing for temporal comparison of evolving crisis communication norms.

Future research should extend this analysis to compare crisis response effectiveness across conservative, centrist, and progressive news sources, addressing the media polarization concerns raised by recent scholarship. Additionally, research incorporating social media engagement metrics,

brand sentiment analysis, or longitudinal reputation tracking would strengthen causal inferences about response effectiveness and stakeholder impact.

### Theoretical and Practical Implications

This research demonstrates that despite the transformative impact of digital media on crisis communication, organizations retain significant agency in shaping how their responses are framed and received. The substantial explanatory power of our predictive model (48% of variance) suggests that while digital platforms have compressed timelines and amplified scrutiny, strategic communication choices remain consequential for reputation management.

For practitioners, this research offers evidence-based recommendations for managing crises in digital media environments. Organizations should prioritize accommodative strategies, respond within 24 hours, align strategy selection with crisis type, and strategically deploy executive voices. The findings suggest that in an era of heightened transparency expectations and rapid information dissemination, organizational responses that demonstrate accountability, authenticity, and commitment to improvement are most likely to yield favorable outcomes—particularly when delivered with appropriate executive visibility and industry-specific contextual awareness.

By integrating established theoretical frameworks with large-scale empirical analysis of digital media coverage, this study advances our understanding of crisis communication in contemporary media environments while providing practical guidance for organizations seeking to protect their reputations in an increasingly transparent and interconnected world.

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## RESEARCH ARTICLE

# The Role of Perceived Benefits, Barriers, and Susceptibility in Free-From Gastronomy: A Health Belief Model Perspective

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## Abstract

*This study examines the key factors influencing consumer purchase intentions for free-from gastronomic products, focusing on the roles of perceived benefits, perceived barriers, and perceived susceptibility. The study applies the Health Belief Model (HBM) to explore how perceived susceptibility mediates the effect of perceived benefits on purchase intentions, while perceived barriers moderate this relationship. A quantitative research approach was adopted, utilizing a cross-sectional survey of 386 health-conscious consumers. Data were analyzed using Structural Equation Modeling (SEM) to test the direct, indirect (mediation), and interaction (moderation) effects. The results reveal that perceived benefits alone do not significantly influence purchase intentions; however, this relationship becomes significant when mediated by perceived susceptibility. Consumers who perceive themselves as at risk of diet-related health issues (e.g., diabetes, gluten intolerance) are more likely to purchase free-from products. Perceived barriers significantly moderate this relationship, such that consumers with higher perceived barriers (e.g., concerns about taste, price, and availability) are less likely to translate perceived benefits into purchase behavior. This study extends the HBM by demonstrating that perceived susceptibility plays a crucial mediating role in consumer food choices, particularly in the context of health-conscious purchasing behaviors. It also highlights the importance of barrier-reduction strategies in promoting free-from products. Marketers should emphasize health risk reduction messaging to increase perceived susceptibility, while simultaneously addressing price, taste, and availability concerns to mitigate perceived barriers. Strategies such as flavor innovations, affordability measures, and expanded distribution can enhance consumer adoption of free-from products. This study integrates HBM constructs into consumer behavior research, offering a novel approach to understanding psychological drivers of free-from product consumption. The findings provide practical recommendations for businesses and policymakers seeking to promote health-oriented food choices.*

**Keywords:** Consumer behavior, nutritional marketing, wellness trends, clean label products, free-from gastronomy

## Öz

*Bu çalışma, algılanan faydalar, algılanan engeller ve algılanan duyarlılığın rollerine dayanarak, tüketicilerin arındırılmış (free-from) gastronomik ürünleri satın alma niyetlerini etkileyen temel faktörleri incelemektedir. Çalışma, algılanan duyarlılığın algılanan faydaların satın alma niyetleri üzerindeki etkisine nasıl aracılık ettiğini araştırmak için Sağlık İnanç Modelini (HBM) kullanırken, algılanan engeller bu ilişkiyi ılımlı hale getirmektedir. Nicel bir araştırma yaklaşımı benimsenmiş ve sağlık bilincine sahip 386 tüketiciyle kesitsel bir anket yapılmıştır. Veriler, doğrudan, dolaylı (aracılık) ve etkileşim (moderasyon) etkilerini test etmek için Yapısal Eşitlik Modellemesi (YEM) kullanılarak analiz edilmiştir. Sonuçlar, algılanan faydaların tek başına satın alma niyetlerini önemli ölçüde etkilemediğini, ancak algılanan duyarlılık aracılık ettiğinde bu ilişkinin anlamlı hale geldiğini ortaya koymaktadır. Kendilerini diyetle ilgili sağlık sorunları (örn. diyabet, glüten intoleransı) riski altında algılayan tüketicilerin free-from ürünleri satın alma olasılığı daha yüksektir. Algılanan engeller bu ilişkiyi önemli ölçüde azaltmaktadır; öyle ki algılanan engelleri yüksek olan tüketicilerin (örn. tat, fiyat ve bulunabilirlikle ilgili endişeler) algılanan faydaları satın alma davranışına dönüştürme olasılığı daha düşüktür. Bu çalışma, algılanan duyarlılığın, özellikle sağlık bilincine sahip satın alma davranışları bağlamında, tüketici gıda seçimlerinde önemli bir aracı rolü oynadığını göstererek HBM'yi genişletmektedir. Ayrıca, arındırılmış ürünlerin tanıtımında karşılaşılan engelleri azaltma stratejilerinin önemini vurgulamaktadır. Pazarlamacılar, algılanan duyarlılığı artırmak için sağlık riskini azaltma mesajlarını ön plana çıkarırken, aynı zamanda algılanan engelleri azaltmak için fiyat, tat ve bulunabilirlik endişelerini de gidermek zorundadır. Lezzet alanında yenilikler, satın alınabilirlik ölçütleri ve genişletilmiş dağıtım gibi stratejiler, tüketicilerin arındırılmış ürünleri benimsemesini artırabilir. Bu çalışma, HBM yapılarını tüketici davranışı araştırmalarına entegre ederek free-from ürün tüketiminin psikolojik etkenlerini anlamaya yönelik yeni bir yaklaşım sunmaktadır. Bulgular, sağlık odaklı gıda seçimlerini teşvik etmek isteyen işletmeler ve politika yapımcılar için pratik öneriler sunmaktadır.*

**Anahtar Kelimeler:** Tüketici davranışı, beslenme pazarlaması, sağlıklı yaşam trendleri, temiz etiketli ürünler, arındırılmış gastronomi

## Introduction

In recent years, the free-from food market has witnessed significant growth, driven by increasing consumer health consciousness, dietary restrictions, and ethical concerns. Free-from products—such as gluten-free, lactose-free, and sugar-free items—have become highly prominent as consumers seek alternatives that promise improved health outcomes and cleaner labels (Innova Market Insights, 2025; Aschemann-Witzel et al., 2019). This trend reflects a broader societal shift where consumers are not only interested in the nutritional benefits of their food choices but also in the ethical and environmental implications of food production.

Health concerns play a central role in the rising demand for free-from products. Many consumers perceive these products as healthier alternatives to conventional foods, a belief that is reinforced by the so-called “health halo” effect (Panidi et al., 2023). For instance, even individuals without diagnosed conditions, such as celiac disease, may opt for gluten-free products in the belief that these choices contribute to overall well-being (Dimidi et al., 2021). However, while the perceived benefits of free-from products are well-documented, research has also shown that other factors—such as price, taste, and availability, can serve as critical barriers that influence purchasing behavior (Steinhauser et al., 2020).

The theoretical underpinning for understanding these consumer behaviors is provided by the HBM, which suggests that an individual’s health-related actions are shaped by their perceptions of susceptibility to and severity of health risks, alongside the perceived benefits and barriers to taking action (Rosenstock, 1974). In the context of free-from gastronomy, this model is particularly useful. Consumers who perceive a higher risk of health issues related to conventional food consumption (i.e., higher perceived susceptibility) are more likely to be motivated by the benefits associated with free-from products. At the same time, if these consumers also perceive significant barriers, such as high cost or compromised taste, these benefits may not fully translate into purchase intentions.

Despite the growing market and extensive literature on health and ethical food choices, there is a

notable gap in research that simultaneously examines the interplay of perceived benefits, perceived susceptibility, and perceived barriers in driving purchase intentions for free-from products. Previous studies have often focused on individual components in isolation (e.g., the impact of health claims on consumer behavior or the role of sensory expectations), but few have integrated these constructs into a comprehensive model that explains consumer decision-making in this context (Rana & Paul, 2017; Liu & Wang, 2023). Understanding this interplay is crucial not only for advancing academic knowledge but also for developing practical marketing strategies that can effectively address consumer concerns and enhance product adoption.

The purpose of this research was to investigate how perceived benefits affect purchase intentions of free-from gastronomic foods by consumers using the HBM. We specifically tested whether the mediation effect of perceived susceptibility to diet risks existed between perceived benefits and purchase intentions and whether perceived barriers (price, taste, availability) moderated the benefits–intentions relationship. Specifically, the study posits that while perceived benefits may not directly drive purchase intentions, their influence is enhanced when consumers also perceive themselves as vulnerable to the negative health effects of conventional foods. Conversely, high perceived barriers can weaken the positive effect of perceived benefits on purchase intentions.

By integrating these constructs within the framework of the HBM, this study not only provides a more nuanced understanding of the factors influencing free-from product adoption but also offers practical insights for marketers. Effective communication strategies that emphasize the health risks associated with conventional food consumption—thereby increasing perceived susceptibility—combined with efforts to reduce perceived barriers, may significantly boost consumer purchase intentions.

In summary, this research contributes to the literature by bridging the gap between health behavior theory and consumer decision-making in the food sector. It offers a comprehensive model that explains how perceived benefits, susceptibility,

and barriers interact to influence purchase intentions, thereby providing a valuable foundation for both academic inquiry and marketing practice.

## Literature Review

### Free-From Gastronomy and Consumer Behavior

The demand for free-from food products, such as gluten-free, lactose-free, and sugar-free items—has surged in recent years, driven by health consciousness and dietary restrictions (Innova Market Insights, 2025). The rising demand for free-from gastronomic products (e.g., gluten-free, sugar-free, allergen-free) reflects growing consumer interest in health, ethical consumption, and sustainability (Aschemann-Witzel et al., 2019). Research suggests that free-from products are perceived as healthier alternatives, making them appealing to health-conscious consumers (Hartmann & Siegrist, 2017). However, consumer adoption of free-from products is influenced by multiple psychological and behavioral factors, including perceived benefits, perceived barriers, and perceived susceptibility (Rana & Paul, 2017).

**H1:** Perceived benefits positively influence purchase intentions.

Recent studies highlight that consumers are not only seeking to avoid allergens but are also motivated by a desire for cleaner labels and perceived health benefits associated with free-from products. For instance, a 2023 report indicates that 43% of consumers consider "no added sugars" claims influential in their purchasing decisions, and one-third are swayed by the absence of artificial ingredients (Web, Mintel)

### Perceived Benefits and Purchase Intentions

Perceived benefits refer to the advantages consumers associate with a product, such as improved health, ethical alignment, and well-being (Chen, 2011; National Cancer Institute, n.d.). Prior studies show that perceived benefits strongly drive purchase intentions, particularly for health-related food products (Sweeney & Soutar, 2001; Schulte et

al., 2021). Consumers who recognize the nutritional and ethical advantages of free-from products are more likely to purchase them (Steptoe et al., 1995). Consumers believing in the health advantages of gluten-free diets are more inclined to purchase gluten-free products, even without medical necessity (Panidi et al., 2023).

**H2:** Perceived benefits positively influence perceived susceptibility.

However, the direct relationship between perceived benefits and purchase intentions may not always be significant, as additional factors (e.g., price concerns, availability) may act as barriers (Dodds et al., 1991). In addition, the direct impact of perceived benefits on purchase intentions can be moderated by factors such as taste perceptions. Research indicates that while sugar-free labels enhance health perceptions, they may simultaneously reduce perceived sweetness and tastiness, potentially diminishing purchase intentions (Panidi et al., 2023).

### Perceived Susceptibility as a Mediator

Perceived susceptibility refers to a consumer's belief in their likelihood of experiencing negative health consequences due to an unhealthy diet (Rosenstock, 1974). Research suggests that higher perceived susceptibility increases the perceived value of preventive health behaviors, including dietary choices (Champion, 1993). In the context of free-from gastronomy, consumers who believe they are at risk for diet-related illnesses (e.g., diabetes, celiac disease) are more motivated to choose healthier food alternatives (Dimidi et al., 2021). Empirical studies support this mediation effect, demonstrating that perceived susceptibility can enhance the influence of perceived benefits on health-related behaviors (Liu & Wang, 2023).

**H3:** Perceived susceptibility positively influences purchase intentions.

**H4:** Perceived susceptibility mediates the relationship between perceived benefits and purchase intentions.

Studies on health communication confirm that high-risk perception enhances the effectiveness of health messaging, increasing the likelihood of behavioral change (Rana & Paul, 2017).

### **Perceived Barriers as a Moderator**

Despite recognizing benefits, consumers may still hesitate to purchase free-from products due to perceived barriers, such as higher prices, taste concerns, and limited availability (Aschemann-Witzel et al., 2019). Studies indicate that perceived barriers weaken the relationship between health benefits and purchase behavior, making price sensitivity a key determinant in consumer decision-making (Steinhauser et al., 2020).

**H5:** Perceived barriers moderate the relationship between perceived benefits and purchase intentions, such that higher perceived barriers weaken the relationship.

Marketing strategies that emphasize affordability, availability, and sensory improvements are crucial in overcoming these barriers (Ben Hassen et al., 2020). Emphasizing improvements in taste and affordability can enhance consumer acceptance of free-from products (Aschemann-Witzel et al., 2019).

### **Theoretical Foundation: Health Belief Model (HBM)**

The HBM provides a strong framework for understanding consumer adoption of free-from products by integrating perceived susceptibility, perceived benefits, and perceived barriers as key predictors of purchase intentions (Rosenstock, 1974). Research applying the HBM to dietary behavior confirms that health-related beliefs significantly impact food purchasing decisions, particularly in the context of functional and organic foods (Hartmann & Siegrist, 2017). By incorporating HBM constructs, this study aims to bridge the gap between health risk perceptions and consumer behavior, providing insights into how marketers can tailor their messaging to different consumer segments.

### **Ethical, Environmental, and Clean-Label Motivations**

Aside from health, ethical consumption and sustainability reasons are increasingly behind free-from gastronomy. Hartmann and Siegrist (2017) illustrated that environmental and animal-welfare concerns encourage consumers to embrace alternative protein sources, engaging the same drivers in free-from markets. Ben Hassen et al. (2020) also illustrated that the COVID-19 pandemic increased consciousness regarding sustainable food systems, supporting ethical reasons to eschew ingredients.

In the meantime, the clean-label trend—the call for short, understandable ingredient lists—has proven to be an effective trust cue. Aschemann-Witzel et al. (2019) discovered that clean-label assertions strongly enhance consumer faith in product safety and quality, particularly if combined with understandable certification.

Lastly, HBM applications to food decision-making highlight the functions of perceived benefits, barriers, and susceptibility within clean-label and ethical settings. Champion's (1984) initial HBM scale development study was the foundation for dietary behavior research, and Liu & Wang (2023) extended HBM constructs to online health information, validating model effectiveness in preventive eating behavior prediction.

### **Methodology**

#### **Research Design**

This study employs a quantitative research design to examine the relationships between Perceived Benefits, Perceived Barriers, Perceived Susceptibility, and Purchase Intentions in the context of free-from gastronomy. A cross-sectional survey method was used to collect primary data from consumers who are aware of or interested in free-from food products. The study follows the positivist research paradigm, which focuses on hypothesis testing using statistical techniques (Saunders et al., 2019).

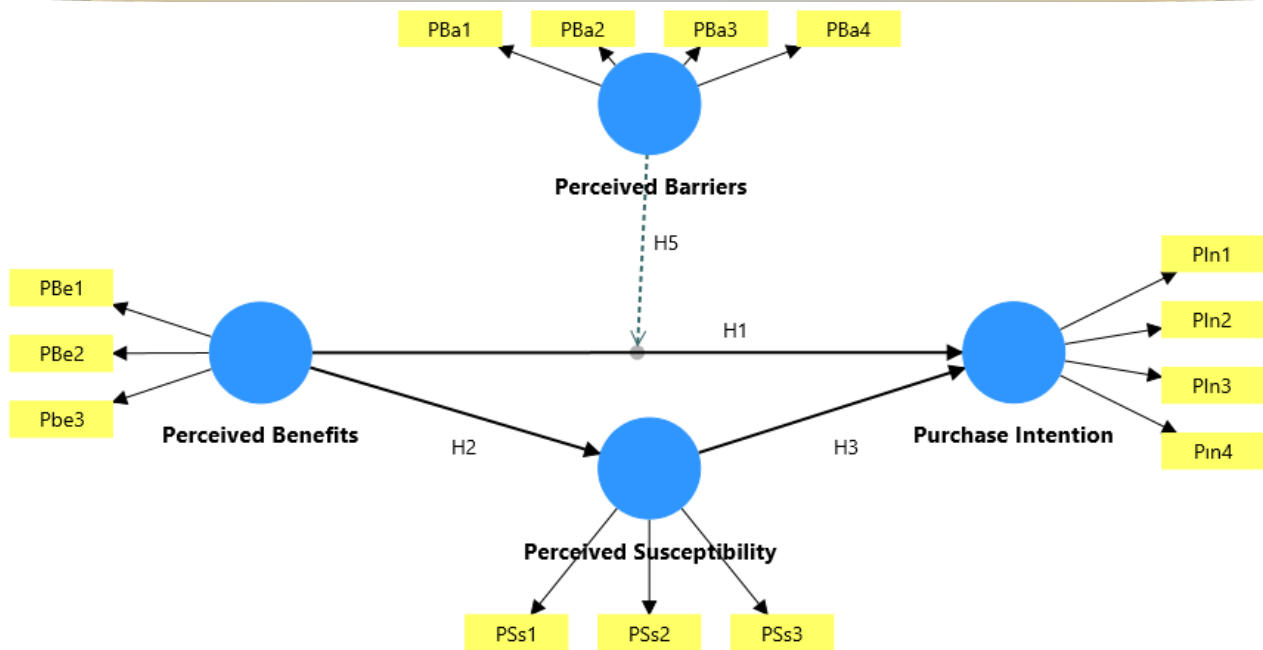


Figure 1. Research Model

### Target Population and Sampling

Target population consists of health-conscious consumers who have previously purchased or shown interest in free-from gastronomic products (e.g., gluten-free, sugar-free, allergen-free). In this research, non-probability purposive sampling was employed, targeting respondents with relevant experience or awareness of free-from products (Hair et al., 2019). A minimum of 300 respondents was determined to ensure sufficient statistical power for SEM analysis (Kline, 2015).

The sample frame were individuals who had purchased one or more free-from products (e.g., gluten-free or sugar-free) within the previous year and read food labels as routine to guide their food choice. The internet survey was advertised on social media health networks and online forums, and respondents were screened by two screening questions:

- Have you bought a free-from product during the last year?
- Do you read food labels regularly and make food decisions based on this information?

Participants who answered "yes" to both questions were defined as "health-conscious" and included in analyses (n = 386).

There were 482 returns; 96 participants that did not pass either screening question were excluded from further analysis.

### Research Model

The research model for this study integrates key constructs from consumer behavior theory and the HBM to explain purchase intentions for free-from gastronomic products. The model posits that the influence of perceived benefits on purchase intentions is not direct but is transmitted through and moderated by other critical factors: perceived susceptibility and perceived barriers. A conceptual diagram of the research model is structured in Figure 1.

### Hypotheses

- **H1:** Perceived benefits positively influence purchase intentions.
- **H2:** Perceived benefits positively influence perceived susceptibility.
- **H3:** Perceived susceptibility positively influences purchase intentions.
- **H4:** Perceived susceptibility mediates the relationship between perceived benefits and purchase intentions.
- **H5:** Perceived barriers moderate the relationship between perceived benefits and

purchase intentions, such that higher perceived barriers weaken the positive relationship.

Perceived benefits are hypothesized to affect purchase intentions both directly and indirectly via perceived susceptibility, while perceived barriers are expected to attenuate the direct benefits–intentions link.

### Data Collection Method

A structured questionnaire was developed and distributed via online platforms (e.g., Google Forms, Qualtrics). The survey was conducted over a four-week period to ensure a diverse sample. A pilot study with 30 respondents was conducted to assess the reliability and clarity of the survey items (Malhotra et al., 2020).

### Reliability and Validity Testing

The survey was administered in its original English version to indigenous English-speaking respondents who were recruited through Amazon Mechanical Turk (MTurk). No translation and back-translation process was therefore necessary. All the items on the scales (Perceived Benefits, Perceived Barriers, Perceived Susceptibility, and Purchase Intentions) stayed in English and surfaced verbatim as in their original studies. Pilot testing of 30 MTurk respondents provided Cronbach's  $\alpha$  measures between 0.78 and 0.88 across constructs, which show good internal consistency.

Following the pilot study, Cronbach's Alpha ( $\alpha$ ) was used to assess internal consistency on the main sample ( $n = 386$ ), with a threshold of 0.70 indicating acceptable reliability (Nunnally & Bernstein, 1994). Composite Reliability (CR) and Average Variance Extracted (AVE) were calculated to evaluate construct reliability and validity (Fornell & Larcker, 1981). Exceeded 0.70, confirming construct validity. Confirmatory Factor Analysis (CFA) was performed to verify the measurement model. AVE exceeded 0.50, indicating good convergent validity.

Table 1 presents the results of the confirmatory factor analysis including factor loadings for each construct. All factor loadings  $> 0.7$ , indicating good convergent validity.

**Table 1. Factor Loadings**

| Item  | Construct                | Factor Loading |
|-------|--------------------------|----------------|
| PBa1  | Perceived Barriers       | 0.884          |
| PBa2  | Perceived Barriers       | 0.870          |
| PBa3  | Perceived Barriers       | 0.882          |
| PBa4  | Perceived Barriers       | 0.915          |
| PBe1  | Perceived Benefits       | 0.891          |
| PBe2  | Perceived Benefits       | 0.937          |
| PBe3  | Perceived Benefits       | 0.896          |
| PIIn1 | Purchase Intentions      | 0.783          |
| PIIn2 | Purchase Intentions      | 0.740          |
| PIIn3 | Purchase Intentions      | 0.752          |
| PIIn4 | Purchase Intentions      | 0.861          |
| PSs1  | Perceived Susceptibility | 0.938          |
| PSs2  | Perceived Susceptibility | 0.960          |
| PSs3  | Perceived Susceptibility | 0.958          |

Table 2 presents Cronbach's Alpha, CR and AVE for assessing internal consistency and construct validity.

**Table 2. Internal Consistency**

| Construct                | Cronbach's Alpha | Composite Reliability (CR) | AVE   |
|--------------------------|------------------|----------------------------|-------|
| Perceived Barriers       | 0.910            | 0.937                      | 0.788 |
| Perceived Benefits       | 0.894            | 0.934                      | 0.825 |
| Perceived Susceptibility | 0.948            | 0.967                      | 0.879 |
| Purchase Intentions      | 0.861            | 0.923                      | 0.798 |

Table 3 indicates the diagonal values that represent the square root of AVE, which are higher than the off-diagonal values, indicating good discriminant validity.

**Table 3. Discriminant Validity - Fornell-Larcker Criterion**

| Construct                  | 1     | 2     | 3     | 4     |
|----------------------------|-------|-------|-------|-------|
| 1.Perceived Barriers       | 0.888 | 0.215 | 0.250 | 0.236 |
| 2.Perceived Benefits       | 0.215 | 0.908 | 0.272 | 0.076 |
| 3.Perceived Susceptibility | 0.250 | 0.272 | 0.952 | 0.319 |
| 4.Purchase Intentions      | 0.236 | 0.076 | 0.319 | 0.865 |

Table 4 has all HTMT values which are below 0.90, confirming discriminant validity (Henseler et al., 2015).

**Table 4. Discriminant Validity - HTMT Ratio**

| Relationship                                     | HTMT Value |
|--------------------------------------------------|------------|
| Perceived Benefits <-> Perceived Barriers        | 0.239      |
| Perceived Susceptibility <-> Perceived Barriers  | 0.268      |
| Perceived Susceptibility <-> Perceived Benefits  | 0.293      |
| Purchase Intentions <-> Perceived Barriers       | 0.279      |
| Purchase Intentions <-> Perceived Benefits       | 0.099      |
| Purchase Intentions <-> Perceived Susceptibility | 0.319      |

Table 5 presents Variance Inflation Factor (VIF) scores, which assess the presence of multicollinearity among variables. All VIF values are below 3.0, indicating that multicollinearity is not a concern (Hair et al., 2019).

**Table 5. Multicollinearity Assessment (Variance Inflation Factor - VIF)**

| Relationship                                                 | VIF   |
|--------------------------------------------------------------|-------|
| Perceived Barriers → Purchase Intention                      | 1.122 |
| Perceived Benefits → Perceived Susceptibility                | 1.000 |
| Perceived Benefits → Purchase Intention                      | 1.179 |
| Perceived Susceptibility → Purchase Intention                | 1.129 |
| Perceived Barriers × Perceived Benefits → Purchase Intention | 1.132 |

Table 6 presents model fit statistics, which assess how well the proposed model fits the data. SRMR < 0.08 suggests good model fit (Hu & Bentler, 1999). NFI > 0.90 indicates acceptable model fit (Bentler & Bonett, 1980). Chi-Square test is significant, but this is expected in large samples.

**Table 6. Model Fit Indices**

| Fit Index                                     | Saturated Model | Estimated Model |
|-----------------------------------------------|-----------------|-----------------|
| SRMR (Standardized Root Mean Square Residual) | 0.049           | 0.074           |
| Chi-Square                                    | 338.630         | 345.855         |
| NFI (Normed Fit Index)                        | 0.904           | 0.902           |
| d_uls (Unweighted Least Squares Discrepancy)  | 0.250           | 0.569           |
| d_g (Geodesic Discrepancy)                    | 0.142           | 0.147           |

Table 7 has BIC values, and lower BIC values indicate a better-fitting model relative to alternative specifications (Schwarz, 1978).

**Table 7. Model Selection Criteria (Bayesian Information Criterion - BIC)**

| Construct                | BIC Value |
|--------------------------|-----------|
| Perceived Susceptibility | -18.722   |
| Purchase Intention       | -16.646   |

## Measurement Scales and Constructs

All constructs in this study were measured using validated scales from prior research, adapted for the free-from gastronomy context. A 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree) was used for all survey items.

## Structural Equation Modeling (SEM)

SEM was conducted to examine direct, indirect (mediation), and interaction (moderation) effects (Kline, 2015). Conducted using SmartPLS 4 to examine direct, indirect (mediation), and interaction (moderation) effects. Bootstrapping (5,000 resamples) was used to test the statistical significance of indirect effects (Hayes, 2018).

Perceived benefits scale is the independent variable and adopted from Raghunathan et al. (2006) and Steptoe et al. (1995). Scale Items are:

- Consuming free-from products contributes positively to my health.
- I believe free-from options are a healthier alternative to traditional food products.
- Choosing free-from products aligns with my ethical and environmental values.
- Perceived barriers scale is the moderator and adapted from Champion (1984) and Block & Keller (1995). Scale items are:
- Free-from products are too expensive compared to regular alternatives.
- It is difficult to find free-from products in most places I shop or dine.
- I am concerned that free-from products may not taste as good as regular products.
- The variety of free-from products is too limited for my needs.
- Perceived susceptibility scale is the mediator and adapted from Champion (1993), scale items are:
- I believe I am at risk of developing health problems due to my diet.
- Eating unhealthy foods could negatively impact my long-term health.
- My diet significantly influences my overall health risks.

Purchase Intentions scale is the dependent variable, and adapted from Dodds et al. (1991) and Grewal et al. (1998). Scale Items are:

- I intend to purchase free-from products in the near future.
- I am likely to choose free-from options when available.
- I plan to prioritize free-from products when shopping or dining.

- I am willing to pay a premium for free-from products.

**Table 8. SEM Results**

| Relationship                                                  | Path Coefficient | Significance         |
|---------------------------------------------------------------|------------------|----------------------|
| Perceived Benefits → Perceived Susceptibility                 | 0.272            | Significant          |
| Perceived Benefits → Purchase Intentions                      | -0.014           | Not Significant      |
| Perceived Susceptibility → Purchase Intentions                | 0.244            | Significant          |
| Perceived Barriers → Purchase Intentions                      | 0.191            | Significant          |
| Perceived Barriers × Perceived Benefits → Purchase Intentions | 0.034            | Significant but weak |

Table 8 presents the standardized path coefficients from the SEM results, highlighting the strength and direction of relationships between variables.

Table 9 reports the moderating effect of perceived barriers on the relationship between perceived benefits and purchase intentions. Interaction term (Perceived Benefits × Perceived Barriers) = 0.034, significant but small effect.

**Table 9. Moderation Analysis**

| Interaction Term                                              | Coefficient | Significance         |
|---------------------------------------------------------------|-------------|----------------------|
| Perceived Barriers × Perceived Benefits → Purchase Intentions | 0.034       | Significant but weak |

Table 10 presents the indirect effects of the mediation analysis, examining whether Perceived Susceptibility mediates the relationship between Perceived Benefits and Purchase Intentions. Indirect Effect of Perceived Benefits on Purchase Intentions via Perceived Susceptibility = 0.067, significant.

**Table 10. Mediation Analysis**

| Relationship                                                        | Indirect Effect | Significance |
|---------------------------------------------------------------------|-----------------|--------------|
| Perceived Benefits → Perceived Susceptibility → Purchase Intentions | 0.067           | Significant  |

## Ethical Considerations

All respondents were informed about the study's purpose, voluntary participation, and the confidentiality of their responses (Saunders et al., 2019). No identifying personal data was collected. Data was securely stored and used strictly for academic

purposes. Ethical approval for this research was granted by the Scientific Research and Publication Ethics Committee for Social Sciences and Humanities at Istanbul Beykent University, under approval number 178029, dated February 14, 2025.

## Discussion

The findings of this study provide significant insights into consumer behavior in the context of free-from gastronomy, particularly regarding the roles of perceived benefits, perceived barriers, and perceived susceptibility in influencing purchase intentions.

The results indicate that perceived benefits alone do not directly lead to higher purchase intentions. While consumers recognize the health, ethical, and nutritional advantages of free-from products, these benefits are not sufficient motivators for purchase unless they are reinforced by other psychological factors, such as perceived susceptibility. This finding aligns with previous studies emphasizing that consumers may recognize the advantages of a product but still hesitate due to other competing considerations, such as sensory attributes and cost (Panidi et al., 2023).

In our results, the surprising small negative direct influence of perceived benefits on purchasing intentions ( $\beta = -0.014$ ) can be attributed to a health halo backlash where "free-from" leads consumers to think too favorably about the healthfulness of a product and hence end up being skeptical about other parameters like taste or overall credibility (Panidi et al., 2023; Joyful Eating Nutrition, 2022). This is consistent with health-halo effects research that indicates individual health claims (e.g., "gluten-free" or "low-fat") shift consumers' focus away from nutritional information or produce exaggerated expectations, ultimately suppressing purchasing intent.

Additionally, while perceived barriers moderated benefits–intention linkage considerably, the effect size was low ( $\beta = 0.034$ ). What it indicates is that while taste and price, for example, can dilute the power of perceived benefits, their power is smaller than the power of drivers like risk perceptions and benefit awareness (Steinhauser et al., 2020). Hence, the interaction between perceived

susceptibility and perceived barriers establishes that perceived susceptibility consumers are going to use free-from products despite barriers, whereas weaker susceptibility consumers are going to be more deterred by the same barriers. This interaction highlights necessity for simultaneously enhancing risk communication and barrier decrease measures in order to maximize free-from product consumption.

Perceived susceptibility plays a crucial mediating role between perceived benefits and purchase intentions. Consumers who feel vulnerable to diet-related health risks (e.g., diabetes, gluten intolerance) are more likely to act on their awareness of free-from product benefits. This supports previous findings suggesting that risk perception strengthens the motivation for behavioral change, particularly in health-related consumer decisions (Liu & Wang, 2023). Thus, marketing strategies should emphasize risk reduction messaging, particularly for health-conscious consumers.

The moderating analysis reveals that perceived barriers significantly weaken the relationship between perceived benefits and purchase intentions. Consumers with higher perceived barriers—such as concerns about price, taste, and availability—are less likely to translate perceived benefits into actual purchase behavior. This confirms prior research suggesting that sensory and economic trade-offs often override health motivations in consumer decision-making (Aschemann-Witzel et al., 2019). These findings highlight the importance of reducing perceived barriers through targeted marketing strategies, such as improving accessibility, taste perception, and affordability of free-from products.

## Marketing Applications

To make these findings useful, marketers will need to break down three things:

1. **Product Positioning:** Gastronomy brands who position themselves as "free-from" have to create a niche, specializing in their value proposition (e.g., "clean label," allergen-safe) or contrasting with conventional and other health-oriented options. A glu-

ten-free bakery is an example that positions itself not only "gluten-free" but also "artisan, small-batch baked goods for digestive health," competing on taste and health at the same time (Nine Blaess, 2025).

2. **Strategies of Labeling:** Definite, truthful label assertions are imperative. As "free-from" labeling is vague under U.S. law, companies must practice open labeling by applying supportive detailed allergen-management statements (e.g., "produced in a dedicated dairy-free environment"). Food System Primer suggests employing recognizable symbols (e.g., an allergy-safe badge) in conjunction with clear concise descriptive wording in an attempt to establish trust and inform purchasing decisions (Food System Primer, n.d.).
3. **Promotional Campaigns:** Sidelining trial hesitation such as price concern, providing free trials or promotion discounts can stem hesitation. NerdWallet recognizes that "offer free samples" is a cost-effective tactic with high conversion, particularly for products with sensory risks (e.g., taste of sugar-free products) (Anthony, 2023). Moreover, time-limited bundles (e.g., "2 for the price of 1") and focused digital advertising through Google My Business can increase prominence and short-term sales (Gyant, 2020).

By product positioning, open labeling, and using low-risk promotions, free-from gastronomy products can increase perceived susceptibility communications and lower practical barriers, thereby resulting in more powerful purchase intentions.

## Theoretical Contributions

This study extends the HBM by demonstrating that perceived susceptibility functions as a crucial mediator in the context of food choices, particularly in free-from gastronomy. While the HBM has traditionally been applied to preventive health behaviors, this study confirms its relevance in consumer purchasing behavior, reinforcing the need for a risk-benefit framing in marketing campaigns.

## Conclusion

This study aimed to understand the determinants of consumer purchase intentions for free-from gastronomic products, with a focus on the roles of perceived benefits, perceived barriers, and perceived susceptibility. The findings reveal that perceived benefits alone do not significantly drive purchase intentions, but when combined with high perceived susceptibility, their influence becomes stronger. However, perceived barriers remain a key obstacle, limiting the impact of benefits on purchasing behavior.

## Practical Implications

The results provide actionable insights for marketers and businesses in the free-from gastronomy sector. Marketers should emphasize health risk reduction messaging, as perceived susceptibility significantly influences purchase behavior. Overcoming taste concerns by highlighting flavor innovations and product improvements can help counteract negative sensory perceptions. Reducing price sensitivity through promotions and expanding product availability in mainstream retail channels can enhance adoption.

## Limitations and Future Research

Though this study is useful, it has limitations. First, the study employs cross-sectional survey data, which constrains causality. Future studies can employ longitudinal studies, where they follow consumer behavior as a function of time. Second, the study in this case centers mostly on perceived health risk; future studies can investigate environmental and ethical issues as alternative predictors of purchase intentions. Third, experimental research would be able to test additional marketing interventions to further confirm the effect of perceived susceptibility and barriers to consumer choice. Our sample was also only based on English-speaking MTurk users who indicated they were health-conscious, making generalizability to more or alternative consumer groups potentially limited. Relying on self-report measures also heightens the threat of social desirability bias, in

which respondents overstate being healthier in their behaviors than actually exists. Use of valid measures of social desirability or implicit measures of attitudes could prevent this bias in future research. Second, Qualitative research techniques, such as focus groups and in-depth interviews, would produce a rich understanding of the explanations behind the health-halo backlash and consumer mistrust. Third, cross-national comparisons across a few nations would offer insights into cultural norms and regulatory situations and how these affect the interrelationships between perceived benefits, susceptibility, barriers, and purchase intentions.

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## RESEARCH ARTICLE

# The Mediating Role of Organizational Culture in the Effect of Attitudes Toward Artificial Intelligence on Innovative Work Behavior and Turnover Intention: A Quantitative Study in the Technology Sector Employees

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**Abstract**

This research was intended to explain how attitudes towards artificial intelligence effects innovative work behaviors and the intention to leave and whether the organizational culture plays a mediating role in these relationships. The number of participants participating in the research was 402. The research was conducted in İstanbul. It is seen that the general attitude score towards artificial intelligence has a significant and positive effect on both innovative work behavior and intention to leave. These findings reveal that employees' perception of artificial intelligence as a supportive and beneficial element increases innovative behaviors, but risk perception increases the tendency to leave. Mediation analyses show that positive AI attitudes create indirect effects on decreasing intention to leave, especially through the dimensions of adaptability and consistency. The fact that all indirect effects are significant at the 95% confidence level clearly demonstrates that organizational culture plays an important mediating role in the effect of attitudes towards AI on employee behavior. In this context, not only individual perceptions but also the provision of a flexible and consistent cultural environment that inspires confidence in employees in technological transformation processes stand out as a strategic necessity.

**Keywords:** Artificial intelligence attitude, innovative work behavior, turnover intention, organizational culture, IT sector

**Öz**

Bu araştırma yapay zekaya yönelik tutumların yenilikçi çalışma davranışlarını ve işten ayrılma niyetini nasıl etkilediğini ve bu ilişkilerde örgüt kültürünün aracılık rolü oynayıp oynamadığını açıklamak amacıyla gerçekleştirilmiştir. Araştırmaya katılan katılımcı sayısı 402'dir. Araştırma İstanbul'da gerçekleştirilmiştir. Yapay zekaya yönelik genel tutum puanının hem yenilikçi çalışma davranışı hem de işten ayrılma niyeti üzerinde anlamlı ve pozitif bir etkiye sahip olduğu görülmektedir. Bu bulgular, çalışanların yapay zekayı destekleyici ve faydalı bir unsur olarak algılamalarının yenilikçi davranışları artırdığını, ancak risk algısının işten ayrılma eğilimini artırdığını ortaya koymaktadır. Aracılık analizleri, olumlu yapay zeka tutumlarının özellikle uyum sağlama ve tutarlılık boyutları aracılığıyla işten ayrılma niyetini azaltmada dolaylı etkiler yarattığını göstermektedir. Tüm dolaylı etkilerin %95 güven düzeyinde anlamlı olması, örgüt kültürünün yapay zekaya yönelik tutumların çalışan davranışı üzerindeki etkisinde önemli bir aracılık rolü oynadığını açıkça göstermektedir. Bu bağlamda, yalnızca bireysel algılar değil, aynı zamanda çalışanlara teknolojik dönüşüm süreçlerinde güven aşılayan esnek ve tutarlı bir kültürel ortamın sağlanması stratejik bir gereklilik olarak öne çıkmaktadır.

**Anahtar Kelimeler:** Yapay zeka tutumu, yenilikçi çalışma davranışı, işten ayrılma niyeti, örgüt kültürü, BT sektörü

## Introduction

Technological advances that have taken place worldwide and affect all individuals and businesses from large to small have begun to radically change many areas from ways of doing business to employee roles (Benbya et al., 2020). Although its foundations date back many years, “artificial intelligence” has begun to take its place at the heart of this change, especially in recent years. Due to this development, artificial intelligence, which was initially expected to increase operational efficiency, has now begun to reshape employees’ attitudes, behaviors, (Ma & Ye, 2022) and organizational commitments (He et al., 2023). This shaping has begun to show itself more among technology sector employees who are thoroughly involved with technology and follow innovations closely (Rashid & Kausik, 2024). Although this is the case, much literature on artificial intelligence is seen on customer behavior rather than employee behavior (İnce et al., 2021).

From this point of view, this research intends to explain how attitudes towards artificial intelligence effects innovative work behaviors and intention to leave. However, this research also examining the mediating role of organizational culture in these relationships. Innovative behavior was chosen it is because the increasing adoption of AI in organizational settings has prompted scholars to explore how technology-driven stressors influence this work behavior and Dong et al. (2025) indicated that AI can either facilitate or hinder innovative behavior depending on whether it is appraised as a challenge or a threat. Therefore, more investigation is required to identify how AI affects this behavior. Similarly, the effect of AI on intention to leave is still not clear and thus needs more study (Zhang et al., 2025). Furthermore, organizational culture which is shaped by the shared values, beliefs, and assumptions is expected to influence how employees behave and interpret their experiences at work; however, features of the organizational culture that are influential on innovative work behavior and intention to leave remains as an area to explore. Therefore, conducting a study on how attitudes towards artificial intelligence effects innovative work behaviors and intention to leave thor-

ough examining the mediating role of organizational culture in these relationships is beneficial for filling the gaps in literature.

## Theoretical Background

### Attitudes toward artificial intelligence

Artificial intelligence technologies, one of the most talked about and studied topics recently, have actually been on the agenda of scientists since the question “Can machines think?” (Turing, 1950) was asked 75 years ago (Özkaynar, 2024). The concept was first used by John McCarthy et al. (1956 - Dartmouth Conference - preparatory document dated August 31, 1955) to more clearly express the issue of “machines imitating human intelligence” (Cordeschi, 2007). The first definitions began to be made based on this point, and the concept of “artificial intelligence” began to be used for the entirety of the processes carried out to ensure that machines are intelligent. Artificial intelligence attitude is on the other hand examine perceptions and feelings towards artificial intelligence technologies (Zhang et al., 2025). However, the important point here is how the individual associates his/her experiences, knowledge, emotions and motivations with each other in an organization. Attitudes have three constituent elements: cognitive, emotional and behavioral, and it is generally assumed that there is internal consistency between them (Özkaynar, 2024).

The cognitive element refers to the individual’s thoughts, beliefs and knowledge about a specific object or situation (Maio & Haddock, 2010). This element includes the information the individual has about the object. In addition, this also includes how he/she evaluates the accuracy of this information. Level of belief that employees hold about artificial intelligence in terms of its effectiveness in their work can be given as an example of a cognitive attitude. The emotional element refers to the individual’s emotional reactions and feelings about a specific object or situation (East et al., 2008). This element includes the individual’s positive or negative emotional reactions towards the object. An employee’s level of excitement about the use of artificial intelligence is an example of an

emotional element. The behavioral element refers to the behavioral reactions and tendencies of an individual towards a specific object or situation (Eagly & Chaiken, 2007). This element covers how the individual behaves towards the object and how he/she plans to behave in the future. The level of willingness of an employee to use AI-based tools can also be given as an example of this element.

Attitudes are important psychological structures for individuals. It is because they affect and direct their behaviors. In this context it can be said that they have four main functions: Utility Function, Ego Defense Function, Value Expression Function and Information Function (Wang, 2022). The use of attitudes by individuals to achieve positive results is considered as its utility function. This also includes avoiding negative results. According to Bagozzi et al. (2002), basically, this function is related to rewards and punishments. Ego defense function on the other hand support individuals in protecting themselves from threats (Knight Lapinski & Boster, 2001). This function ensures that individuals feel safe. Value expression function helps individuals express their own values, beliefs and identities (Muzikante & Renge, 2011). This function also enables individuals to express themselves in a group and thus it improves their relationships within social groups (Debono, 1987). Information function supports individuals in learning and understanding the world around them (Bagozzi et al., 2002). As well as this, information function enables individuals to make an organization in their environment and predict events that may happen in their environment.

Based on these functions, individuals' perceptions of artificial intelligence also significantly affect their attitudes towards artificial intelligence (Satici et al., 2015). Studies show that attitudes towards artificial intelligence affect the speed of adoption of technological innovations and policy regulations. In addition, it also affects the innovation processes (Koo et al., 2021). However, concerns such as unemployment anxiety, security threats and ethical issues also shape attitudes as much as the opportunities offered by artificial intelligence shapes (He et al., 2023).

Understanding attitudes towards artificial intelligence is important in terms of predicting how

individuals and societies will interact with technology (Nguyen & Nguyen, 2025). Based on the results provided by Satici et al. (2015) indicated that individual traits such as openness, extraversion and sense of responsibility are associated with a positive attitude on the use of artificial intelligence. The same research also provided the results that traits such as neuroticism are associated with a more negative attitude on the use of artificial intelligence. Differently, psychological factors such as depression, anxiety, and stress have a negative effect on the use of artificial intelligence. On the other hand, positive psychological states such as spiritual well-being and development can support a more positive attitude toward AI (Naiseh et al., 2025).

### **Innovative work behavior**

The increasing adoption of AI in organizations attracted scholars to explore how technology-driven stressors influence IWB. According to Abidi et al. (2025), the concept of innovative behavior refers to the processes of individuals generating and implementing new ideas in the workplace. Almazrouei et al. (2025) made a similar definition and defined the concept of innovative work behavior as the ability of employees to produce new ideas, improve existing processes and develop creative solutions, and at the same time emphasized that the concept contributes to the competitive advantage and continuous development of organizations.

In explaining the concept in the context of the AI, Dong et al. (2025) propose a dual-path model. This model shows that AI can either facilitate or hinder innovative behavior depending on whether it is assessed as a challenge or a threat by the employees. Khanfar et al. (2025) highlight that AI adoption is influenced by a combination of individual and organizational factors based on the employees' perceptions. These include anxiety, resistance, trust, and organizational readiness for technological developments. Their integrative model challenges the assumption that these drivers operate independently. In other words, all factors are related to each other in shaping adoption behavior of the employees. This shows that AI at-

attitude influences innovative work behavior. However, the direction whether it is positive or negative will be related to how employees perceive the technology and whether organizational culture supports the employees. Based on this the first hypothesis for this study is set as AI attitude effects the innovative work behavior of the employees (H1). This hypothesis is grounded in the Theory of Planned Behavior (TPB) and the Technology Acceptance Model (TAM). According to TPB, positive attitudes influence behavioral intentions, which lead to actual behaviors. In this context, employees who view AI as beneficial are more likely to engage in innovative work behaviors. TAM reinforces this by stating that perceived usefulness and ease of use drive technology adoption, which in turn supports innovation. Therefore, H1 is based on the idea that favorable attitudes toward AI lead to proactive and innovative actions at work.

According to Abidi et al. (2025), the place and importance of organizational culture is very important in whether employees exhibit innovative behavior. Accordingly, the intense flow of information in the workplace is a significant obstacle to employees' creative thinking. In this sense, being exposed to too much information complicates decision-making processes and prevents the emergence of innovative ideas (Abidi et al., 2025). Again, employees' constant communication can cause interruptions in idea development processes. According to Abidi et al. (2025), especially intense e-mail traffic and instant messaging negatively affect innovative behavior. According to Abidi et al. (2025), another important obstacle to creative thinking is related to individuals' confidence in their own creative capacities. Accordingly, employees' ability to manage their own tasks independently can positively affect innovative behavior.

Another important factor suggested by Abidi et al. (2025) is that respectful and supportive communication between employees contributes to the development of innovative thoughts by increasing the psychological well-being of individuals. Wynen et al. (2020) also demonstrated that organizational factors can diminish innovative work behavior. Drawing on threat-rigidity theory, their

study shows that the accumulation of structural reforms increases perceived uncertainty and leads to more centralized, risk-averse managerial climates. This creates a condition in which employees are less likely to perceive innovation as valued or supported. In fact, an organizational culture is claimed as one of the most important factors that encourages innovative behavior of the employees (Almazrouei et al., 2025). Therefore, it is expected that organizational culture will increase the innovative work behavior of the employees (H2). H2 builds on organizational culture and innovation theories, particularly Schein's model and the Competing Values Framework. Cultures characterized by flexibility, openness, and support (e.g., clan or adhocracy types) promote creativity and experimentation. When employees feel safe to take risks and contribute ideas within a supportive culture, innovation is more likely. Thus, H2 is supported by the premise that a culture fostering participation and adaptability encourages innovative behavior.

### Turnover intention

In earlier definitions (Bluedorn, 1982) turnover intention (TI) defined as an individual's intentional and voluntary thinks to leave their current job and/or his/her organizational membership. Historically, the concept of intention to leave is mostly explained by the Theory of Planned Behavior. This theory claims that attitudes toward behavior, perceived behavioral control, and subjective norms together shape behavioral intentions (Ajzen, 1991). It has been suggested that individuals' trust in technology and their tendency to adopt new technologies directly affect their attitudes towards artificial intelligence (Şener, 2024). In this perspective, Ince et al. (2021) claimed that employees working in sectors where employees feel like their jobs are at risk may approach artificial intelligence more cautiously. Differently, the effects of artificial intelligence on issues such as data privacy, human rights, and discrimination affect individuals' attitudes towards this technology (Satici et al., 2015). When IT sector, the focus of this study, is considered, it can be said that employees of this sector can see this technology as a risk for their jobs. There-

fore, it is expected that the effect of AI attitude towards intention to leave will be positive (H3). In other words, AI will be seen as a risk for them by the employees. This hypothesis relies on the Theory of Planned Behavior (TPB) and classic turnover models like Mobley's and Bluedorn's frameworks. A negative attitude toward AI such as fear of job loss or obsolescence, can shape behavioral intentions to leave. TPB suggests that attitudes influence intentions hence, perceiving AI as a threat may lead employees to consider quitting. H3 reflects the theory that unfavorable perceptions of AI contribute to increased turnover intention.

Cultural and social factors also shape attitudes towards artificial intelligence. Accordingly, it has been stated that factors such as society's general approach to technology, level of education, and cultural norms are among the important elements that play a role on the attitudes towards artificial intelligence (Satici et al., 2015). Indeed, in East Asia, where cultural narratives align technology with spiritual continuity or collective harmony, AI tends to be received with greater openness.

In contrast, Western societies which are shaped by traditions of human centrality are more likely to frame AI as a symbolic rival or even a factual trouble (Yam et al., 2023). These findings underscore that attitudes toward AI are culturally embedded and shaped by dynamic tradeoffs between perceived risks and benefits. As demonstrated in a recent cross-national study comparing Germany and China, not only do perceptions of AI's value and risks differ significantly across cultures, but their influence on overall acceptance also varies in strength and direction (Brauner et al., 2024). This highlights the need for culturally sensitive AI governance within the organizations (Brauner et al., 2024). A recent systematic review of turnover intention literature indicates that turnover intention is shaped by the interactions between individual characteristics and organizational factors. In this perspective organizational factors identified as person-organization suitability, expectations related to pre-joining to organization, and supervisor relationships (van der Baan et al., 2025). By taking organizational factors into account, Chang et al. (2024) stated that perceptions of organizational justice significantly reduce turnover intention among

the employees. Chang et al. (2024) findings further suggest that fair and supportive organizational environments improve employees' psychological attachment to the organization and thereby decreases their intention to leave the organization. Therefore, it is expected that organizational culture will decrease the intention to leave among the employees (H4). H4 is grounded in the Person-Organization Fit Theory and Social Exchange Theory. When an organization's culture aligns with employees' values and provides fairness, support, and development opportunities, employees are less likely to leave. Person-Organization fit enhances commitment, while social exchange posits that employees reciprocate positive treatment with loyalty. Therefore, a strong, inclusive culture functions as a retention mechanism, supporting the rationale behind H4.

### **Organizational culture**

Organizational culture, which manifests itself as values, beliefs, and assumptions, deeply affects how people interpret their behaviors and experiences at work. According to Schein (2010), who has done a lot of research on culture, culture serves as a reference for individuals to make sense of change, evaluate uncertainty, and decide how to act. Starting from the subject of culture, many conceptual frameworks have been developed to understand and examine how employees adapt to their organizations, participate in decisions, and their attitudes toward events. Cameron and Quinn's (2011) Competing Values Model and Denison's (1990) culture model are examples of these frameworks. When considered in terms of these models, it is stated that organizational cultures that support creativity and openness to new ideas affect the acceptance of artificial intelligence. Indeed, it is observed that employees of organizations encourage mutual trust in AI and emphasize responsible implementation processes develop more positive attitudes towards AI. These employees' concerns that technology will take their jobs decrease and their ideas that human values are more important develop (Wang et al., 2025).

A recent bibliometric review examining the use of AI confirmed that organizational culture is consistently associated with innovative work behavior (Almeida et al., 2024). Accordingly, organizational culture affects the level of employees' adoption of AI, whether they have a democratic approach to AI, and the level of their intrinsic motivation to use AI, and this situation stands out as important determinants, especially in different sectors such as healthcare and education (Almeida et al., 2024). Similarly, Kandoth and Shekhar (2025) revealed that perceived ambidextrous organizational culture significantly supports innovative behaviors by increasing employees' intrinsic motivation, and that this motivation is a key mediating mechanism. Nguyen et al. (2023) also revealed that the impact of entrepreneurial culture on innovative work behavior is completely mediated by psychological empowerment, indicating that individual meaning, competence, and autonomy perceptions play a critical role in the emergence of innovation in supportive cultural environments. Rusok et al. (2023) revealed that learning-oriented organizational culture such as continuous learning, questioning and strategic leadership positively affects innovative work behavior, and this relationship is mediated by employee attitudes towards change.

Li et al. (2024) revealed that organizational culture also has an effect on intention to leave, and they stated that hierarchical organizational culture significantly increases intention to leave, whereas rational and development-oriented cultures reduce intention to leave. However, in addition to this, it has been stated that cultural fit and perceived flexibility are decisive in retaining employees (Li et al., 2024). Lee et al. (2025) stated that hierarchical organizational culture increases intention to leave in some situation. In this manner, they claimed that clan-type and innovation-oriented cultures reduce turnover rates among younger generations. In this perspective, they come to conclusion that organizational culture may be a more effective factor for being committed to work compared to material or monetary motivations. However, this is valid in the context of Generation Y and Generation X employees (Lee et al., 2025). Another culture type that decreases the intention to leave is suggested by Fasola and Popoola (2024)

who found that adhocracy culture, defined by flexibility, creativity, and empowerment is negatively related to intention to leave among the employees. These findings show that organization cultures that are people-oriented and innovation-supporting can reduce the intention to leave among the employees. However, contrary results were obtained by Erez Akgün and Yıldırım (2020) who determined that hierarchical culture increases turnover intention.

However, their findings indicated that developmental and rule-based cultures decrease this intention. They also emphasized that employee empowerment plays an important role in reducing the risk of turnover and therefore cultural practices that support autonomy should be adopted (Erez Akgün & Yıldırım, 2020).

## Methodology

This research was intended to explain how attitudes towards artificial intelligence effects innovative work behaviors and the intention to leave and whether the organizational culture plays a mediating role in these relationships. Following a positivist approach, this study employed four validated measurement scales to measure key concepts that are focus of this study. These are: The Artificial Intelligence Attitude Scale, developed by Aktay et al. (2024); Innovative Work Behavior Scale developed by De Jong and Den Hartog (2010); Turnover Intention scale developed by Mobley et al. (1978) and Organizational Culture Scale developed by Denison (1990). The following Figure 1 shows the research model of the study:

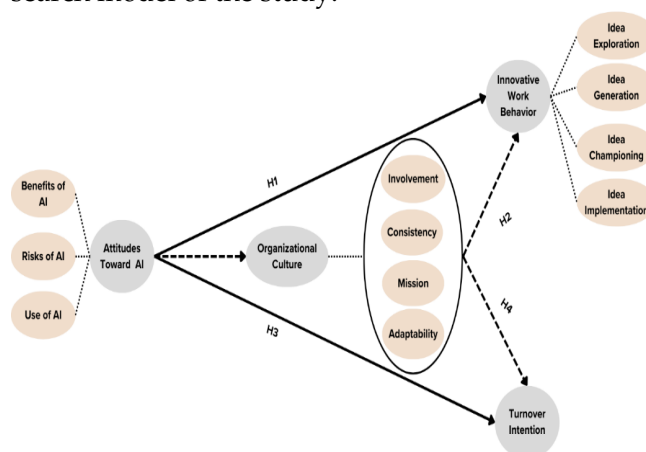


Figure 1. Research model

**Artificial Intelligence Attitude Scale:** The scale consists of 13 items in total. Scale includes items such as “I think artificial intelligence is an important development” and “I think artificial intelligence makes people’s lives easier”. Responses are given on a 5-point Likert scale (1: strongly disagree, 5: strongly agree).

**Innovative Work Behavior Scale:** The scale consists of a total of 10 items. The scale includes items such as “I pay attention to issues that are not part of my daily work” and “I research new working methods, techniques and tools”. Responses are given on a 5-point Likert scale (1: never, 5: always).

**Turnover Intention Scale:** The questions in the scale, which consists of a total of 3 items, are as follows; “I often consider leaving my current job”, “I am actively seeking employment with other companies” and “I will probably quit my job soon”. Responses are given on a 5-point Likert scale (1: strongly disagree, 5: strongly agree).

**Organizational Culture Scale:** The scale consists of a total of 36 items. The scale includes questions such as “The majority of employees are integrated with their work” and “Employees are given the necessary authority to plan their own work”. Responses are given on a 5-point Likert scale (1: strongly disagree, 5: strongly agree).

As of October 2024, the number of employees working in the Turkish technology sector was determined as 292,712 (Oruç, 2024). As a result of the sample calculation using a 95 percent reliability rate and a 5 percent margin of error rate, it was concluded that 384 people should participate in the research. This number is the minimum number of participants to participate in the research, and a total of 500 surveys were sent and 402 surveys were collected. Accordingly, the number of participants participating in the research was 402. The research was conducted in Istanbul, Turkey, and the surveys were sent and collected via LinkedIn.

Reliability tests were first conducted in the research. Then, correlation and regression analyses were performed to observe the associations concerning the variables. Here, first, the effect of Artificial Intelligence Attitude on Innovative Work Behavior and then the effect of Artificial Intelligence Attitude on Turnover Intention were examined. Finally, the mediating role of organizational culture

between Artificial Intelligence Attitude and Innovative Behavior and Turnover Intention were examined.

## Analysis

According to the research results, 46,5% of the participants were female and 53,5% were male. The ages of the participants ranged from 22 to 54, with an average age of approximately 38. 51,8% of the participants were married and 48,2% were single. In terms of education level, most of the participants had a bachelor’s degree (53,5%), followed by master’s degree (34,1%) and doctoral degree (12,4%).

The analysis of the survey data was carried out using the SPSS 27 and Amos 24 programs. Initially, a normality test was performed for the data and then reliability analyzes of the scales in the survey were performed.

Since the number of observations was more than 30, the Kolmogorov-Smirnov test was preferred for the normality test (Field, 2018). As a result of the normality test, it was determined that the scores given by 402 participants to the artificial intelligence attitude scale ( $p = ,184$ ), innovative work behavior scale ( $p = ,246$ ), turnover intention ( $p = ,090$ ) and organizational culture ( $p = ,310$ ) scales met the normal distribution condition ( $p > ,05$ ). These results show that the data are suitable for parametric tests. The reliability coefficients for the scales and the values regarding the suitability of the data structure for factor analysis are given in Table 1.

**Table 1. Reliability and factor analysis of the scales**

| Scales                   | Cronbach Alpha ( $\alpha$ ) | KMO  | Bartlett's P | Total Variance Explained (%) |
|--------------------------|-----------------------------|------|--------------|------------------------------|
| AI Attitude              | ,858                        | ,818 | ,000         | 54,877                       |
| Innovative Work Behavior | ,819                        | ,924 | ,000         | 61,282                       |
| Turnover Intention       | ,917                        | ,871 | ,000         | 72,372                       |
| Organizational Culture   | ,804                        | ,918 | ,000         | 60,273                       |

Cronbach Alpha ( $\alpha$ ) coefficients showing the internal consistency of the scales were above ,80 for

all scales, indicating that the scales were highly reliable. KMO (Kaiser-Meyer-Olkin) values showing the adequacy of the sample were also above 0,80, indicating a very good level. Bartlett's test was found to be significant in all scales ( $p < ,001$ ) and their suitability for factor analysis was confirmed. The total variance ratios explained were at a satisfactory level in terms of the construct validity of the scales. These results reveal that all scales used were statistically strong, valid and reliable measurement tools. According to the factor analysis results, the AI attitude scale consists of 3 sub-dimensions (benefits of AI, risks of AI and use of AI); the innovative work behavior scale consists of 4 sub-dimensions (idea exploration, idea generation, idea championing and idea implementation) and the organizational culture scale consists of 4 sub-dimensions (involvement, consistency, mission and adaptability). Turnover intention scale has a single-factor structure. The mean values and reliability coefficients of the sub-dimensions of the scales are shown in Table 2.

**Table 2. Descriptive statistics and reliability analysis**

| Scales                   | Sub-dimensions      | Mean (X) | Std. Dev. | Alpha ( $\alpha$ ) |
|--------------------------|---------------------|----------|-----------|--------------------|
| AI attitude              | Benefits of AI      | 4,01     | 0,467     | ,847               |
|                          | Risks of AI         | 2,48     | 0,695     | ,832               |
|                          | Use of AI           | 4,06     | 0,568     | ,895               |
| Innovative work behavior | Idea Exploration    | 4,01     | 0,599     | ,802               |
|                          | Idea Generation     | 4,02     | 0,569     | ,826               |
|                          | Idea Championing    | 4,04     | 0,661     | ,846               |
|                          | Idea Implementation | 4,06     | 0,666     | ,805               |
| Turnover intention       | Turnover intention  | 2,46     | 0,852     | ,917               |
| Organizational culture   | Involvement         | 3,53     | 0,658     | ,801               |
|                          | Consistency         | 3,26     | 0,588     | ,792               |
|                          | Mission             | 3,55     | 0,501     | ,835               |
|                          | Adaptability        | 3,69     | 0,484     | ,789               |

Table 2 shows the mean and standard deviation values of the sub-dimensions of the scales used in the study. When the sub-dimensions of the artificial intelligence attitude scale are examined, it is seen that the participants' perceptions of the benefits of artificial intelligence are high ( $X=4,01$ ), whereas their risk perceptions remain relatively low ( $X=2,48$ ) and their level of artificial intelligence use is quite high ( $X=4,06$ ). In the sub-dimensions

of innovative work behavior, high means are striking in all areas, with the highest means observed in the sub-dimensions of implementing ideas ( $X=4,06$ ) and defending ideas ( $X=4,04$ ). The level of intention to leave the job was found to be relatively low with an average of 2,46. This result shows that the participants generally tend to continue their current jobs. When the dimensions of organizational culture are examined, it is seen that the highest average is in the adaptation dimension ( $X=3,69$ ), which is related to openness to change and flexibility, and the lowest average is in the consistency dimension ( $X=3,26$ ), which is related to internal values and structural consistency. These results show that the participants perceive the organizational culture positively in general, but they think that there are aspects open to development in some structural areas.

### Correlation analysis

Pearson correlation analysis was conducted to examine the general relationship between the AI attitude scale and its sub-dimensions and the innovative work behaviors scale (including its sub-dimensions) and turnover intention. According to the correlation analysis results in Table 3, the attitude towards the benefits of AI was found to be statistically significantly and positively correlated with idea exploration ( $r = ,753$ ), idea generation ( $r = ,763$ ), idea championing ( $r = ,103$ ) and idea implementation ( $r = ,324$ ) sub-dimensions of innovative work behaviors. Similarly, the level of AI usage also showed quite strong and statistically significant correlations with idea championing ( $r = ,834$ ) and idea implementation ( $r = ,853$ ) sub-dimensions. On the other hand, the perception of the risks of AI showed a quite high positive correlation with turnover intention ( $r = ,813$ ). According to this result, it is understood that as risk perception increases, turnover intention also increases. All these findings indicate that employees' positive perception of AI supports their innovative behaviors. On the other hand, it reveals that risk perception may increase the tendency to leave the job.

Table 3. Pearson correlation between AI attitude, innovative work behavior and turnover intention

|                   | Benefits of AI | Risks of AI | Use of AI | Total AI Attitude | IE     | IG     | IC     | II     | Total IWB | TI |
|-------------------|----------------|-------------|-----------|-------------------|--------|--------|--------|--------|-----------|----|
| Benefits of AI    | 1              |             |           |                   |        |        |        |        |           |    |
| Risks of AI       | ,063           | 1           |           |                   |        |        |        |        |           |    |
| Use of AI         | ,102*          | ,162**      | 1         |                   |        |        |        |        |           |    |
| Total AI Attitude | ,509**         | ,732**      | ,652**    | 1                 |        |        |        |        |           |    |
| IE                | ,753**         | ,028        | ,080      | ,373**            | 1      |        |        |        |           |    |
| IG                | ,763**         | ,103*       | ,059      | ,413**            | ,596** | 1      |        |        |           |    |
| IC                | ,103*          | ,132**      | ,834**    | ,550**            | ,087   | ,093   | 1      |        |           |    |
| II                | ,324*          | ,116*       | ,853**    | ,549**            | ,107*  | ,030   | ,718** | 1      |           |    |
| Total IWB         | ,605**         | ,142**      | ,711**    | ,703**            | ,632** | ,597** | ,737** | ,724** | 1         |    |
| TI                | ,031           | ,813**      | ,092      | ,566**            | ,015   | ,067   | ,077   | ,069   | ,594**    | 1  |

Note: \*Correlation is significant at the 0,05 level (2-tailed). \*\*Correlation is significant at the 0,01 level (2-tailed). IE: idea exploration, IG: idea generation, IC: idea championing, II: idea implementation, Total IWB: Total Innovative Work Behavior, TI: turnover intention

,023) are at a good level. Direct effects according to the structural equation model are given in Table 4.

## Structural equation modeling results

Table 4. Structural equation modeling results

| Direct Effects                 |                      |             |        |                |         |
|--------------------------------|----------------------|-------------|--------|----------------|---------|
| Dependent Variable             | Independent Variable | St. $\beta$ | St. Er | R <sup>2</sup> | p       |
| Idea Exploration               | ← Benefits of AI     | ,450        | ,179   | ,567           | <,001** |
| Idea Exploration               | ← Risks of AI        | -,212       | ,109   |                | ,538    |
| Idea Exploration               | ← Use of AI          | ,440        | ,032   |                | ,082    |
| Idea Generation                | ← Benefits of AI     | ,433        | ,075   | ,486           | <,001** |
| Idea Generation                | ← Risks of AI        | ,334        | ,129   |                | ,040*   |
| Idea Generation                | ← Use of AI          | -,127       | ,234   |                | ,385    |
| Idea Championing               | ← Benefits of AI     | ,313        | ,024   | ,695           | ,495    |
| Idea Championing               | ← Risks of AI        | -,124       | ,056   |                | ,888    |
| Idea Championing               | ← Use of AI          | ,569        | ,024   |                | <,001** |
| Idea Implementation            | ← Benefits of AI     | ,245        | ,080   | ,528           | ,009*   |
| Idea Implementation            | ← Risks of AI        | ,535        | ,203   |                | ,373    |
| Idea Implementation            | ← Use of AI          | ,485        | ,102   |                | <,001** |
| Turnover Intention             | ← Benefits of AI     | -,234       | ,023   | ,663           | ,564    |
| Turnover Intention             | ← Risks of AI        | ,499        | ,035   |                | <,001** |
| Turnover Intention             | ← Use of AI          | -,330       | ,056   |                | ,188    |
| Turnover Intention             | ← Total AI Attitude  | ,472        | ,023   | ,634           | <,001** |
| Total Innovative Work Behavior | ← Total AI Attitude  | ,547        | ,054   | ,578           | <,001** |

First of all, model fit indices are examined to evaluate how well the structural equation model fits the data. A CMIN/df value below 5, absolute fit indices of AGFI and GFI greater than 0,90, comparative fit indices such as NFI and CFI greater than 0,90, and an RMSEA value representing the approximate error rate less than 0,08 indicate that the model has an acceptable and strong fit (Gürbüz, 2024).

According to these criteria, it is understood that the model fit goodness values (CMIN/df: 2,344; AGFI: ,942; GFI: ,931; NFI: ,944; CFI: ,902; RMSEA:

Attitude towards the benefits of AI has statistically significant and positive effects especially on idea exploration ( $\beta = ,450$ ), idea generation ( $\beta = ,433$ ), and idea implementation ( $\beta = ,245$ ). However, it has no significant effect on idea championing. In contrast, AI usage level has strong and significant effects especially on idea championing ( $\beta = ,569$ ) and idea implementation ( $\beta = ,485$ ). AI risk perception has a weakly significant positive effect only on idea generation ( $\beta = ,334$ ); its effect on other innovation dimensions is not significant. When evaluated in terms of turnover intention, AI risk

perception has a strong and positive effect on this intention ( $\beta = ,499$ ). This result shows that employees' perception of AI as a threat may increase their turnover intention. On the other hand, the total AI attitude score has significant and positive effects on both the turnover intention ( $\beta = ,472$ ) and the total innovative work behavior ( $\beta = ,547$ ).

From these results, it is understood that positive attitudes towards AI support the innovative behaviors of employees, while risk perception may increase the tendency to leave the job. Based on these results H1 and H3 were accepted.

Mediation analyses were conducted using the bootstrapping method to determine the mediating role of organizational culture in the effect of AI attitude on innovative work behaviors and turnover intention.

Table 5. Mediation analysis

|                                                        | St. In-<br>direct<br>effect<br>( $\beta$ ) | p           | Bootstrap (Lower<br>Bounds/<br>Upper Bounds)<br>%95 Confidence<br>Interval |
|--------------------------------------------------------|--------------------------------------------|-------------|----------------------------------------------------------------------------|
| IWB $\leftarrow$ Involvement $\leftarrow$ AI attitude  | ,310                                       | <,001<br>** | ,140 / ,390                                                                |
| IWB $\leftarrow$ Consistency $\leftarrow$ AI attitude  | ,162                                       | ,002*       | ,065 / ,245                                                                |
| IWB $\leftarrow$ Mission $\leftarrow$ AI attitude      | ,183                                       | ,004*       | ,098 / ,260                                                                |
| IWB $\leftarrow$ Adaptability $\leftarrow$ AI attitude | ,435                                       | <,001<br>** | ,160 / ,405                                                                |
| TI $\leftarrow$ Involvement $\leftarrow$ AI attitude   | -,122                                      | ,010*       | -,200 / -,045                                                              |
| TI $\leftarrow$ Consistency $\leftarrow$ AI attitude   | -,450                                      | ,004*       | -,540 / -,070                                                              |
| TI $\leftarrow$ Mission $\leftarrow$ AI attitude       | -,105                                      | ,028*       | -,190 / -,015                                                              |
| TI $\leftarrow$ Adaptability $\leftarrow$ AI attitude  | -,417                                      | <,001<br>** | -,450 / -,095                                                              |

Note: IWB: innovative work behavior, TI: turnover intention

Mediation analysis results reveal that sub-dimensions of organizational culture play a significant mediating role in the effect of attitudes towards AI on innovative work behavior and turnover intention (Table 5). The strongest indirect effect on innovative work behavior occurred through adaptability ( $\beta = ,435$ ) and involvement ( $\beta = ,310$ ) dimensions, followed by mission ( $\beta = ,183$ ) and consistency ( $\beta = ,162$ ), respectively. These findings show that employees' positive perceptions of AI, when supported by values such as flexibility and

participation in the organizational culture, reveal more innovative behaviors. Similarly, the strongest indirect effects on turnover intention were observed through adaptability ( $\beta = -,417$ ) and consistency ( $\beta = -,450$ ), indicating that positive AI attitudes supported by a strong cultural structure reduce the tendency to leave the job. The fact that all indirect effects are statistically significant (significance at 95% confidence level) indicates that organizational culture plays an important mediating role in the effect of attitude towards AI on innovative work behavior and turnover intention. Based on these results H2 and H4 are accepted.

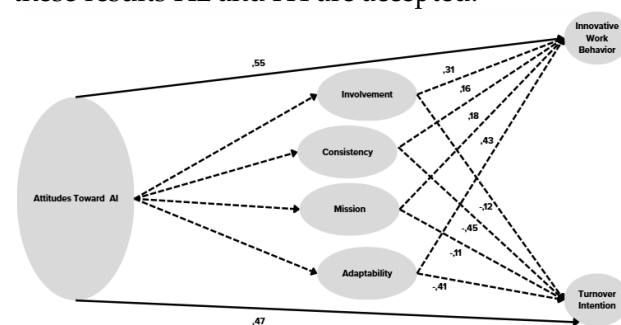


Figure 2. Structural equation model

## Discussion and Conclusion

The research findings show that individuals working in the IT sector have a very high perception of the benefits of artificial intelligence, widespread use, and relatively low risk perceptions. This situation reveals that employees are open to technological innovations and adopt artificial intelligence as a supportive element in their business processes. This corresponds with prior findings that viewing AI as a useful, productivity-enhancing tool encourages proactive innovation. For example, Zhang et al. (2025) found that greater AI usage by employees is positively associated with higher innovation in the workplace. Similarly, Khanfar et al. (2025) emphasize that individual perceptions such as trust in or anxiety about AI shape adoption behavior, supporting this study's result that favorable perceptions of AI promote innovative actions. In line with this, Dong et al. (2025) propose a dual-path model wherein AI, if perceived as a beneficial challenge, can facilitate innovative behavior. This study's findings indicated that employees who saw AI as an opportunity tended to engage in more innovation however. with one exception: a positive

attitude had no significant effect on the “idea championing” dimension of innovation. This minor divergence suggests that merely perceiving AI as beneficial may not be enough to make employees vigorous champions of AI-related ideas. Factors like organizational support or personal influence might be needed to push employees to advocate and rally others behind those innovations. Overall, however, the positive link between AI attitudes and innovative work behavior in this study strongly aligns with the literature’s consensus that openness to technology fosters employee innovation.

In general, the findings of this study suggest that a cultural climate that is open to innovation, embraces technology, and supports employee commitment prevails in the IT sector. However, increasing internal consistency in institutional processes can help strengthen employee satisfaction and sustainability.

The correlation and regression analyses reveal that positive attitudes towards the benefits of artificial intelligence have significant and positive relationships with the sub-dimensions of innovative work behaviors, especially idea exploration, idea generation, and idea implementation. However, the relationship with the idea championing dimension remained quite weak. On the contrary, in this study it was found that perceived risks of AI had only a weak positive effect on one aspect of innovation which is idea generation and no significant impact on other innovation dimensions. This outcome is interesting however; it is consistent with Dong et al. (2025). In fact, their dual-path perspective suggests that if AI is viewed as a threat, it can hinder innovation, whereas seeing it as a challenge can spur creative efforts. In this study’s case, risk perceptions did not broadly stifle innovation, implying that IT employees might be framing certain AI-related challenges as problems to solve. On the other hand, the lack of a strong negative effect of AI risk on overall innovative behavior differs from what classical threat-rigidity theory would predict. For instance, Wynen et al. (2019) found that heightened uncertainty in organizations led to more risk-averse climates and suppressed innovation among public sector employees. In contrast, this study’s

IT-sector sample did not exhibit such a strong rigidity effect, perceived threats from AI did not significantly depress innovative behaviors beyond that minor uptick in idea generation. This difference could be due to the dynamic tech-centric culture of this study’s sample, where employees may cope with perceived threats by innovating adaptively. It suggests that while literature warns that fear can inhibit innovation, this study’s findings indicate context matters. In fact, in a fast-paced IT environment, moderate concern about AI might actually provoke employees to think of new ideas, rather than withdraw from innovation entirely.

A key finding of this study is that employees who perceive AI as a risk have significantly higher turnover intentions ( $\beta = 0.499$ ). In other words, seeing AI as a threat to one’s job strongly correlates with thinking about quitting. This result is firmly in line with prior research. Ince et al. (2021) noted that in sectors where jobs feel threatened by new technology, employees adopt a cautious stance toward AI. This study’s findings extend this caution to an increased desire to leave the organization when AI anxiety runs high. More broadly, it echoes the logic of the Theory of Planned Behavior, which posits that negative attitudes toward an entity, here, AI at work, can create an intention to perform a related behavior, in here, quitting the job. Basically, employees who harbored greater AI-related fears were more inclined to consider quitting. This aligns with Khanfar et al. (2025), who identified anxiety and distrust in AI as factors that can drive resistance and negative workplace outcomes.

Mediation analyses show that sub-dimensions of organizational culture play a significant mediating role in the effects of employees’ attitudes toward AI on innovative work behaviors and turnover intentions. The strongest indirect effects on innovative work behavior were realized through the dimensions of adaptability ( $\beta = .435$ ) and involvement ( $\beta = .310$ ), followed by mission ( $\beta = .183$ ) and consistency ( $\beta = .162$ ), respectively. These findings show that employees’ positive attitudes toward AI translate into higher levels of innovative behaviors when supported by cultural values such as flexibility, participation, and open communication. Considering the dynamic and rapidly changing struc-

ture of the IT sector, it is seen that technological adaptation is shaped not only by individual perceptions but also by the cultural environment (van der Baan et al., 2025).

Mediation analyses also showed that positive AI attitudes create indirect effects on decreasing intention to leave, especially through the dimensions of adaptability ( $\beta = -.417$ ) and consistency ( $\beta = -.450$ ). The fact that all indirect effects are significant at the 95% confidence level clearly demonstrates that organizational culture plays an important mediating role in the effect of attitudes towards AI on employee behavior. In this context, not only individual perceptions but also the provision of a flexible and consistent cultural environment that inspires confidence in employees in technological transformation processes stand out as a strategic necessity. The findings are also in line with the literature. Chang et al. (2024) suggest that fair and supportive organizational environments improve employees' psychological attachment to the organization and thereby decrease their intention to leave the organization. In addition, Li et al. (2024) also revealed that organizational culture also has an effect on intention to leave, and they stated that hierarchical organizational culture significantly increases intention to leave, whereas rational and development-oriented cultures reduce intention to leave.

The analysis results support the approach (Özkaynar, 2024) that attitudes consist of three basic elements: cognitive, emotional, and behavioral. The findings reveal that positive attitudes towards the benefits of artificial intelligence create significant effects on both innovative work behaviors and reduce intention to leave. This shows that employees cognitively evaluate artificial intelligence as a productivity-enhancing element (e.g.: "AI makes my job easier"), emotionally develop positive feelings towards this technology (e.g.: excitement and hope), and behaviorally show a strong tendency to use AI-based tools. In particular, the fact that the level of AI usage shows strong relationships with the idea leadership and implementation sub-dimensions of innovative work behaviors can be considered a direct reflection of the behavioral attitude. Similarly, the association of

the belief in the benefits of AI with cognitive activities such as idea discovery and generation suggests that employees adopt AI as a rational and functional tool. The emotional dimension, on the other hand, indirectly exhibits itself as a positive attitude. This helps in reducing the intention to leave the job. This indicates that employees develop a positive emotional commitment to the organization and change processes. In addition, the fact that organizational culture dimensions play a mediating role in these relationships shows that employees' individual attitudes are shaped not only individually but also in the cultural context. Flexible, participatory and consistent cultural structures increase emotional trust and behavioral acceptance towards technological tools that are cognitively meaningful.

As a result, the analysis reveals that the three-dimensional structure of attitude (cognitive, emotional and behavioral) is a fundamental determinant in artificial intelligence integration processes in terms of both individual innovation and institutional commitment among the employees.

However, it is important to consider how these dynamics might play out differently in other industries. Sectoral context can significantly moderate the relationships between AI attitudes, innovative behavior, and turnover intention. The IT industry is generally characterized by rapid technological change, a flexible culture, and employees who are relatively open to new tools – conditions under which positive AI attitudes readily translate into innovation and, as we saw, only strong AI-related fears lead to turnover intent. In more traditional or heavily regulated sectors, however, these relationships may differ in strength or direction. For example, in healthcare, where caution and hierarchy dominate, even employees with positive attitudes may hesitate to innovate without a culture that supports experimentation. Fear of AI-induced errors or loss of professional autonomy may elevate turnover intention unless a developmental culture is in place. Similarly, in finance, a strong focus on regulation and risk management may weaken the link between AI optimism and innovation, unless leadership actively cultivates a supportive, innovation-friendly climate. Education, on the other hand, is marked by slower tech adoption

and traditional norms, even when teachers view AI as beneficial, conservative institutional culture and lack of infrastructure may hinder innovative behaviors. In all cases, as Almeida et al. (2024) suggest, the presence of a flexible, empowering culture is crucial for translating AI attitudes into positive organizational outcomes.

### Limitations and Future Research Suggestions

In this study, a structured survey was used to get information from the participants. Therefore, the results do not give information about underlying reasons for the effect of attitudes toward artificial intelligence on innovative work behavior and turnover intention. However, further qualitative research can be conducted to get more insight into the issue.

In this study, the research sample was limited to the IT sector in Istanbul, which may limit generalizability. Participants were 402 technology employees in a single metropolitan region. This context likely has a dynamic, innovation-oriented culture, as evidenced by the high openness to change and flexibility observed in the sample. Results should therefore be interpreted with caution outside similar environments. In other words, other sectors or regions with different cultural and technological climates might yield different outcomes. The focus on Istanbul IT employees who were anticipated to view AI as a job risk in this context means the findings may not apply directly to, for example, more traditional industries or other geographic areas.

Therefore, cross-cultural studies which could compare how attitudes toward AI affect outcomes in different countries or cultural contexts can be conducted since perceptions of AI's risks and benefits vary significantly across cultures. Such studies would address whether the relationships observed here hold true in societies with different technology narratives. Finally, future studies might explore additional mediators or moderators. For instance, leadership is a promising factor and thus, the effect of the leadership between AI attitude and turnover intention and innovative work behavior can be examined to understand its effect between examined issues in this study.

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## RESEARCH ARTICLE

# Interaction of A New Type of Gang and New Media in Turkey: Daltons Street Gang Social Media Content Analysis

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## Abstract

The study aims to explain, describe and explore the content produced by the Dalton Gang through new media and communication tools. As a result of the preliminary examination, it was seen that the social media platform that the Dalton Gang used most actively and reached the largest audience was the TikTok Application. For this reason, the case study was limited to the accounts and content on the TikTok application. The 6 most active gang member accounts (158 TikTok content) were determined as a sample. The MAXQDA program was used in the analysis of the data. The prominent results of the study are as follows. The Dalton street gang is the first representative of the third-generation gang type which produce their own image and publish it directly through social media. The gang is aware that the physical power in the social networks and the symbolic power in social media amplify each other. The gang are following strategies to disrupt the existing field of power in the criminal habitat by producing written, visual and audio content on the subject of challenge and determination. Even though the gang cannot dominate the crime habitat, it has managed to gain enough capital to be an actor. The gang has created a unique and autonomous criminal culture (area, capital, habitus) by using symbolic and physical power together. Therefore, it is understood that Dalton gangs are not a temporary phenomenon but indicate a new period (street gangs' period) in Turkey's criminal history.

**Keywords:** Social change, new media and communication, street gangs, crime habitat, content analysis

## Öz

Çalışmanın amacı, Dalton Çetesi'nin yeni medya ve iletişim araçları aracılığıyla ürettiği içerikleri açıklamak, tanımlamak ve keşfetmektir. Ön inceleme sonucunda Dalton Çetesi'nin en aktif kullandığı ve en geniş kitleye ulaştığı sosyal medya platformunun TikTok Uygulaması olduğu görülmüştür. Bu nedenle vaka çalışması TikTok uygulamasındaki hesaplar ve içeriklerle sınırlandırılmıştır. Örneklem olarak en aktif 6 çete üyesi hesabı (158 TikTok içeriği) belirlenmiştir. Verilerin analizinde MAXQDA programı kullanılmıştır. Çalışmanın öne çıkan sonuçları şunlardır. Dalton sokak çetesi, kendi imajını üreten ve bunu doğrudan sosyal medya aracılığıyla yayımlayan üçüncü nesil çete tipinin ilk temsilcisidir. Çete, sosyal ağlardaki fiziksel güç ile sosyal medyadaki sembolik gücün birbirini büyüttüğünün farkındadır. Çete, meydan okuma ve kararlılık konusu hakkında yazılı, görsel ve işitsel içerikler üreterek suç ortamındaki mevcut güç alanını bozmak için stratejiler izlemektedir. Çete suç habitatına hakim olamasa da bir aktör olmak için yeterli sermayeyi elde etmeyi başarmıştır. Çete, sembolik ve fiziksel gücü birlikte kullanarak kendine özgü ve özerk bir suç kültürü (alan, sermaye, habitus) yaratmıştır. Dolayısıyla Dalton çetelerinin geçici bir olgu olmadığı, Türkiye'nin suç tarihinde yeni bir dönemi (sokak çeteleri dönemi) işaret ettiği anlaşılmaktadır.

**Anahtar Kelimeler:** Sosyal değişim, yeni media ve iletişim, sokak çeteleri, suç habitat, içerik analizi

## Introduction

Globalization, especially communication technologies, provide revolutionary changes for local organized crime gangs (Arsovska, 2008). However, how these global opportunities are used varies according to local crime groups. Because the structural characteristics and activities of organized crime gangs vary according to the geography, political and cultural structure of each country (Kocasakal, 2002). These cultural contexts determine how organized crime will form and develop, what kind of quality and volume it will have (Siegel- Nelen, 2007). Turkey's individual phone ownership (95.4%- 81.68 million), active social media usage (83.4%- 71.38 million), and time spent on the internet and social media are above the world average. It is particularly noteworthy that active social media usage is well above the world average (Wearesocial, 2023). In this context, social media has an important place in shaping the nature and volume of the formation and development of new generation organized crime gangs in Turkey.

Organized crime gangs can create a social phenomenon effect by using social media technologies. This effect is mostly effective on digital natives today. The only exception of this situation is Sedat Peker, one of the famous mafia bosses of Turkey. Peker's 10 videos, especially published in 2021, were watched by a total of 108.6 million people (as of July 26, 2024) on his own channel alone, apart from the extraordinary interaction he created (Peker, 2021). Thus, as a criminal organization leader, he manages to attract the attention of all digital natives and digital immigrants. Therefore, content that reaches millions of people on social media is an important threshold for criminal gangs to make themselves heard.

The internet entered Turkey in 1993. Internet infrastructure services started in 1996. (Gönenç, 2003). In this case, digital natives born in 1993 will be 31 years old in 2024. When we look at the 2023 data of the Turkish Statistical Institute, those between the ages of 0-29 are 44.2% of the total population (37,726,733 people) (Turkish Statistical Institute, 2024). For this reason, the population's news and social media habits differ.

The Peker case demonstrates the impact of the democratization of media technologies in the criminal context. It is understood that organized crime gangs no longer need institutional, traditional press and broadcasting organizations to manage their own image and perception. Crime gangs have gained the opportunity to deliver the content they produce directly to the masses. This situation reveals the need to discuss the media and crime relationship in a different context. The literal context of this necessity is discussed in the conceptual and theoretical framework section.

Therefore, the subject of this article is to analyze the content published on social media applications of the Dalton Gang, a new generation criminal gang. Thus, it is aimed to describe, explain and discover the message of a criminal group that now produces its own broadcasts to the public through new media channels without the need for traditional media outlets, and the effect of this message.

When articles on crime are scanned in the TR INDEX abstract section between the years 1996-2023 (July 22, 2024), a total of 2289 articles are seen (Figure 1). When these articles are examined one by one, it is seen that there are 69 articles that analyze written, visual and digital media. Of these 69 articles, only 5 of them analyze digital media. Most of the written analyses are analyses of crime elements in books and stories. Most of the visual analyses are analyses of television series and programs. In digital media analyses, marginalized neighborhoods (Söğüt, 2020), social media use in the police force (Karakaya- Uz, 2021), news about children who are dragged into crime (Doğan, 2022), news about women (Acar et al., 2023), and crime news (Baki- Budayıcıoğlu, 2023) are analyzed. However, none of these studies address the communication styles and content of criminal groups such as the Mafia and gangs.

When the WOS INDEX Topic section is written as "crime and Turkey" and the years 1997-2023 are scanned (July 22, 2024), a total of 9 articles are seen (Figure 2). When these articles are examined one by one, it is seen that there are 4 articles analyzing written, visual, and digital media. Most of the written analyses are analyses of crime elements in books and stories.

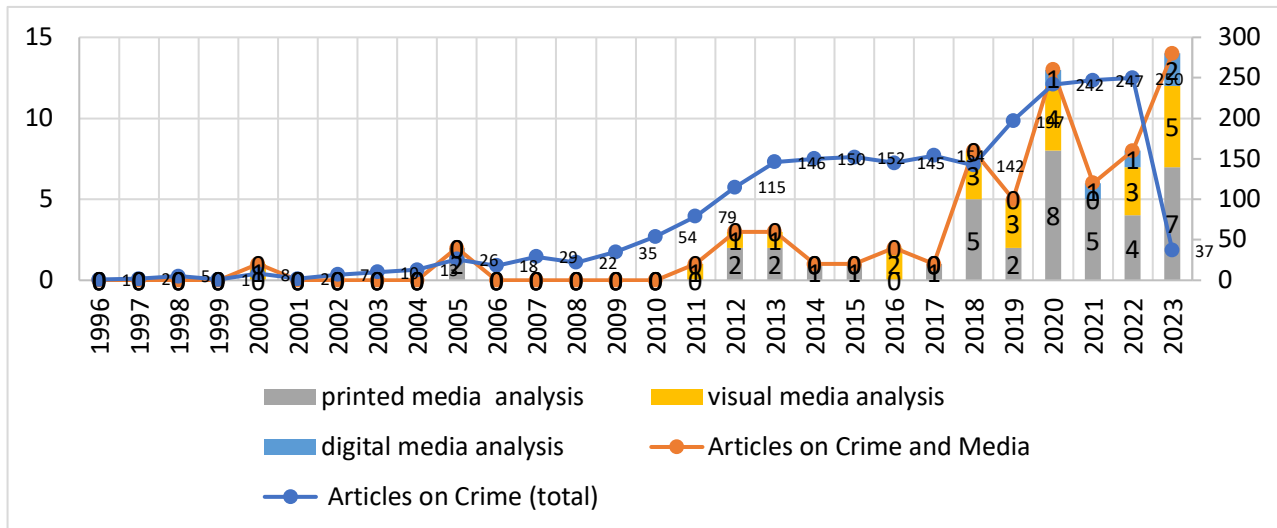


Figure 1. TR INDEX – Distribution of articles on crime and crime/media by year (written, visual and digital media)

Most of the visual analyses are analyses of television series and programs. In digital media analyses, news targeting Muslims (Nickerson, 2019; El-Nawawy- Elmasry, 2017), classified crimes (Savaş-Topaloğlu, 2019), and immigrants (Gulmez, 2019) are analyzed. In none of these studies are the communication styles and contents of criminal groups such as the Mafia and gangs addressed.

### Crime Perpetrators and Social Representation Periods in Turkey

In order to determine the conceptual and theoretical basis on which the study will be addressed, it is necessary to briefly touch on the history of criminal perpetrators and their social representations in Turkey.

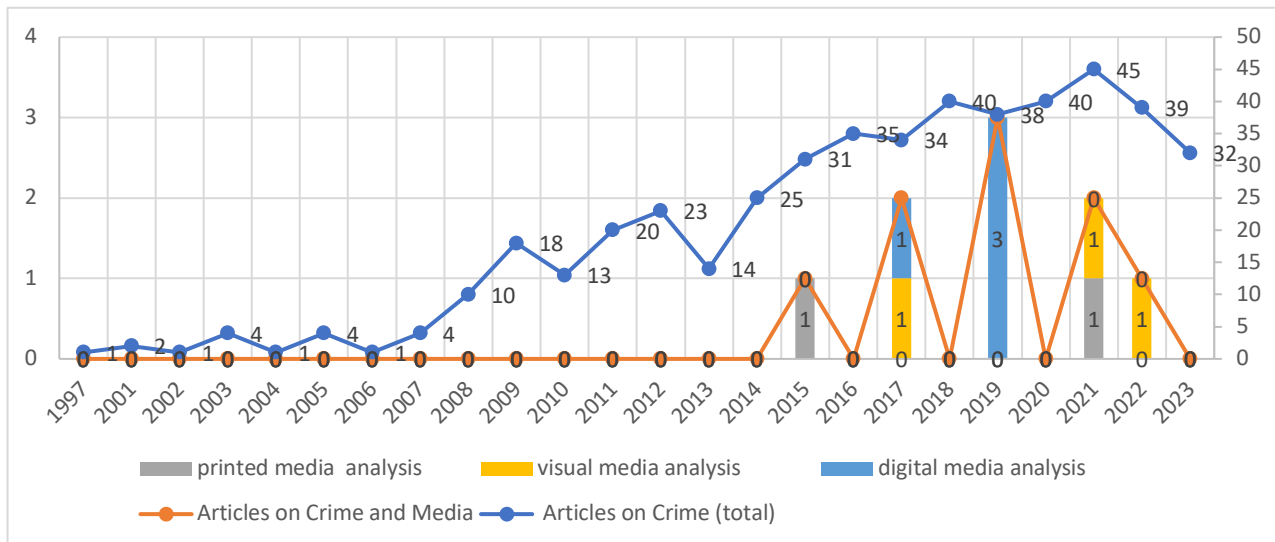


Figure 2. WOS INDEX – Distribution of articles on crime/Turkey and crime/media by year (written, visual and digital media)

As understood from the literature review, there is no publication that includes the subject and purpose of the article study. In this respect, the study will be a first in the literature. It is aimed that the study will be encouraging for other researchers, especially in these contexts.

When the literature is examined in this context, it is possible to evaluate the ways in which crimes and criminal groups in Turkish history produce consent in the context of changing communication technologies in three periods (Table 1).

**Table 1. Crime Perpetrators and Social Representation Periods in Turkey (created by the authors)**

| Periods                                                 | Number of perpetrators | Representatives                | Compliance with state and social values | Interest                     | Content Producer                  | Communication Technologies                                 |
|---------------------------------------------------------|------------------------|--------------------------------|-----------------------------------------|------------------------------|-----------------------------------|------------------------------------------------------------|
| 1. Verbal representation period (1920-1980)             | One-man crime          | Big bully                      | Compatible                              | Make a name                  | Himself                           | Bush telegraph                                             |
| 2. Written and visual representation period (1980-2011) | Organized crime        | Mafia boss > Gang              | Hypocritical                            | Make money to protect a name | Traditional technologies> Himself | Traditional technologies (newspapers and radio/television) |
| 3. Digital representation period (2011- continues)      | Organized crime        | Street Gang > Street gang'boss | Incompatible                            | Make a name to protect money | Himself>Digital technologies      | Digital technologies (social media)                        |

### Verbal Representation Period (1920-1980)

It is possible to date the beginning of the Verbal Representation period back to earlier times. However, since the foundation of the Turkish State was in 1920, the first period began on this date.

When looking at the works of Twelves (Alus, 2019), Numbered Storms (Ulunay, 2017), Old Istanbul Life, Wives, and Bullies (Hiçyılmaz, 1996), and Once Upon a Time in Istanbul (Balıkhane Nazırı, 1995) tell the story of bullies in Istanbul's history and when looking at the works of History in Ankara, Bullies (Özmen, 2009), and Ankara Bullies (Soyuer, 2015) tell the story of criminals who made a name for themselves in the capital city of Ankara in the early years of the Republic of Turkey. In modern Türkiye, the urban population surpassed the rural population for the first time between 1980-85 (Koyuncu, 2012). It is understood that the Ottoman criminal typology persisted until this period.

In the light of the sources listed above, it is possible to summarize the actors of this period as follows. These notorious criminals are called big bullies. These people are calm and slow-moving people with their jackets on their shoulders, shirts open on their chests, and knives and weapons visible from their belts. Their appearance and reputation are enough to generate consent in their surroundings. Bullies tend to protect their reputations at the cost of dying in society, as they know that every move they make will be whispered to the public. For this reason, when they have a conflict of interest with another bullies, they turn into yelling, fast and angry people, unlike their previous states.

During this period, on the one hand, the criminal typologies in the Ottoman State continued, while on the other hand, modern criminal typologies developed. It is the period when criminals produced their own images using their bodies, clothes, and voices. The bullies of this period were in line with the values of the state and society. Big bullying is a one-person affair. For this reason, they do not give any importance to economic capital. All they care about is their name, that is, their social capital. A second person, and often even using a gun or knife, means tarnishing their reputation. Because the real bullies are the ones who can handle everything without ever reaching for their guns or raising their voices. During this period, conflicts of interest between bullies take place like a pitched battle, in the form of a rupture, and end where they started. It spreads by word of mouth through eyewitness accounts.

### Written and Visual Representation Period (1980-2011)

It is seen that urbanization in Turkey accelerated after the 1950s (Koyuncu, 2015) and only in 1980 did the urban population exceed the rural population (Koyuncu, 2012). The period between 1908 and 1980 was the maturation phase of organized crime in Turkey (Gingeras; 2010; 2014). In parallel with all these processes, newspaper and television technologies were developing. Television broadcasting activities in Turkey began in 1968 under the roof of TRT (İlaslan, 2014, 484). In 1990, the number of channels on TRT increased to five and the first private television broadcast took place. In 1999, it was seen that 36 local and 11 foreign channels were

actively broadcasting (Özçağlayan, 2014, 42). Parallel to these developments in communication technologies, it is seen that the 1980s were the maturation period of organized crime in Turkey (Gingeras, 2014). During this period, bullying was no longer a one-man affair. Since they also had to provide for the people around them, money was now as important as reputation. Bullies now knew that their reputations were spread not by whispers but through newspapers (we would have to wait until the 1990s to find a place on state television). It is seen that almost all of those who wrote about bullies during this period were journalists (Çulcu, 2001a, 2001b, 2001c; Yurdakul, 2012, 2001; Cem, 2004; Kılıçbay vd., 2010; Alamdar, 2015; Devrim 2014, Parlar, 2006; Türk, 2005; Seyrek, 2018; Mansur, 2019). At this stage, the writers have a one-sided narrative. The perpetrators of crimes have no direct effect on their own images. With the spread of private televisions in the late 1990s, it is seen that the perpetrators of crimes, who used to be the subject of newspaper pages, have become a part of television broadcasting. However, unlike newspapers, they now have a little influence on their own voices and images. The respected television broadcasters of the nineties, Mehmet Ali Birand (2021), made television broadcasts that became trending in 1993 with Mehmet Nabi İnciler, known as İnci Baba, Savaş Ay (A Takım, 2023) with Dünder Kılıç in his hiding place in 1994, and Günel (2002) with Sedat Peker. Despite passing through the filter of broadcasting ethics and constructs of the organizations, the broad masses watched and listened to the perpetrators of crimes for the first time.

In the light of the sources listed above, it is possible to summarize the actors of this period as follows. In this period, big bullies began to be called mafia bosses. These people were careful to dress and act like respectable business people. They kept themselves in the legal field and committed crimes against the members around them. For this reason, those who fought in the struggles were not the cats of the bullies but their gangs and their images. For this, their economic capital had to be enough to finance the gang and the media. They did not carry guns or knives if it wasn't necessary. Their images in newspapers and televisions rather than their appearances created consent. They no longer entered

into struggles at the cost of dying. Because what really mattered was not the struggle but the image they would create in newspapers and televisions afterwards. The bullies of this period appeared to be in line with the values of society and the state in order to protect their names. However, due to their need for money to protect their names, they could easily commit many shameful crimes (drug dealing, etc.) that did not comply with the values of society and the state. What was important was that shameful crimes did not find enough space in the written and visual media to damage their social image. The conflicts in this period were not momentary but strategic.

### **Digital Representation Period (2011- continues)**

This period begins one generation after the introduction of digital technologies, of which the internet is the locomotive, to Turkey, with the first generation of digital natives becoming adults.

This is the period when criminals reproduce their own images and images. Opportunities created by globalization cause revolutionary changes for criminal perpetrators who have now become organized crime groups (Galeotti, 2014). One of the most important elements of this revolution is that criminal groups can now directly transmit their own images and voices to the masses. In the new media era, the cheap, widespread and high-quality broadcasting that digital technologies provide allows for issuance of direct representation in the digital arena is democratizing.

Studies from this period focus on the impact of the internet and social media on gang dynamics (Melde & Weerman, 2020); the impact of social media and urban ethnography on gang culture (Urbanik & Roks, 2020); and the impact of tools like social media on organization in the physical world (Reid, Valasik, & Bagavathi, 2020). Like many things in daily life, violence is also becoming digital (Özgür & Özkul, 2022). Criminal organizations use social media as a tool for promotion (Kara, 2024). Today, street gangs actively use social media (Densley, 2020; Storrod & Densley, 2017; Patton, Eschmann, & Butler, 2013). Each gang adapts to social media according to their own developmental processes (Whittaker, Densley, & Moser, 2020).

In the light of the sources listed above, it is possible to summarize the actors of this period as follows. In this period, criminal groups do not represent the tradition of bullying. The rules of the tradition and culture of big bullying/ mafia boss are seen as a burden in economic competition. Competition in the crime habitat has become so intense that making money has become a priority. Therefore, organized crime is turning into a kind of commercial enterprise. Therefore, charismatic leadership gives way to institutionalization where economic interests are at the center. In this period, the gang is famous. It is important for the gang to make a name for itself. The gang creates its own institutional culture. The gang leader derives his legitimacy from the gang culture. Social or state values are unimportant, the values created by the gang are sacred. The gang makes a name for itself to make money. And the name is only kept alive as long as money is made.

Sedat Peker is the most important criminal perpetrator representing the transition from the 2nd Term to the 3rd Term with the videos he published. The first criminal gang representing the 3rd Term is the Daltons. According to the indictment of Istanbul Chief Public Prosecutor's Office Terrorism and Organized Crimes Bureau with the investigation number 2022/165629, the main number 2024/16342 and the main number 2024/3370, person who founded the Daltons group is Berat Can Gökdemir, who was born in Büyükçekmece, Istanbul in 1997. At the beginning of his criminal career, Gökdemir was a thief with a long record and even got into the news (Aksoyer- Varol, 2020). For this reason, he was nicknamed Dalton. However, he later became one of the managers of the armed action group of the organized crime gang led by a person named Barış Boyun, born in 1984. It became autonomous after the capture of Barış Boyun on 22.05.2024 (Ali Yerlikaya, 2024).

The first sensational assassination of the Dalton Gang was on January 14, 2023. The Daltons killed the leader of the rival Anucur Gang, whom they had placed a tracking device on with the help of a woman used as an agent, by a group of motorcycles with AK-47 machine guns on the Golden Horn Bridge, right in the middle of Istanbul, as he was leaving a nightclub. The group was so relaxed that

the tracking device placed on the vehicle was removed before the police arrived. Moreover, this entire assassination was decided on in meetings held over Facetime, and the instructions were given over the Facetime application. (Saymaz, 2024).

After this incident, rival gang leader Halil Ay, who disappeared, was shot dead in a farmhouse in the Chatonnay region of France on August 6, 2023 (Şekeroğlu, 2023). Before the issue was reported in the traditional media, on August 6, 2023, the leader of the Dalton Gang posted the following picture on his own TikTok account and the song "Uslan Be Halil İbrahim", a very famous folk song in Turkey, in the background (can.dalto34, 2023). Rıdvan Aslan, a friend of the same Gül Halil Ay, was killed in an armed attack in Georgia (medyabar, 2023). As of today (August 12, 2024), the leader of the Daltons Beratcan Gökbakır (Figure 3), who is sitting in the middle in the image below, has been captured in Russia and the extradition process to Turkey has begun. Since there is no asylum mechanism in Russia, Gökdemir's extradition is considered certain (Gökçe, 2024).



**Figure 3.** The Dalton gang leader's post on his own TikTok account after he had his rival gang leader killed in France  
Source: Dalton gang leader's tiktok account: Gökdemir (@can.dalto34) (2023).

**Note:** The leader hat is a reference to the Daltons.

At this point where the Turkish organized crime tradition has evolved, we have a new generation gang whose leader was born in 1997, which is a digital native, does not recognize any of the rules of the established crime tradition, holds assassination meetings on FaceTime, can kill people in different countries and announces this through new media communication tools such as TikTok accounts. In fact, it would not be wrong to say that

the Dalton Gang is the first both influencer gang of the new media in Turkey.

### Conceptual and Theoretical Framework

The issue of what kind of theoretical framework the study should be based on was clarified only after the literature review on crime perpetrators and their social representations in Turkey. Because, as can be understood from the relevant section, new media technologies have given people the privilege of being democratized to the extent that they can represent themselves directly. In this context, perpetrators of crime can produce their own public representations. Therefore, Bourdieu's and Baudrillard's perspectives make it possible to analyze the new generation of gangs from a broader and clearer perspective.

Bourdieu's conceptual framework has three pillars. These are field, habitus and capital (Calhoun, 2004). Capital types (economic, social, cultural, etc.) differ according to the degree of value assigned to them in a field (Swartz, 2015). For Bourdieu, symbolic capital is very important. People who dominate with symbolic capital ensure that forms of domination that will create dependency on the people dominated are formed. In this context, symbolic violence produces the consent that the dominated cannot refuse to give to the doer. Symbolic violence creates a toxic submission. When this consent is produced, symbolic power is established.

All actors mobilize/bet all their capital to possess symbolic power (Bourdieu, 2014, 66). The limits of the persuasive power of symbolic power are always drawn by power relations. For this reason, habitus enables actors to produce strategies to reach their interests and cope with the problems they will experience in this regard. The notion of strategy does not imply a planned achievement of calculated goals. It expresses the action choices that must be made to reach interests within the "feel for the game". Those in dominant positions pursue a protection strategy, new entrants to the field pursue a follow-up (admission) strategy, and those who want to be in power pursue subversion strategies (Swartz, 1997). The field creates the possibility of evolving in different directions with the

change of the social conditions that create it. In such cases, the game creates opportunities for actors with intuition and capital who have a strategy of subversion.

The struggle is continuous. Therefore, every field is a temporary state of power relations that are constantly reproduced and re-produced (Emirbayer, 2014).

Symbolic power seizes the privilege of establishing and structuring reality within the field. Thus, dominant actors ennoble habitus that are suitable for their own interests while stigmatizing/degenerating habitus that conflict with their interests (Bourdieu, 2015; Bourdieu, 2016). Even the most intolerable conditions of existence can now be seen as natural (Bourdieu, 2014). For this reason, every field that is formed tends to become autonomous (Bourdieu, 2013).

The article sees gangs as sub-fields and actors struggling for power in the crime field. Social changes and new media technologies offer new opportunities to actors pursuing a strategy of subversion in the crime field.

Foremost among these opportunities is the ability to create their own reality through the use of new media technologies. According to Baudrillard, reality in postmodern societies has been displaced through simulacra. Simulacra are not merely representations of reality; on the contrary, they are fictions that replace reality, creating "hyperreality" by superseding it (Baudrillard, 2010). In this context, the content produced by the Dalton Gang on TikTok is not merely a manifestation of a criminal organization; it is also a hyperreal spectacle perceived by the masses as the very essence of "real" crime. The images constructed by new-generation gangs in their visual, auditory, and written messages, in Baudrillard's sense, are not a representation of real street violence, but rather a simulation that replaces it. While not a direct physical threat to the audience, this content produces a mental and cultural reality through media. This allows the gang to become an object of symbolic power and fear, even independent of its physical presence.

Ritzer (1997), establishing Baudrillard's theory of simulation on a sociological basis, emphasizes that simulacra, which replace reality in postmod-

ern society, transform the way individuals perceive the world. In this context, crime is no longer a mere act; it becomes a consumer object that is displayed, organized, and aestheticized. Therefore, the content of new-generation gangs is crucial not only in its production but also in its consumption. Baudrillard (2021) speaks of the "silent majority" relationship between media and audiences. Children and young audiences, in particular, are able to silently internalize the hyperreal gang content produced.

Consequently, the Daltons exist as a simulacrum not only in the criminal realm but also in the digital cultural realm, creating a hyperreal gang identity. By producing TikTok content, new-generation gangs not only position themselves within the criminal sphere, but also legitimize and normalize themselves in the minds of new media users.

## Method

The subject of the research is street gangs which are the new types of violent groups produced by the changing sociology of Turkey. The aim of the research is to describe, explain and discover what kind of representation and message street gangs try to give in the content they produce about themselves in the third period, which is called the digital representation period, in the section where the perpetrators of crime and their social representations in Turkey are examined.

*Table 2: Tiktok interaction analysis of the sample group*

| Nickname                   | Account          | Following | Follower | Total likes | Total views  |
|----------------------------|------------------|-----------|----------|-------------|--------------|
| Can Dalton                 | olabilir.dalto34 | 776       | 74.7k    | 694.5k      | 50 million   |
| Tomocan Dalton             | timocann7234     | 11        | 20.5k    | 177.8k      | 11 million   |
| Tatar Ahmo                 | akrep7nn         | 2         | 572      | 13.6k       | 770 thousand |
| Zaza                       | ug3462           | 459       | 1280     | 19.8k       | 1.2 million  |
| Doğukan                    | dogukan.krkk     | 164       | 185      | 758         | 200 thousand |
| Sum of overall interaction |                  |           |          | 1.169.058   | 102.170.000  |

For these reasons, qualitative study methods were used in the research. The research design is a case study. It is important to select the most appropriate case for a qualitative case study that is i) current, ii) spatially and temporally limited, iii) multiple information sources can be used, iv) detailed and in-depth data can be collected from information sources, v) allows the formation of themes related to the situation, and vi) allows the situation

to be described (Creswell and Creswell, 2021; Creswell, 2019; Creswell, 2021). The data collection method of the study is document review. As a result of the preliminary review study, it was seen that the social media platform that the Dalton Gang used most actively and reached the largest audience was the TikTok Application. For this reason, the case study was limited to the accounts and content in the TikTok application. In order to determine the research sample, it was determined as a result of the impact analysis study whose accounts would be analyzed in the TikTok Application. In this context, it was seen that there were hundreds of accounts on the TikTok application about the Dalton Gang. By examining the number of followed accounts, number of followers and message contents, it was understood that most of the accounts were bot accounts.

In the impact analysis study conducted on the accounts between April 12 and May 28, 2025, it was seen that 5 accounts shared on behalf of real persons and 1 account shared on behalf of the Daltons, and that they had a very wide interaction network in the TikTok area. The accounts that belong to real people belong to the 5 most prominent names of the gang. These are (Table 2): i) Beratcan Gökdemir (Founding leader of the gang (Caught in Russia), Nickname: Can Dalton). ii) Nickname: Timocan Dalton. iii) Nickname: Tatar Ahmo. iv) Uğurcan Gündoğumuş. Nickname: Zaza v) Doğukan Kırık.

It was understood that the current content of the gang was made by the account named vi) 34Daltonlar34 (34 is the license plate code of Istanbul). The analyzed situation is limited to six accounts. The detected accounts have a total of 158 content, respectively: i) 48 videos, ii) 33 videos, iii) 9 videos, iv) 4 videos, v) 8 videos, vi) 56 videos. The gang's production of intense content and the pres-

ence of people and accounts capable of representing the gang allow the use of multiple information sources and the collection of in-depth data.

The MAXQDA program was used in the analysis of the data. In determining the themes, three main themes were determined which included only visual, auditory and written messages using the theoretical framework. During the analysis, the titles of Illusio, slogans and elements used to create a multiplier effect in messages were added to these main themes. Thus, a total of 5 themes were formed at the end of the analysis (Table 3). A total of 47 subthemes were determined, including 4 subthemes of the theme of elements used to create a multiplier effect in messages, 10 subthemes of the theme of auditory messages, 25 subthemes of the theme of visual messages and 8 subthemes of the theme of written messages. A total of 474 coding was made.

**Table 3: Theme, Major Sub-theme and Code Frequencies**

| Theme                                           | Sub Theme               | Code Frequency |
|-------------------------------------------------|-------------------------|----------------|
| Slogans                                         |                         | 6              |
| Elements used for multiplier effect in messages | Music preferences       | 108            |
|                                                 | Quotes from TV series   | 43             |
|                                                 | Quotes from Movie Stars | 6              |
|                                                 | Sedat Peker aphorisms   | 3              |
| Audio messages                                  |                         | 36             |
| Visual messages                                 | Location preferences    | 116            |
|                                                 | Clothing                | 115            |
|                                                 | Haircut                 | 5              |
|                                                 | Video                   | 5              |
| Written messages                                | Photo captions          | 29             |
|                                                 | Video captions          | 2              |

## Findings

### *Illusio*

The living space of criminal youth is the crime habitat. It is seen that young people who actively participate in the crime habitat care a lot about the neighborhoods they live in. They establish the emotional bond that is normally expected to be established with their homes or families with the neighborhood they live in. The slogan “the house is rented, but the neighborhood is ours” is frequently used on the walls of the photos showing

the neighborhood. It is understood that young people have two motivations with the neighborhood: repulsive and attractive. The fact that young people do not share anything about their families shows that family ties have almost no place in their daily lives. The severing of family ties pushes young people to the streets. However, when we look at the posts of gang members, it is seen that the members were born in the same neighborhood, faced the same situational contexts (age, economic and social) and developed the same perception, understanding and action schemes (habitus) in terms of solving the problems they face. The members see the neighborhood as a home and the friends they grew up with as family members. This bond draws them to the streets.

There is no woman in the posts shared about the everyday life of the crime habitat (even in the posts about their nightlife). It is seen that this crime habitat is a male-dominated area and women don't take place in their contents even as decoratively.

### *Slogans*

It is seen that certain slogans are highlighted in the posts. It is understood that some slogans are voiced as if they are the trademark of the gang. The main slogans are as follows:

- One bullet is enough for the king
- Daltons are everywhere
- Money is useless give your life take the bet
- I am not a king but I never bow down to an empror
- We came to this world to lose. Who cares about winning?
- Only if you can stand to lose everything do you deserve to win.
- No matter where death comes from. I would be sad if I died in bed. It suits a man to die like a man.

It is understood from the basic slogans that the gang uses their lives as capital in the power bets they are engaged in rather than economic, cultural and social capital. Because they do not yet have the economic, cultural and social capital to create an impact in the crime habitat. However, as will be expressed in the analyses below, it is understood that

the gang has started to gain volume in terms of economic and social capital.

### Elements Used for Multiplier Effect in Messages

In the analysis, it is seen that at least one of the following is used in each video to increase the effect of the verbal message: music with lyrics, background music, rhythm, TV series quotes, movie quotes, and Sedat Peker quotes (Figure 4).

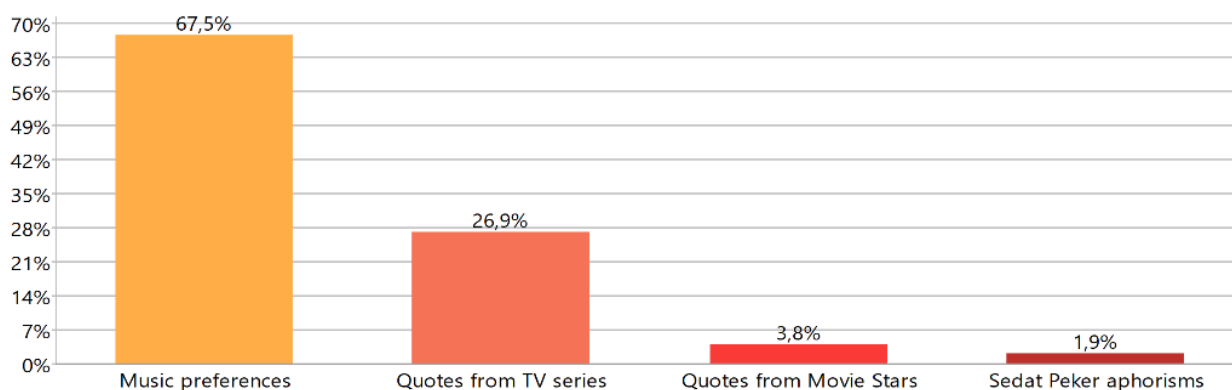


Figure 4.Elements Used for Multiplier Effect in Messages

### Music Preferences



Figure 5.Music Preferences Code Cloud

Music preferences vary (Figure 5).

*Preferences for music with lyrics:* In the context of music with lyrics, three categories of music are preferred. The categories are as follows in order of intensity:

**Folk music:** Among the music whose lyrics are used to increase the effect of messages, folk music is clearly the leader. Among folk music, the most common ones are folk songs that include lyrics praising bravery and brave men. Then come the

folk songs that have lyrics that “criticize the treacherous”. Finally, it is seen that folk songs that include lyrics that include.

**Rap music:** Rap music is used to increase the effect of the verbal message. In rap music, Turkish, German and English rap music are preferred, respectively. Especially German rap music is seen to be the songs of Turkish musicians living in Germany.

**Pop music:** There is almost no use of pop music. It is only used in a context with melodies similar to folk music and in a way that fosters a sense of “longing”.

**Rhythm music:** It is seen that a rhythmic musical substructure is placed in almost every video in accordance with the content. When the musical rhythms are analyzed, it is seen that 2 types of rhythm are preferred. In the first, slow rhythms maintained with violin, saz or kaval are used in emotional content. In the second, fast rhythms maintained with drums and bass are used in exciting content. The fact that the gang members get excited with Anatolian instruments such as saz, kaval and davul is consistent with their folk music and lyrics preferences.

**Background music:** Background music is used extensively in the content. Background music is not created on a single background but by editing many background music in a collage way. It is seen that almost only the background music used is created by giving an epic sound to regional music

with modern sounds and rhythms. In addition, there are also background music that contain mystery or folk music melodies, although very few.

#### *Quote From TV Series*

It is understood that it is common to produce messages by presenting lines taken from series together with content belonging to gang members (Figure 6). The gang edits the good character dialogues in the most watched crime series in Turkey for themselves and the bad character dialogues for their opponents. In this way, they use the admiration shown to the series' characters which are already watched and respected intensively in the crime habitat, to label themselves with these characters and direct the hatred to label their opponents. A visual section from the series is never used in the quotes. This is important. Because the sounds taken from the series are given with the visuals of the gang members. In this way, it is expected that the effect that the series leaves on the audience will be transferred to the gang members. The lines taken from the series were analyzed according to their subjects. The series lines in the content are as follows according to their frequency of use.



Figure 6. Quotes from TV Series Code Cloud

*The valley of the wolves series:* For the members, the Valley of the Wolves series and its characters are epic personalities. It is seen that they are quite willing to compare themselves to the noble characters in the series and to compare their enemies to the despicable characters in the series. When the lines quoted from the series are sorted according to their content; it is seen that the lines with the content of challenge are shared the most. It is seen that the lines that include messages such as determination in the struggle, being honorable and not trusting anyone are shared afterwards. The quotation of

lines that give a clear message of challenge is consistent with the subversion strategies expected of the groups that are new to the field. (The series deals with state and mafia relations.)

*01 Adana series:* Among the quotes taken from the 01 Adana series, the excerpts containing the message of defiance are clearly in the forefront. The message of defiance is followed by the subjects of revenge and not being greedy for money. (01 is the license plate code of Adana province. The series deals with street gangs in Adana province)

*Ezel series:* The quotes from the Ezel series again mostly include messages of defiance. This message is followed by messages about being selfless towards loved ones and loyalty/solidarity. (The series deals with the relations between former big bullies and the mafia bosses in Istanbul)

*Scowrer can't rule the World:* There are very few quotes from the series. These quotes include messages about loyalty/solidarity and bravery (The name of the series is the same as the name of a famous folk song. The series deals with state and mafia relations.).

#### *Quotes from Movie Stars and Sedat Peker*



Figure 7. Quotes from Movie Stars and Sedat Peker Code Cloud

In Quotes from Cinema Stars and Sedat Peker, determination is at the forefront (Figure 7).

*Sedat Peker quotes:* It is seen that they share aphorisms that Sedat Peker who is famous in the crime habitat of the gang said with his own visuals. Although these shares are very limited, it is seen that they are strategically important shares in terms of showing who the gang respects in the crime habitat and therefore showing its own side. When the aphorisms quoted from Peker are analyzed, it is seen that there are equal amounts of content on the

subjects of having courage, living honorably and solidarity.

**Yilmaz Güney and Cuneyt Arkin quotes:** It is seen that Yilmaz Güney and Cuneyt Arkin's lines in their big bully roles are used to increase the effect of the message to be given. It is seen that the members mostly prefer Yilmaz Güney lines. When the subjects of the lines are examined, it is seen that they contain a message of determination and once a message of ruthlessness. In fact, Güney and Arkin's bully movies are about the bully who try to gain power and money by risking their own lives in the misery they experience during the period when Turkey migrated from rural to urban areas. In this respect, it is similar to gang members who risk their lives and try to enter the crime habitat.

### Audio Messages

It is seen that almost all audio messages are presented to the audience as pictures or video images flow on the screen, edited with movie quotes, spoken music, rhythm and background music (Figure 8).

Quotes, spoken music, rhythm and background music create a multiplier effect on the audio message. In this way, all the emotions of the audience, who are still teenagers or young, are touched. The distribution of the topics of the gang members' audio messages in the posts is as follows, from the most intense to the least.



Figure 8. Audio Messages Code Cloud

**Challenge:** The most common message given in the gang's discourse is challenge. Those who are new to the field use a follow-up strategy, while those who want to be in power use a subversion strategy. In this respect, it is consistent that the message constantly given by the Dalton Gang who are new to the field in the crime habitat, is challenge.

There are also certain rituals for challenging. When we look at the content on the subject of challenging, the most common ritual is to drive around the regions of opposing gangs and announce this to the crime habitat with "live broadcasts" or "pictures taken in the most secure areas of the rival gang". In one of the audio messages, we see content such as "it is not cubs but hunter wolves that roam at night, come if you are a man", "many people want to be big bullet but none have the courage to confront us", "come on challenge", "where are you ullaaaa!", "if they were brave they would confront us, we have God behind us, it does not matter who is against us", "aha! we are coming, fuck the mothers and sisters of those who confront us and those who do not. Enmity does not work like that, let's fight".

**Threat:** There are two types of threatening statements. One is threats directed at the crime habitat in general. These are: "let everyone know, those who wrong us will not live", "you may think you are going home but you can fly, you can be made to fly", "our friends live, our enemies die". The other is directed at specific rival gangs. "Halil, you will die".

**To give up on life:** Young people do not have the economic, social and cultural capital to reach wealthy and powerful positions. Therefore, their greatest capital to gain the power field is their lives. Therefore, in their discourses, it is constantly emphasized that they do not care about living and that what is important is virtues such as honor and dignity. Not caring about life is not indifference to the crime habitat or life. As analyzed in the slogan title, it actually means putting one's life on the table in bets entered for money and power easily. For this reason, young criminals aim to get as much as they can by putting their lives on the line. In one dialogue, it is said, "I want everything. The world. And everything in it." In a verbal message quoted from a movie about a big bully, the situation is expressed more clearly.

- So, everyone is looking for me. I'm going to the city tonight
- Are you crazy, brother?
- I'm not crazy, I'm very cheap. I need to raise my price. Don't I?

- Of course, if you're really a big bully.
- I'd rather be an expensive dead man than a cheap fool.

**Violence is the only way:** Gang members legitimize their violence by claiming that if they do not use violence, they will use violence against them. They present themselves as opposing injustice. They state that politics and those who do politics are hypocritical in making a profit.

**The humiliation of betrayal and ingratitude:** Gang members want to be sure of each other in these power struggles that they have invested their lives in. Therefore, in their discourses, they produce content such as "betrayal is the worst thing in the world. There is forgiveness for everything except honor, but there is no forgiveness for betrayal", "A bullet does not kill a person, betrayal does" along with emotional background music.

**Loyalty/devotion/solidarity:** Members value loyalty to each other. The content produced conveys the message that they will come to the aid of their friends in need immediately, even in the most difficult times. It is emphasized that there is no war they cannot win if they are together. For this reason, the messages that are given are especially like "We will not forget those who are with us on our bow in bad times", "The world is full of jackals. I cannot deal with so many jackals on my own. I need a lion. That is you".

**Humiliation:** Members frequently use derogatory expressions in their rhetoric wars with rival gangs. There are two reasons for humiliation. The first is to gain reputation in the criminal habitat by humiliating weaker rival gangs. The other is to humiliate stronger rival gangs in the criminal habitat. "Those who say they stand tall have sat on the laps of their big bosses. They have become landmine donkeys".

**Vigilance:** Gang members are aware that they may lose their lives at any moment because they want to risk their lives to gain money and power. For this reason, they produce content such as "This is Istanbul, there is no need for the enemy to be there. You never know what will happen", "A wolf does

not trust even the step it will take in foggy weather".

**Revenge:** Gang members can lose their lives or property during the fights they engage in. Therefore, revenge for their losses is very important for the gang's reputation in the crime habitat. They produce content such as "No matter what anyone says, revenge is everything", "I promise you that your brother will not leave this world without finding those responsible for this".

**Jokes within the Gang:** There are statements that include jokes made among the members. Messages including the words "Bravo to you, death machine outside, washing machine inside" are given to the videos of their friends who are involved in armed actions on the streets while washing the dishes. Thus, contrary to the tough appearance on the street, the message is given how fun and understanding they are with each other within the group.

### **Visual Messages**

In visual messages, it is seen that single or multiple photo collages are the majority. Video content is very limited. In visual messages, it is seen that one video is about disloyalty from the movie Kolpaçino, which is about a big bully, and the other is about loyalty from the series Scowrer Can't Rule the World.

Apart from TV series and movies, gang members re-circulate on social media the main news bulletins that include events they are involved in by editing them in their favor. In this way, they reach the youth who are far from the news channels of traditional media by distorting the news in their favor.

Videos that include members are videos where edited music is used instead of very short external voices in closed or rural areas. The reason for this is thought to be that the content in the photographs can be controlled more easily than in videos. Because there are many photo frames in the video and a detail that the gang may miss could already endanger the life and property of the members living illegally. This situation makes the messages

given in the photographs even more important. Bourdieu states that the habitus of the actors in the field creates a set of preferences that affect their clothing and even their bodies. For this reason, the clothing, body and location preferences of the gang members indicate their criminal habitus. Therefore, it reinforces the perception they want to give to the crime habitat.

When visual messages are analyzed, it is seen that members' clothing and location preferences convey the messages they want to give (Figure 9).



Figure 9. Visual Messages Code Cloud

**Haircut and Tattoo Preferences:** From the content analysis, it is seen that almost all members have exactly the same haircut. It is a hairstyle that is short on the sides and relatively long towards the top of the head. Since most of the members are younger, the number of members who have moustaches is quite limited. In addition, it is seen that most members are shaved or have stubble. It is seen that the tattoos of the members are mostly on the left wrist to the elbow or on the left foot. It has not been understood from the visual analysis whether this has any meaning.

**Clothing Preferences:** It is seen that casual clothes are preferred by far in their clothing preferences. After that, it is seen that they prefer tracksuits and very few suits without ties. It is seen that their casual clothes are quite ordinary unlike the luxurious glasses, watches and vehicles they mostly pose with. The reason for this may be that the members who are always on the alert have the opportunity to disappear from sight when they mix with the people in their neighborhoods. In this sense, casual/street clothes are also "camouflage clothes".

**Accessory Preferences:** It is seen that the accessory preferences are as follows in order of intensity. It is

seen that they are sunglasses, watches, hats, small lapdogs, ski masks, prayer beads, bracelets, guns, medallions/necklaces. Especially sunglasses and watches are chosen from exaggerated and luxury brands. While the old bullies preferred very stylish suits, they disdained accessories such as hats, medallions, and small pet dogs. The trademark of the old bullies is the egg-heeled leather shoes worn under a stylish suit, but stepped on the back. In contrast, the fact that the gang does not prefer suits and confidently carries the accessories that the old bullies disdained (hats, medallions, sneakers, sweatpants, etc.) is the manifestation of the defiance strategy on clothing preferences. The only accessory that continues its tradition is the 33-bead prayer beads. Young gang members can carry prayer beads even in places like pools. In addition, the gang does not hesitate to share their hitmen's faces by wearing ski masks. In this way, they want to reinforce their aim of "giving trust to friends and fear to enemies", which they express in their audio messages.

**Location Preferences:** The locations preferred by the gang in their video content are as follows in order of density. Car, house/car/street collage, hotel, prison, rural area, house, workplace, streets, motorcycle, cafe/restaurant, table, gym. Gang members share videos and photo collages taken from inside and outside the car by far. This is followed by video sharing using collages of photos taken in different parts of the neighborhood. Videos taken while driving, video collages consisting of photos taken at home/car/street, and photos taken on the streets are visuals with a challenging content. The gang seems to mark its own place in Istanbul. Especially the photos given from the regions of rival gangs from time to time include challenges that take the risk of conflict. These video contents in particular create a sense of expedition and excitement with the music, rhythm and background music that create a multiplier effect. An interesting shooting technique is used especially in videos taken inside the car. All of these videos are shot from the right rear. In this way, the audience feels as if they are inside the car driven by the gang leader and experiencing it with him.

The pictures shared from homes and rural areas are usually images of people on the run after the

crime. These pictures give the message that the crime habitat is being prepared for a new crime. Places such as hotels, workplaces, tableside, cafes-restaurants, and gyms consist of images taken during entertainment. The gang creates the impression that they are safe and gives a message of power against other criminal actors in the crime habitat.

*Motorcycle:* Motorcycle posts by gang members are important. It is understood from the posts that motorcycles are a threat element. The identities of the members who post from motorcycles are definitely not understood. These people represent the motorcycle assassination teams, which have recently become a new form of assassination in Turkey. While motorcycles provide speed and agility, they also make it very difficult to identify people due to the helmets used. In the heroic folk songs selected for motorcycle posts, words such as "Let the barrels be pointed, let the troubles be called." are given. On another picture, the message "Even God cannot notice us. If he notices, let him take our lives." is given.

### Written Messages

Compared to visual and audio messages, written messages are quite rare. Most of the written messages are given with photos, and there are also written messages in videos, albeit rarely. All of the written messages in the videos consist of insulting messages directed at the ungrateful people (Figure 10).



Figure 10. Written Messages Code Cloud

There are two types of written messages. The first and most common reason is to circulate the message on social media, using appropriate photos and music, as if they were throwing a card, and writing their slogans. The second reason is that they publish a "public opinion announcement" as a kind of public relations effort, especially when

they think that a perception is being created against them. When written messages are examined, it is seen that in order of density, there are messages about threats, determination, commemoration of dead friends, announcements, and mocking enemies.

### Discussion

Social media offers new opportunities for street gangs to recruit members, engage in criminal activity, and maintain control of their territories (Whittaker, Densley, & Moser, 2020). There is growing concern about youth violence and social media, but empirical studies explaining this relationship are limited (Patton vd., 2014). Language serves as a medium of communication. Gangs are illegal groups. Therefore, communication among themselves is often conducted through symbols, rituals, and metaphors (Quinn & Forsyth, 2009). The videos gangs upload to social media are not only ordinary content but also provide information about gang organization, internal rules, and so on (Storrod & Densley, 2017; Wijeratne et al., 2015).

The first point to emphasize in this context is the slogans that gangs use to identify themselves. A slogan is an image marker of an organization (Noviyanti, Nur, & Huda, 2017). This is confirmed in the context of research. The Daltons gang uses their own slogan in almost every post. The Daltons present the audience with a hyperreality of the gang through the slogans they produce.

In many countries, the internet is rarely used to achieve gangs' instrumental goals. Instead, it serves more of the symbolic needs of gang members (Pyrooz, Decker, & Moule, 2015). The Daltons recklessly use the internet for their criminal activities. However, this appears to be to protect the gang's real and virtual reputations. Consequently, the Daltons use the internet for symbolic rather than instrumental purposes.

Rap music plays a significant role in gang identity formation (Kubrin, 2005). More research is needed on how gangs exploit music for their various needs. Rap music is particularly important for building resistance identities, facilitating antisocial behavior, and reflecting the violence experienced

in the ghetto (Lozon & Bensimon, 2017). Some rappers also respond to this need and contribute professionally to the creation of gang culture (Harkness, 2013). The Daltons gang also appears to utilize the power of music to amplify their messages. The Daltons gang uses rap music. However, unlike other countries, they appear to prefer regional music with heroic and dramatic content.

Research shows that gang members insult each other on social media using lyrics enhanced by hip-hop music. This exchange of insults has led to deaths in real life. This phenomenon is called internet banging (Patton, Eschmann, & Butler, 2013; Ilan, 2020). This phenomenon has been frequently observed in content produced by the Daltons. There are instances of internet banging leading to deaths, particularly during their gang war with the Redkits (Lucky Lukes).

Gang membership often implies wearing certain clothing (Burke, 1991; Etter, 1998; Garot & Katz, 2003) or having tattoos (Korman, 1995; Phelan & Hunt, 1998; Riley, 2006). However, when looking at the Daltons, it appears that they have not developed distinctive clothing or tattoos. This is thought to be because the gang phenomenon is still in its infancy in Turkey. Despite being one of the most well-known gangs, even the Daltons have not yet established a sustainable subculture. However, it is anticipated that gangs in Turkey will have distinctive clothing or tattoos in the not-too-distant future.

## Conclusion

As can be understood from the research, we see that the Daltonlar gang has been widely covered in the media and has carried out actions that will make a name for itself with international activities. We can say that this situation supports the importance of the research and creates an open area worth researching. Indeed, the image of the Daltonlar gang that we aim to reveal with TikTok videos emerges as a new type of gang. In addition, it is seen that the gang members have created a unique criminal culture in terms of the perception they want to create in their target audience with the posts they make through their TikTok accounts. The Daltonlar gang follows a destructive

strategy in the criminal habitat, unlike its successors. In this respect, it is understood that it targets power statuses, unlike the traditional criminal culture in Turkey. The gang's struggles based on its own capital, interests, habitus and strategies have created an autonomous area in its own criminal habitat. The actions of the gang members within this area reveal similar practices.

As a result of the content analysis conducted on the accounts and the content on these accounts of the Dalton gang's TikTok pages, we see that folk music is the most preferred type of music. However, background music and series/movie music are also used extensively. In the gang members' TikTok videos, references to characters in violent series and references to series characters are particularly striking. It is seen that while using violent language, series lines are used to legitimize violence. In this sense, it is seen that they use forms of discourse such as humiliation, stigmatization and contempt against the side they see as their enemy, while they reflect the sides they see as allies and friends with exalting, strong and justified discourses. When we look at the density of discourse, we see messages of defiance the most. When we look at the image of the Daltonlar gang in Tiktok videos, we see that they have their own lifestyles in terms of clothing, accessories and use of space.

In the conjuncture where digitalization and urbanization intersect in Türkiye, the rules of the game played in the illegal sector are changing. In this context, the Dalton gang is one of the most striking examples of gangs that, through their "feel for the game," have recognized the opportunities created by the changing game and developed successful strategies accordingly.

Therefore, this study on the Daltons provides important data for understanding new types of gangs. From this point on, the research results offer the following suggestions: It should be understood that street gangs are not a temporary social pathology. Street gangs are a new type of organized violence. The places where street gangs are most active are social media outlets. In this context, patrol services provided for the safety of the streets can also be provided for social media security as "digital patrol" services. It is understood that much

more academic and institutional studies from different disciplines are needed for a better understanding of new types of gangs in Turkey.

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## RESEARCH ARTICLE

# The Effect of University Students' Attitudes toward Artificial Intelligence on Academic Motivation and Procrastination Behavior

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## Abstract

Nowadays, with the widespread use of artificial intelligence (AI) technologies in educational environments, how students' attitudes toward these technologies affect academic processes has become an important research topic. This study aims to examine the effects of university students' attitudes toward AI on academic motivation and procrastination behaviors. 198 university students participated in the study. The data were collected online via Google Forms using a convenience sampling method from university students who volunteered to participate and using the General Attitudes toward Artificial Intelligence Scale, Academic Motivation Scale, and Tuckman Procrastination Tendency Scale. Pearson Correlation Analysis, Multivariate Analysis of Variance (MANOVA), and Multiple Linear Regression Analysis were used in the analysis of data. The findings showed that a positive AI attitude increased both intrinsic and extrinsic academic motivation, while a negative AI attitude only increased amotivation. However, no significant relationship was found between attitudes toward AI and procrastination behavior. Regression analyses showed that positive AI attitude had a statistically significant effect on increasing academic motivation, but this effect was limited by low explanation percentages. The findings of the study revealed that positive attitudes toward AI may support academic motivation, but it does not have a direct relationship with procrastination behavior. These results suggest that fostering positive attitudes toward AI may enhance students' academic motivation, whereas procrastination behavior appears to be influenced by other individual factors beyond AI attitudes. The results emphasize the importance of strategies to improve individuals' attitudes toward AI to better understand the role of AI in academic processes and to encourage its effective use in educational environments.

**Keywords:** Artificial Intelligence Attitudes, Academic Motivation, Procrastination, University Students, Educational Technologies.

## Öz

Günümüzde yapay zeka (YZ) teknolojilerinin eğitim ortamlarında yaygınlaşmasıyla birlikte, öğrencilerin bu teknolojilere yönelik tutumlarının akademik süreçleri nasıl etkilediği önemli bir araştırma konusu haline gelmiştir. Bu çalışma, üniversite öğrencilerinin YZ ile ilgili tutumlarının akademik motivasyon ve erteleme davranışları üzerindeki etkisini incelemeyi amaçlamaktadır. Araştırmaya 198 üniversite öğrencisi katılmıştır. Veriler, gönüllü olarak katılmayı kabul eden üniversite öğrencilerinden kolaylık örnekleme yöntemi kullanılarak Google Formlar aracılığıyla çevrimiçi olarak ve Yapay Zekâya Yönelik Genel Tutum Ölçeği, Akademik Motivasyon Ölçeği ve Tuckman Erteleme Eğilimi Ölçeği kullanılarak toplanmıştır. Verilerin analizinde Pearson Korelasyon Analizi, Çok Değişkenli Varyans Analizi (MANOVA) ve Çoklu Doğrusal Regresyon Analizi kullanılmıştır. Bulgular, pozitif YZ tutumunun hem içsel hem de dışsal akademik motivasyonu artırdığını, negatif YZ tutumunun ise yalnızca motivasyonsuzluğu artırdığını göstermiştir. Bununla birlikte, YZ'ye yönelik tutumlar ile erteleme davranışı arasında anlamlı bir ilişki bulunmamıştır. Regresyon analizleri, pozitif YZ tutumunun akademik motivasyonu artırmada istatistiksel olarak anlamlı bir etkisinin olduğunu, ancak bu etkinin düşük açıklama yüzdeleriyle sınırlı kaldığını göstermiştir. Bu sonuçlar, yapay zekâya karşı olumlu tutumların geliştirilmesinin öğrencilerin akademik motivasyonunu artırabileceğini, erteleme davranışının ise yapay zeka tutumlarının ötesinde diğer bireysel faktörlerden etkilendiğini göstermektedir. Sonuçlar, YZ'nin akademik süreçlerdeki rolünü daha iyi anlamak ve eğitim ortamlarında etkin kullanımını teşvik etmek için bireylerin YZ'ye yönelik tutumlarını geliştirmeye yönelik stratejilerin önemini vurgulamaktadır.

**Anahtar Kelimeler:** Yapay Zekâ Tutumları, Akademik Motivasyon, Erteleme Davranışı, Üniversite Öğrencileri, Eğitim Teknolojileri.

## Introduction

Artificial intelligence (AI) refers to computer systems designed to perform tasks that typically require human intelligence, such as learning, reasoning, problem-solving, and language understanding (Becker, 2019; Abbas, 2021). The term was first formally introduced in the Dartmouth Summer Research Project (McCarthy, Minsky, Rochester, & Shannon, 1955). Since its inception in the 1950s, AI has undergone significant evolution, progressing from rule-based systems to complex machine learning and deep learning algorithms that are capable of adapting and improving through experience. In the field of education, the integration of AI began with intelligent tutoring systems in the 1980s and has since expanded to include a wide range of applications, such as automated feedback, personalized content delivery, and adaptive learning environments (Holmes et al., 2019).

With the rapid development of technology, artificial AI-based tools are becoming increasingly common in educational systems. AI tools are leading to revolutionary changes in education by providing personalized learning experiences, accelerating access to information, and supporting academic success (Zawacki-Richter et al., 2019).

The integration of AI into education offers numerous advantages that significantly enhance students' learning experiences. These include the provision of personalized instruction, timely and constructive feedback, and the facilitation of collaborative and critical thinking, along with efficient organization of diverse educational resources (Apolzan & Cimpineanu, 2024; Holmes et al., 2019). AI-supported learning management systems and adaptive platforms can tailor content and resources to students' individual needs, thereby contributing to academic success (Chen et al., 2020; Otto et al., 2023). Moreover, intelligent tutoring systems can deliver instant feedback, enabling learners to identify their strengths and address misconceptions effectively (Lu et al., 2018). In addition to cognitive benefits, these technologies foster motivation and self-regulation by increasing learner autonomy in educational processes (Nama-zandost & Rezai, 2024). AI applications also promote collaborative learning and creative problem-

solving through interactive environments and simulations (Abisoye, Udeh, & Okonkwo, 2022; Roll & Wylie, 2016). Finally, AI enhances inclusivity and accessibility by supporting diverse learning profiles and mitigating learning barriers (Zawacki-Richter et al., 2019).

Considering the advantages offered by AI-supported tools and learning environments, these technologies are believed to effectively support the development of students' computational thinking skills and enhance their programming self-efficacy and course-related motivation (Sáez-Velasco et al., 2025; Yilmaz & Yilmaz, 2023). Research indicates that incorporating AI into course design enhances students' engagement and interest in the subject matter (Bewersdorff et al., 2025; Chen et al., 2022). Moreover, AI contributes not only to academic achievement but also to students' intrinsic motivation and sustained learning participation (Kausar et al., 2024). However, how these technologies are perceived and utilized in educational contexts is largely shaped by students' attitudes, which are influenced by personal experiences, daily exposure to technology, and representations of AI in the media (Holmes et al., 2019).

While many students view AI as a tool for innovation and future success, others express concerns about job displacement, data privacy, and ethical misuse (Abuadas et al., 2025; Asiksoy, 2024; Chan, 2024). Positive attitudes are often driven by curiosity and technological competence, whereas negative attitudes may stem from misinformation, ethical anxieties, or fear of losing control over automated systems (Abuadas et al., 2025). These findings suggest that promoting the effective use of AI in educational settings requires not only fostering awareness of its benefits but also addressing students' ethical concerns and building trust in AI applications. Although most students acknowledge AI's potential, they often lack the necessary knowledge and skills to use these technologies effectively in academic contexts (Yakut et al., 2025; Zawacki-Richter et al., 2019).

Academic motivation is a fundamental factor that enables an individual to participate in the learning process and is examined in three basic dimensions: intrinsic, extrinsic and amotivation (Deci & Ryan, 2000). In the literature, the effect of technology on academic motivation has been

widely researched. It is stated that AI-based educational systems can increase motivation by providing individualized feedback and making the learning process more interactive (Chen et al., 2022; Namaziandost & Rezai, 2024; Sáez-Velasco et al., 2025).

When the effect of attitudes toward AI on academic motivation is examined, it is suggested that positive attitudes toward technology can cause individuals to participate more actively in the learning process (Lee, 2005). Individuals with a positive attitude s AI can benefit more from the personalized learning environments offered by these technologies and participate in learning processes with higher intrinsic motivation (Murakami et al., 2024). AI-supported learning environments can make the learning process more effective and interesting by allowing students to learn at their own pace (Popenici & Kerr, 2017). However, students with a negative attitude s artificial intelligence may be less motivated in the learning process by not trusting these tools or seeing them as unnecessary (Selwyn, 2019). In this context, how attitudes toward AI affect students' academic motivation is becoming an important research topic.

It is thought that students' attitudes toward AI may be related to academic procrastination behavior as well as academic motivation (Yaraş, 2021). Academic procrastination behavior is defined as students deliberately delaying their academic tasks and this delay has negative effects on their academic performance (Steel, 2007). Procrastination, which is considered a significant obstacle to student success and a common problem in universities, is often stated as the enemy of effective time management (Chun Chu & Choi, 2005; Corkin et al., 2011). Procrastination is generally the tendency to postpone or avoid tasks or decisions, and habitual procrastination is associated with increased stress, anxiety, and poor academic performance (Steel & Ferrari, 2013; Steel & Klingsieck, 2016). Inefficiencies in workflow and procrastination are common on university campuses, and it is estimated that 70-95% of students procrastinate (Hensley, 2016). Despite frequent warnings in university success curricula, approximately 50% of students habitually procrastinate (Patrzek et al., 2015). Studies show that procrastination is affected

by many factors, including time management skills, lack of self-regulation, anxiety level, perfectionism, and academic self-efficacy (Cao, 2012; He, 2017). Although procrastination serves as a strategy to manage stress and academic pressure for some students, it is often associated with low academic achievement and psychological distress (Van Eerde, 2003).

There is no definitive judgment in the literature on the effect of AI attitudes on procrastination behavior, and it is thought that this relationship may vary depending on individual differences and how students use AI tools. Mukhtar et al. (2025) have shown that AI addiction leads students to procrastinate on academic tasks and that excessive reliance on AI-supported tools can encourage procrastination. Shu and Miao (2021) on the other hand, have found that AI recommendation systems can increase procrastination behavior when combined with mobile phone addiction. These findings indicate that some students see AI as a factor that supports procrastination behavior rather than using it as a tool to facilitate their academic tasks.

Some studies on academic procrastination have also shown that AI can have the opposite effect (Ibrahim et al., 2025; Ma et al., 2024). Ibrahim et al (2025) stated that AI-supported educational systems have significant potential to reduce academic procrastination behavior. AI tools can provide individuals with better time management skills and help them complete academic tasks systematically. These contradictory findings suggest that the relationship between AI attitudes and academic procrastination may vary depending on individual factors. While some students use AI tools to accelerate their learning processes, others may postpone their academic tasks by over-relying on AI (Ma et al., 2024). This raises the question of how attitudes AI are related to procrastination behavior.

This study aimed to examine the effect of university students' attitudes AI on academic motivation and procrastination behavior. In addition, it will be evaluated how positive and negative attitudes AI can affect motivation and procrastination behavior differently. It is thought that the study

findings will provide important findings for understanding the role of positive and negative attitudes toward AI on academic processes.

In order to better understand how students' attitudes toward artificial intelligence affect academic motivation and procrastination, the study is grounded in Self-Determination Theory (Deci & Ryan, 1985), which distinguishes between intrinsic, extrinsic, and amotivation. The following section presents the theoretical framework and hypotheses of the study.

### Theoretical Framework and Hypotheses

This study is grounded in Self-Determination Theory (SDT), developed by Deci and Ryan (1985, 2000), which classifies motivation along a continuum from intrinsic motivation to extrinsic motivation and amotivation. According to the theory, intrinsic motivation refers to engaging in an activity for its inherent satisfaction and personal interest. Extrinsic motivation involves performing an activity to obtain external outcomes or rewards. Amotivation refers to a state in which individuals neither identify a reason for engaging in an activity nor feel competent or autonomous, leading to disengagement from academic tasks (Deci & Ryan, 1985; Morris et al., 2022).

In educational settings, SDT suggests that students are more likely to exhibit higher levels of motivation when they perceive their learning environment as supportive and autonomy-enhancing (Deci & Ryan, 2000). AI-based educational tools may contribute to such environments by offering personalized feedback, adaptive learning opportunities, and self-paced instruction. These features can support students' motivational orientations, especially when AI tools are perceived as useful and accessible (Chen et al., 2022; Mohamed et al., 2024). For instance, students who receive personalized feedback through AI systems have shown increased intrinsic motivation and perceived competence in programming courses (Chen et al., 2022). Similarly, Mohamed et al (2024) found that AI-supported environments improve engagement and motivation.

In this context, students' positive attitudes towards AI may serve as a cognitive evaluation com-

patible with the perception of the learning environment as supportive, which may increase intrinsic and extrinsic motivation (Eltahir & Babiker, 2024; Namaziandost & Rezai, 2024). Students who view AI tools as beneficial and trustworthy are more likely to engage actively with the learning material and feel confident in their learning processes (Eltahir & Babiker, 2024), which corresponds with SDT's view of autonomous and controlled forms of motivation (Deci & Ryan, 1985; Ryan & Deci, 2000).

Conversely, negative attitudes toward AI, such as fear, mistrust, or skepticism, may impair the internalization process described in SDT, leading to amotivation (Asiksoy, 2024). These concerns may stem from ethical dilemmas, job insecurity, or data privacy issues frequently emphasized by students (Abuadas et al., 2025). Students with such concerns may feel less confident using AI tools, which can decrease their motivation and increase disengagement. According to SDT, academic procrastination is often considered a behavioral manifestation of low intrinsic motivation or high amotivation, as students with diminished autonomy and internal drive may avoid academic responsibilities (Steel & Ferrari, 2013; Vansteenkiste et al., 2009).

Therefore, SDT provides a useful lens to explain how students' evaluations of AI technologies (positive or negative attitudes) are linked to their motivational orientation (intrinsic, extrinsic, or amotivation) and behavioral patterns (such as procrastination).

Based on SDT's continuum of motivation and the reviewed literature on AI in education, the following hypotheses were formulated to examine how attitudes toward AI influence motivational and behavioral outcomes.

H1: Positive attitudes toward AI significantly and positively predict students' intrinsic academic motivation.

H2: Positive attitudes toward AI significantly and positively predict students' extrinsic academic motivation.

H3: Positive attitudes toward AI significantly and negatively predict students' academic amotivation.

H4: Negative attitudes toward AI significantly and negatively predict students' intrinsic academic motivation.

H<sub>5</sub>: Negative attitudes toward AI significantly and negatively predict students' extrinsic academic motivation.

H<sub>6</sub>: Negative attitudes toward AI significantly and positively predict students' academic amotivation.

H<sub>7</sub>: Positive attitudes toward AI significantly and negatively predict procrastination behavior.

H<sub>8</sub>: Negative attitudes toward AI significantly and positively predict procrastination behavior.

A conceptual model summarizing these relationships is presented in Figure 1.

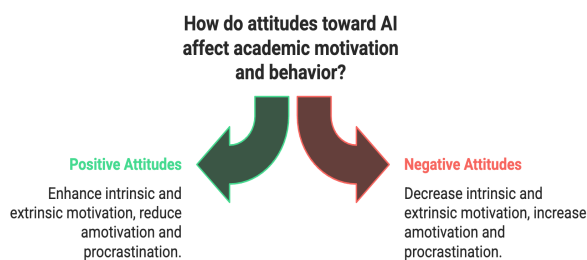


Figure 1. Conceptual model of the research.

## Method

This research is a quantitative study conducted to examine the effects of university students' attitudes toward AI on academic motivation and procrastination behaviors. The study used a correlational survey design. Relational survey models are one of the research designs used to reveal the relationships between variables (Büyüköztürk, 2002). In this context, while attitudes toward AI (positive and negative) were considered as independent variables within the scope of the study, academic motivation and procrastination behavior were evaluated as dependent variables.

The research was approved by the Non-Interventional Clinical Research Ethics Committee of Ankara Medipol University, with approval number 46/25 and conducted by the Helsinki Declaration.

## Population and Sample of the Research

This study employed a convenience sampling method, recruiting university students who voluntarily participated through online platforms such as social media groups and messaging apps.

Within the scope of the study, a research invitation prepared for the social media groups and accounts (Facebook, Twitter, Instagram, WhatsApp) where university students are located was sent and the evaluation forms prepared for individuals who accepted to participate in the study were delivered to them via Google Forms and social networks.

The number of participants in the study was determined with G\*Power 3.1. As a result of the 90% power analysis, it was determined that 143 participants were needed for the analysis to be conducted on a single group with a medium effect size (Cohen's  $f^2=0.3$ ) and a significance level of 0.05. The literature was reviewed for the calculation and the study conducted by Kausar et al. (2024) was taken as the basis for a sample study. Considering that a larger sample size of the data set would increase the power of the analyses and support the generalizability of the findings, 198 participants were included in the study. In this way, it was aimed to minimize the impact of possible data losses and extreme values.

The study employed a convenience sampling method to recruit participants through online platforms. However, only those who met specific inclusion criteria (being an undergraduate student in Türkiye, being 18 or older, and having used AI-supported tools) were included in the final sample. Thus, the sampling procedure also incorporated elements of criterion-based purposive sampling.

## Data Collection Tools

**Sociodemographic Information Form:** This is a form prepared by researchers that includes questions about students' age, gender, class, department, frequency of AI use, and the AI tools they use most frequently.

**General Attitude Scale Toward Artificial Intelligence:** This scale was developed by Schepman and Rodway (2020) to measure individuals' general attitudes toward artificial intelligence. The scale consists of 20 items, 12 items in the Positive attitude sub-dimension and 8 items in the Negative attitude sub-dimension. The items are scored with a five-point Likert-type rating scale (1: strongly disagree to 5: strongly agree). The validity and reliability of

the General Attitude Scale Toward Artificial Intelligence in Turkish was conducted by Kaya et al. (2024).

**Academic Motivation Scale:** Developed by Valleraud et al. (1992) in Canada The scale, which consists of a total of 28 items, consists of seven different dimensions, each with four items, three for intrinsic motivation, three for extrinsic motivation, and one for amotivation. The scores obtained from the subtests vary between 4 and 28. Since the subscales are evaluated separately, each subscale item is scored on a seven-point scale from 1 (does not match at all) to 7 (completely matches). The Turkish validity and reliability study of the scale was conducted by Karagüven (2012).

**Tuckman Procrastination Tendency Scale:** It is a single-dimensional scale consisting of 16 items developed by Tuckman (1991) to determine procrastination tendencies. The Turkish adaptation of the scale was made by Özer, Saçkes and Tuckman (2013). During the Turkish adaptation process, 2 items were removed as recommended in the original scale and the scale gained a 14-item structure. The scale, designed in a five-point Likert-type structure, is scored between (1) 'strongly disagree' and (5) 'strongly agree'. A scale score average approaching 5 indicates a high procrastination tendency, while a score approaching 1 indicates a low procrastination tendency (Özer et al., 2013).

## Statistical Analysis

The statistical analysis of the data collected in this study was conducted using IBM SPSS Statistics version 28.0. The variables were investigated using visual (histograms and probability plots) and analytical methods (Kolmogorov-Smirnov/Shapiro-Wilk's test) to determine whether they were normally distributed.

Pearson Correlation Analysis was performed to determine the linear relationships between the independent variables (Positive AI attitude and Negative AI attitude) and the dependent variables (intrinsic motivation, extrinsic motivation, amotivation and procrastination). In interpreting the strength of the correlation coefficients, Cohen's

(2013) classification was followed: coefficients between 0.10 and 0.29 were considered small, 0.30 to 0.49 as moderate, and 0.50 and above as strong correlations.

Multivariate Analysis of Variance (MANOVA) was applied to determine the general effect of the independent variables on the dependent variables. Since significant general differences were detected in the dependent variables as a result of MANOVA, Single Variable Analysis of Variance (ANOVA) was applied to determine which dependent variables were affected by which independent variables.

Multiple Linear Regression Analysis was performed to determine how much the independent variables explained the variance of the dependent variables ( $R^2$  and Adjusted  $R^2$  calculation), to test the effects of Positive AI and Negative AI on intrinsic motivation, extrinsic motivation and amotivation, and to understand which variable was the stronger predictor even if general differences were detected in MANOVA.

Additional checks were made to determine whether the assumptions for the analyses were met. A multicollinearity test was performed to assess whether the data were suitable for linear regression analysis. In this study, no multicollinearity problem was detected, as all VIF (Variance Inflation Factor) values of the independent variables were below 3, which is considered the recommended threshold in the literature (Zainodin et al., 2015). Specifically, the VIF value for the predictors in the regression model was found to be 1.009, indicating a very low level of multicollinearity. In addition, according to the Durbin-Watson test (DW), no autocorrelation problem was detected, as DW values ranged between 1.776 and 2.251, which is within the acceptable range of 1.5 to 2.5 (Walker, Moraine, & Black, 2021). For statistical significance,  $p < 0.05$  was accepted.

## Findings

A total of 198 university students with a mean age of  $20.19 \pm 1.94$  years participated in the study. Detailed descriptive information of the participants is provided in Table 1.

**Table 1. Sociodemographic characteristics of the participants (n=198).**

|                                                 | Min-Max | Mean $\pm$ SD    |
|-------------------------------------------------|---------|------------------|
| Age                                             | 17-28   | 20.19 $\pm$ 1.94 |
|                                                 | n       | %                |
| <b>Gender</b>                                   |         |                  |
| Female                                          | 141     | 71.2             |
| Male                                            | 57      | 28.8             |
| <b>Class</b>                                    |         |                  |
| 1                                               | 39      | 19.7             |
| 2                                               | 42      | 21.2             |
| 3                                               | 86      | 43.4             |
| 4                                               | 31      | 15.7             |
| <b>Department</b>                               |         |                  |
| Occupational Therapy                            | 73      | 36.9             |
| Physiotherapy and Rehabilitation                | 34      | 17.2             |
| Nursing                                         | 32      | 16.1             |
| Child development                               | 21      | 10.6             |
| Other (engineering, educational sciences, etc.) | 38      | 19.2             |
| <b>Frequency of use of AI-supported tools</b>   |         |                  |
| Rarely (1-2 times a month)                      | 32      | 16.2             |
| Moderately (1-2 times a week)                   | 62      | 31.3             |
| Frequently (3-5 times a week)                   | 56      | 28.3             |
| Very often (Every day)                          | 48      | 24.2             |

Min: minimum; Max: maximum; SD: standard deviation; AI: artificial intelligence

**Table 2. Normality distribution results.**

|                                                              |                                | Shapiro Wilk Test |      | Skewness | Kurtosis |
|--------------------------------------------------------------|--------------------------------|-------------------|------|----------|----------|
|                                                              |                                | W statistic       | p    |          |          |
| <b>General Attitude Scale Toward Artificial Intelligence</b> | Positive                       | 0.88              | 1.82 | -1.09    | 1.176    |
|                                                              | Negative                       | 0.87              | 1.63 | -0.32    | -0.28    |
| <b>Academic Motivation Scale</b>                             | Knowing intrinsic motivation   | 0.82              | 5.15 | -1.41    | 1.39     |
|                                                              | Achieving intrinsic motivation | 0.93              | 1.11 | -1.13    | 1.46     |
|                                                              | Action intrinsic motivation    | 0.95              | 1.95 | -0.92    | 0.87     |
|                                                              | Recognition extrinsic          | 0.76              | 2.44 | -1.41    | 0.17     |
|                                                              | Self-proving extrinsic         | 0.92              | 5.88 | -0.95    | 0.21     |
|                                                              | Regulation extrinsic           | 0.86              | 2.05 | -0.98    | 0.23     |
|                                                              | Amotivation                    | 0.89              | 7.78 | 0.66     | -0.63    |
|                                                              | Intrinsic motivation           | 0.91              | 1.22 | -1.21    | 1.44     |
| <b>Tuckman Procrastination Tendency Scale</b>                | Extrinsic motivation           | 0.92              | 6.05 | -0.67    | 0.19     |
|                                                              | Procrastination                | 0.96              | 0.88 | -0.45    | -0.11    |

("Intrinsic Motivation" dimensions were obtained by summing the Knowing intrinsic motivation, Achieving intrinsic motivation and Action intrinsic motivation sub-dimensions; "Extrinsic Motivation" dimensions were obtained by summing the Recognition extrinsic, Self-proving extrinsic, Regulation extrinsic sub-dimensions.)

Before conducting correlation and regression analyses, the distributional characteristics of the data were examined. The Shapiro-Wilk test was used for each variable due to the sample size (N = 198), as it is considered more reliable for small to

moderate samples (Ghasemi & Zahediasl, 2012). All Shapiro-Wilk p values were greater than 0.05, indicating no significant deviation from normality.

Additionally, skewness and kurtosis values for all variables fell within acceptable thresholds ( $\pm 1.5$  for skewness and  $\pm 2$  for kurtosis), further supporting the assumption of normality (Kim, 2013). Based on these results, the data were considered normally distributed, and parametric analyses were deemed appropriate. Detailed results are presented in Table 2.

According to the Pearson correlation analysis results, Positive AI Attitude showed statistically significant positive relationships with all subdimensions of intrinsic and extrinsic motivation ( $p < 0.05$ ), with correlation coefficients ranging from 0.161 to 0.246. These coefficients indicate weak to moderate relationships (Cohen, 2013).

Negative AI Attitude, on the other hand, had a significant positive relationship only with amotivation ( $r = 0.149$ ,  $p = 0.036$ ), which also reflects a weak correlation. No significant relationship was found between procrastination behavior and either positive or negative AI attitudes ( $p > 0.05$ ) (Table 3).

When the general effect of Positive AI and Negative AI attitudes on dependent variables (Intrinsic Motivation, Extrinsic Motivation, Amotivation) was examined with MANOVA, it was seen that

Positive AI attitude had a generally significant effect on dependent variables ( $p = 0.002$ ), while the general effect of Negative AI attitude on dependent variables was not significant ( $p = 0.112$ ) (Table 4).

variables ( $p = 0.112$ ). This overall finding aligns with the general support for H<sub>1</sub>, H<sub>2</sub>, and H<sub>6</sub>.

In addition, when the effect size is evaluated, the effect size of positive AI attitude on the dependent variables is calculated as medium ( $\eta^2 = 0.071$ ).

**Table 3. Relationships between attitudes toward artificial intelligence and academic motivation and procrastination behaviors.**

|                                               |                                | General Attitude Scale Toward Artificial Intelligence |         |                                           |        |
|-----------------------------------------------|--------------------------------|-------------------------------------------------------|---------|-------------------------------------------|--------|
|                                               |                                | Positive Artificial Intelligence Attitude             |         | Negative Artificial Intelligence Attitude |        |
|                                               |                                | r                                                     | p       | r                                         | p      |
| <b>Academic Motivation Scale</b>              | Knowing intrinsic motivation   | 0.223                                                 | 0.002** | -0.042                                    | 0.558  |
|                                               | Achieving intrinsic motivation | 0.173                                                 | 0.015*  | -0.022                                    | 0.759  |
|                                               | Action intrinsic motivation    | 0.204                                                 | 0.004** | 0.079                                     | 0.268  |
|                                               | Recognition extrinsic          | 0.208                                                 | 0.003** | -0.092                                    | 0.2    |
|                                               | Self-proving extrinsic         | 0.161                                                 | 0.024*  | -0.02                                     | 0.783  |
|                                               | Regulation extrinsic           | 0.22                                                  | 0.002*  | -0.057                                    | 0.424  |
|                                               | Amotivation                    | -0.046                                                | 0.52    | 0.149                                     | 0.036* |
|                                               | Intrinsic motivation           | 0.224                                                 | 0.002** | 0.005                                     | 0.948  |
|                                               | Extrinsic motivation           | 0.246                                                 | 0.001** | -0.066                                    | 0.354  |
| <b>Tuckman Procrastination Tendency Scale</b> | Procrastination                | 0.004                                                 | 0.972   | -0.09                                     | 0.207  |

\* $p < 0.05$ ; \*\* $p < 0.01$ . ("Intrinsic Motivation" dimensions were obtained by summing the Knowing intrinsic motivation, Achieving intrinsic motivation and Action intrinsic motivation sub-dimensions; "Extrinsic Motivation" dimensions were obtained by summing the Recognition extrinsic, Self-proving extrinsic, Regulation extrinsic sub-dimensions.)

**Table 5. Separate Effects of Positive and Negative AI Attitudes on the Independent Variable.**

| Dependent Variable          | Source                | SS      | df | MS      | F     | p       | Partial $\eta^2$ |
|-----------------------------|-----------------------|---------|----|---------|-------|---------|------------------|
| <b>Amotivation</b>          | Positive AI Attitudes | 30.38   | 1  | 30.38   | 0.73  | 0.396   | 0.004            |
|                             | Negative AI Attitudes | 199.11  | 1  | 199.11  | 4.75  | 0.030*  | 0.024            |
| <b>Intrinsic Motivation</b> | Positive AI Attitudes | 1857.69 | 1  | 1857.69 | 10.34 | 0.002** | 0.051            |
|                             | Negative AI Attitudes | 9.87    | 1  | 9.87    | 0.055 | 0.815   | 0.000            |
| <b>Extrinsic Motivation</b> | Positive AI Attitudes | 1607.72 | 1  | 1607.72 | 13.45 | 0.000** | 0.065            |
|                             | Negative AI Attitudes | 201.20  | 1  | 201.20  | 1.68  | 0.196   | 0.009            |

SS: Sum of Squares; df: Degrees of Freedom; MS: Mean Square; Partial  $\eta^2$ : Partial Eta Squared; \* $p < 0.05$ .

Wilks' Lambda value indicates whether the independent variable has a generally significant effect on the dependent variables (Tabachnick et al., 2019). As the Wilks' Lambda value approaches 0, it is understood that the effect of the independent variable is stronger, and as it approaches 1, it is understood that it does not have a significant effect on the dependent variables. Wilks' Lambda value for positive AI attitude is 0.929, which is seen to have a significant effect on the dependent variables ( $p = 0.002$ ).

In contrast, the effect size of negative AI attitude on the dependent variables is small ( $\eta^2 = 0.030$ ), and it is seen that it does not create a significant general effect. In the interpretation of effect size, according to Cohen's classification, 0.01 was evaluated as small, 0.06 as medium, and 0.14 as large (Cohen, 2013). After examining the general effects of Positive AI and Negative AI attitudes on dependent variables with MANOVA, ANOVA was conducted to determine how these effects occurred specifically for each dependent variable.

**Table 4. General Effects of Positive and Negative AI Attitudes on Academic Motivation.**

| Effect                       | Wilks' Lambda | F    | df       | p      | Partial $\eta^2$ |
|------------------------------|---------------|------|----------|--------|------------------|
| <b>Positive AI Attitudes</b> | 0.929         | 4.95 | (3, 193) | 0.002* | 0.071            |
| <b>Negative AI Attitudes</b> | 0.970         | 2.02 | (3, 193) | 0.112  | 0.030            |

AI: Artificial intelligent; df: Degrees of Freedom; Partial  $\eta^2$ : Partial Eta Squared; \* $p < 0.05$ .

Wilks' Lambda value for negative AI attitude is 0.970, which is not significant on the dependent

The results show that Positive AI Attitude has a significant and moderate effect on both intrinsic

motivation ( $p = 0.002$ ,  $\eta^2 = 0.051$ ) and extrinsic motivation ( $p < 0.001$ ,  $\eta^2 = 0.065$ ).

**Table 6. Predictive Effect of AI Attitudes on Academic Motivation and Amotivation.**

| Dependent Variable   | R     | R <sup>2</sup> | Adjusted R <sup>2</sup> | F     | p      | Durbin-Watson |
|----------------------|-------|----------------|-------------------------|-------|--------|---------------|
| Intrinsic Motivation | 0.224 | 0.050          | 0.041                   | 5.170 | 0.006* | 1.874         |
| Extrinsic Motivation | 0.262 | 0.069          | 0.059                   | 7.182 | 0.001* | 1.776         |
| Amotivation          | 0.161 | 0.026          | 0.016                   | 2.587 | 0.078  | 2.251         |

R<sup>2</sup> : Coefficient of Determination; \* $p < 0.05$ .

These findings further support H<sub>1</sub> and H<sub>2</sub>. Negative AI Attitude has no significant effect on intrinsic and extrinsic motivation ( $p > 0.05$ ) but has a statistically significant but small effect on amotivation ( $p = 0.030$ ,  $\eta^2 = 0.024$ ). Thus, H<sub>6</sub> was supported, whereas H<sub>4</sub> and H<sub>5</sub> were not (Table 5).

To examine in more detail which independent variable (Positive AI attitude, Negative AI attitude) affects the dependent variables, an additional Multiple Linear Regression analysis was performed, the regression model was found to be significant and the percentage of independent variables explaining the variance of the dependent variables was calculated.

Regression analyses show that Positive AI attitude has a significant effect on both intrinsic and extrinsic motivation, but Negative AI attitude has a significant effect only on amotivation. It is also seen that AI attitudes can partially explain intrinsic and extrinsic motivation ( $R^2 = 5\%$  and  $6.9\%$ ) (Table 6).

The regression coefficients showing the direct effects of independent variables on dependent variables and their statistical significance are presented in Table 7.

**Table 7. Regression Coefficients of Positive and Negative AI Attitudes on Academic Motivation.**

| Dependent Variable   | Predictor             | B      | SE    | $\beta$ | t      | p       |
|----------------------|-----------------------|--------|-------|---------|--------|---------|
| Intrinsic Motivation | Positive AI Attitudes | 0.467  | 0.145 | 0.225   | 3.215  | 0.002** |
|                      | Negative AI Attitudes | -0.048 | 0.203 | -0.016  | -0.234 | 0.815   |
| Extrinsic Motivation | Positive AI Attitudes | 0.435  | 0.119 | 0.255   | 3.667  | 0.000** |
|                      | Negative AI Attitudes | -0.215 | 0.166 | -0.090  | -1.297 | 0.196   |
| Amotivation          | Positive AI Attitudes | -0.060 | 0.070 | -0.060  | -0.851 | 0.396   |
|                      | Negative AI Attitudes | 0.214  | 0.098 | 0.155   | 2.179  | 0.030*  |

B: Unstandardized Coefficient; SE: Standard Error;  $\beta$ : Standardized Coefficient; \* $p < 0.05$ ; \*\* $p < 0.01$ .

Positive AI attitude significantly increases intrinsic motivation ( $p = 0.002$ ) and extrinsic motivation ( $p = 0.000$ ). However, the effects of negative AI attitude on intrinsic and extrinsic motivation are not significant ( $p > 0.05$ ). Negative AI attitude only

significantly increases amotivation ( $p = 0.030$ ). Regression results support H<sub>1</sub>, H<sub>2</sub>, and H<sub>6</sub>, but H<sub>3</sub>, H<sub>4</sub>,

H<sub>5</sub>, H<sub>7</sub>, and H<sub>8</sub> were not supported.

## Discussion and Conclusion

This study examined the effects of university students' attitudes toward artificial intelligence on academic motivation and procrastination behavior. The findings of the study show that positive AI attitude increases both intrinsic (H<sub>1</sub> supported) and extrinsic academic motivation (H<sub>2</sub> supported), but has no significant relationship with amotivation (H<sub>3</sub> not supported), while negative AI attitude only increases amotivation (H<sub>6</sub> supported). In addition, no significant relationship was found between AI attitudes and procrastination behavior (H<sub>7</sub> and H<sub>8</sub> not supported). These findings offer important results in terms of the impact of how AI technologies are perceived in the context of education on academic processes.

It was observed that there is a positive relationship between university students' positive AI attitude and intrinsic (H<sub>1</sub>) and extrinsic (H<sub>2</sub>) motivation. This finding suggests that positive attitudes toward technology can increase interest in the learning process and support academic processes.

It is seen that individuals who continue the learning process with a sense of personal development and curiosity are more open to innovative technologies such as AI and increase their academic motivation by using these tools. Similarly, it

is understood that individuals with high extrinsic motivation focused on reward or academic success can also benefit from AI-supported learning processes. On the other hand, negative AI attitude has no significant relationship with intrinsic ( $H_4$  not supported) and extrinsic motivation ( $H_5$  not supported), while it has only been found to have a positive relationship with amotivation ( $H_6$  supported). This situation shows that students with negative attitudes toward AI may distance themselves from academic processes.

When the effects of AI attitudes on different variables of motivation were examined, it was found that positive AI attitudes increased both intrinsic and extrinsic academic motivation. While intrinsic motivation refers to an individual's interest in a subject for curiosity, desire to learn, and personal development, extrinsic motivation is more dependent on external factors such as reward, recognition, or social pressure (Deci & Ryan, 2000). While intrinsically motivated individuals perform academic tasks because they find the learning process interesting and satisfying, extrinsically motivated individuals strive for rewards such as academic success, grades, or social recognition (Afzal et al., 2010).

There are limited studies in the literature directly examining the effects of AI attitudes on academic motivation (Bewersdorff et al., 2025; Sáez-Velasco et al. 2025). Bewersdorff et al (2025) found that there is a positive correlation between students' AI attitudes and academic performance levels, Sáez-Velasco et al. (2025) examined the relationship between students' positive AI attitudes and perceived efficiency, creativity and autonomy in design tasks; they stated that positive attitudes positively affect the perception of learning and the level of motivation. Our findings are consistent with previous studies suggesting that students engage more in learning processes when AI is used in educational environments (Acosta-Enriquez et al., 2024; Zawacki-Richter et al., 2019). Zawacki-Richter et al. (2019) stated that AI-based learning environments increase students' academic engagement. Acosta-Enriquez et al (2024) stated that the intrinsic motivation of students who participated in AI-assisted pair programming design increased significantly. This findings suggest that individu-

als with a positive attitude toward artificial intelligence may be more motivated in their learning processes by incorporating these tools into their academic processes.

Lee (2005) has shown that AI tools have the potential to increase academic motivation and improve academic performance in the foreign language learning process. This suggests that a positive attitude toward AI can turn into academic motivation when the individual uses technology-supported learning processes more effectively. In addition, Pertiwi et al. (2024), emphasize the positive effects of AI-supported education systems on student motivation and academic achievement at the primary school level. This study suggests that AI can increase students' intrinsic motivation by creating individualized learning experiences. Although our findings do not directly overlap with this study, they support the idea that individuals who develop a positive attitude toward AI-supported educational environments can increase their motivation.

While the existing literature suggests that the integration of AI tools into learning processes can increase academic motivation (Acosta-Enriquez et al., 2024; Zawacki-Richter et al., 2019), our study shows that this process may be related to the individual's attitudes toward AI. Therefore, to benefit from AI-based education systems at the highest level, it is thought that educational strategies should be developed that encourage students to develop positive attitudes toward these technologies.

In our study, negative AI attitude was found to have no significant effect on intrinsic ( $H_4$  not supported) or extrinsic motivation ( $H_5$  not supported), while it only increased amotivation ( $H_6$  supported). In contrast, positive AI attitude did not significantly predict amotivation ( $H_3$  not supported), suggesting that while favorable views toward AI enhance motivation, they may not be sufficient to reduce students' feelings of amotivation. Amotivation is the state in which an individual does not feel any intrinsic or extrinsic motivation for an activity (Deci & Ryan, 2000). This finding suggests that individuals with a negative attitude toward AI technologies may show less interest in academic processes and may lack motivation. Recent studies have shown that individuals who are

resistant to technological changes experience a decrease in their academic success and motivation (Selwyn, 2019; Yan, 2022; Zhang, 2023). Especially when it comes to transformational technologies such as AI, students developing feelings such as uncertainty, anxiety and resistance may have negative effects on academic processes (Aoun, 2017). This situation reveals that technological literacy and AI awareness should be increased. Students learning how to use AI systems, understanding the contributions of these systems to learning processes and reducing their negative perceptions of AI can increase their academic motivation.

The regression analyses conducted within the scope of the current study also confirmed that positive AI attitudes increase intrinsic ( $H_1$ ) and extrinsic motivation ( $H_2$ ), but the explanation percentages were relatively low. Also the negative AI attitudes significantly predict amotivation ( $H_6$ ). The low explanation percentage shows that academic motivation is a multifactorial process and cannot be explained only by the individual's attitudes toward technology. A positive attitude toward technology can lead the individual to actively use AI tools in the learning process, but this should be evaluated together with other factors in the learning process (Holmes et al., 2019). Positive attitudes toward AI are related to how students use these technologies rather than directly affecting academic motivation. Academic motivation is affected by many variables such as the individual's personal goals, self-efficacy perception, social support, teaching quality, and the quality of the learning environment (Zimmerman, 2002). Therefore, it is an expected result that a positive attitude toward AI increases academic motivation, but it should not be forgotten that it is not the only factor determining this motivation.

According to the regression results, negative AI attitudes did not significantly affect academic motivation. This shows that AI attitudes do not have a strong enough effect to cause individuals to become completely unmotivated. In the literature, it is seen that individuals who show technological anxiety or resistance can sometimes develop alternative learning strategies (Selwyn, 2019). The limited effect of negative AI attitudes on academic

motivation indicates that students may have different sources of motivation even if they have a negative attitude toward technology. Academic amotivation is usually caused by deeper psychological and environmental factors (e.g., depression, low self-efficacy, academic pressure, and inadequate learning environment) (Berestova et al., 2022). Therefore, while positive attitudes toward AI may promote engagement, they may not directly address such deeper-rooted psychological conditions. As Berestova et al. (2022) emphasized, amotivation is more closely linked with emotional and cognitive challenges rather than environmental perceptions like AI attitudes alone. The lack of a significant association in the amotivation model suggests that this variable is influenced by deeper psychological and environmental factors, and cannot be explained solely by students' attitudes toward AI.

In our study, no significant relationship was found between university students' attitudes toward AI and their procrastination behaviors ( $H_7$  and  $H_8$  not supported). This finding suggests that academic procrastination behavior is a multidimensional phenomenon that cannot be explained by a single factor and is affected by individual differences (Steel, 2007). Mukhtar et al. (2025) emphasize that AI addiction increases procrastination behavior and suggests that students who rely too much on AI tools may tend to delay their academic responsibilities. Similarly, Shu and Miao (2021), in a study examining the effect of AI recommendation systems on academic procrastination behavior, found that mobile phone addiction mediates this effect. However, these studies focus on the use of AI tools and do not address the direct effect of students' attitudes toward AI on academic procrastination. At this point, it can be suggested that the effect of AI on procrastination behavior is significantly influenced by individual factors. While some students use AI tools to support the learning process, others may use them as a means of postponing academic tasks. While the conveniences provided by AI may be a factor that improves time management for some students, for others it may become an excuse to delay academic responsibilities. These different usage patterns can make it dif-

difficult to find a direct relationship between AI attitudes and procrastination behavior. Therefore, it can be said that the lack of a relationship between AI attitudes and procrastination behavior is due to individual usage differences.

This finding, which shows no significant relationship, should not be interpreted as AI attitudes have no effect at all. On the contrary, it suggests that the effect is more complex and may be influenced by mediating variables such as time management, academic stress, and self-regulation skills. Previous studies have shown that academic procrastination is closely related not only to technological factors but also to time management skills, academic stress, and motivation (Afzal & Jami, 2018; He, 2017). In particular, individuals with low self-regulation skills may have a higher tendency to procrastinate, while individuals with high academic self-efficacy are more successful in time management (Cao, 2012; Kağan, 2009). At this point, the lack of a direct relationship in this study may indicate that AI attitudes are not sufficient alone to predict procrastination, and personal-regulatory factors should also be considered.

In conclusion, H<sub>1</sub>, H<sub>2</sub>, and H<sub>6</sub> were supported, while H<sub>3</sub>, H<sub>4</sub>, H<sub>5</sub>, H<sub>7</sub>, and H<sub>8</sub> were not supported by the findings. In summary, while these findings on positive AI attitudes align with previous literature showing increased motivation (e.g., Fan et al., 2025; Zawacki-Richter et al., 2019), the lack of a direct relationship with procrastination diverges from studies emphasizing the role of AI dependency (Mukhtar et al., 2025). This suggests that students' attitudes toward AI alone may not predict academic procrastination unless they translate into actual usage patterns. Similarly, the limited explanatory power of regression models highlights that academic motivation is shaped by a multitude of interrelated variables beyond technology perception, such as individual traits and contextual factors. These similarities and differences emphasize the need for more nuanced, multidimensional models in future research.

### Theoretical and Practical Implications

The findings of this study provide significant contributions to both educational theory and practice.

From a theoretical perspective, the study demonstrates that positive attitudes toward AI significantly increase intrinsic and extrinsic academic motivation, while negative attitudes are associated only with higher levels of amotivation. These results suggest that students' perceptions of emerging technologies, such as artificial intelligence, play a critical role in shaping their academic motivation. Therefore, existing models of academic behavior should incorporate students' attitudes toward digital tools and AI technologies to better explain motivational processes in modern educational contexts.

From a practical standpoint, the findings underscore the importance of fostering positive AI attitudes in university settings. The observed positive link between AI attitudes and motivation suggests that students who see AI as a supportive tool may engage more effectively in the learning process. Accordingly, educational institutions should implement programs aimed at enhancing AI literacy, increasing awareness of how AI can be used constructively in academic contexts, and reducing anxiety or resistance toward these technologies. By doing so, they can help students integrate AI into their academic strategies in ways that support both performance and personal growth.

### Limitations and Directions for Future Research

This study contributes to the literature as one of the few empirical investigations into how students' attitudes toward AI relate to academic motivation and procrastination behavior. Despite supporting some of the hypotheses, the regression models showed relatively low explanatory power (Intrinsic Motivation: 5%, Extrinsic Motivation: 6.9%), suggesting that academic motivation is influenced by multiple interrelated variables beyond attitudes toward AI. Thus, a positive perception of technology, while helpful, is insufficient on its own to fully explain academic behaviors.

Additionally, negative AI attitudes did not significantly predict intrinsic or extrinsic motivation, which may be due to the influence of more profound psychological and environmental factors such as low self-efficacy, academic stress, and

mental health challenges. These deeper-rooted issues are beyond the scope of this study, indicating a need for further research into these domains.

Furthermore, while no direct relationship was found between AI attitudes and procrastination, this should not be interpreted as evidence of no effect. Rather, the relationship may be moderated or mediated by factors such as time management, academic stress, and self-regulation. Future research should employ models that include these mediating variables.

The relatively homogeneous sample, comprised primarily of young university students, limits the generalizability of the findings. Prior research suggests that self-regulation and time management skills improve with age (Wäschle et al., 2014), indicating that different age groups may respond differently to AI-based tools. Therefore, future studies should consider more diverse samples, including students from different age groups and educational backgrounds, to better capture the variability in AI attitudes and their impact on academic behaviors.

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## RESEARCH ARTICLE

# Evaluating Supplier Selection Criteria with Interval Pythagorean Fuzzy AHP

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## Abstract

Supplier selection is one of the most critical decisions a business must make today. Especially with the rise of globalization and increasing competition, both the process of selecting suppliers and the criteria considered during selection have gained greater significance. In this context, the purpose of this paper is to determine the importance levels of supplier selection criteria for a furniture manufacturing company. For this purpose, nine criteria—quality, delivery on time, material price, information sharing, after-sales service, lead time, quantity discount, occupational health and safety system, and transportation costs—were evaluated. The Interval-Valued Pythagorean Fuzzy AHP (IVPF-AHP) method was employed to assess the importance levels of these criteria. Based on evaluations from three experts and subsequent calculations, transportation costs emerged as the most critical criterion in supplier selection. This was followed, respectively, by delivery on time, material price, quality, quantity discount, lead time, after-sales service, information sharing, and the occupational health and safety system.

**Keywords:** Interval-Valued Pythagorean Fuzzy AHP, Supplier selection criteria, Furniture sector.

## Öz

Tedarikçi seçimi günümüzde bir işletmenin vermesi gereken en önemli kararlardan birisidir. Özellikle küreselleşme ve rekabetin artması ile birlikte tedarikçi seçimi ve tedarik seçerken göz önünde bulundurulması gereken kriterler daha önemli olmaktadır. Bu doğrultuda bu çalışmanın amacı, mobilya üretici bir işletmenin tedarikçi seçim kriterlerini önem derecesini belirlemektir. Bu amaç doğrultusunda 9 kriter - kalite, zamanında teslimat, malzeme fiyatı, bilgi paylaşımı, satış sonrası hizmet, teslimat süresi, miktar indirimi, iş sağlığı ve güvenliği sistemi ve taşımacılık maliyetleri – değerlendirilmeye alınmıştır. Kriterlerin önem dereceleri belirlenirken Aralık değerli Pisagor bulanık AHP (Interval Valued Pythagorean Fuzzy AHP / IVPF-AHP) yöntemi uygulanmıştır. Üç uzman görüşü alınarak değerlendirilen kriterler ve yapılan hesaplamalara göre tedarikçi seçiminde en önemli kriter taşımacılık maliyetleri olarak belirlenmiştir. Taşımacılık maliyetleri kriterini sırasıyla zamanında teslimat, malzeme fiyatı, kalite, miktar indirimi, teslimat süresi, satış sonrası hizmet, bilgi paylaşımı ve iş sağlığı ve güvenliği sistemi kriterleri takip etmiştir.

**Anahtar Kelimeler:** Aralık değerli Pisagor bulanık AHP, Tedarikçi seçim kriterleri, Mobilya sektörü

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## Introduction

Supplier selection is a highly strategic decision for businesses, as it plays a crucial role in integrating supply chain relationships and ensuring the entire chain operates cohesively, almost as a single enterprise. Choosing the most effective and appropriate supplier is one of the most critical responsibilities of purchasing managers, aimed at enhancing organizational performance across many firms. It is also a key component of production and logistics management (Chang, Chang & Wu, 2011, p.1850; Thiruchelvam & Tookey, 2011, p.438). Academics and industry professionals have noted that in most industries, materials—whether raw, semi-finished, or finished—constitute approximately 60% to 70% of total production costs (Arabsheybani, Paydar & Safaei, 2018, p.577; Ghobadin, Stainer, Liu & Kiss, 1993, p.103). Therefore, working with the right supplier not only helps reduce production costs but also shortens product development cycles, enhances product quality, reduces inventory levels, and significantly improves a company's competitive edge (Çebi & Otay, 2013, p.143).

In an increasingly globalized and competitive business environment, the selection of suppliers has emerged as a strategic function within supply chain management. Supplier selection is no longer a purely operational task focused on cost minimization; instead, it plays a vital role in ensuring supply chain resilience, enhancing product and service quality, promoting innovation, and aligning with corporate sustainability goals. As companies strive to enhance their performance, the strategic importance of collaborating with the right suppliers has grown significantly.

Moreover, recognizing that a well-selected group of suppliers can create a strategic advantage by enabling continuous improvement in customer satisfaction has spurred the pursuit of new and more effective supplier evaluation and selection methods (Pal, Gupta & Park, 2013, p.2667). Supplier selection is inherently a multi-criteria decision-making problem that necessitates the joint evaluation of both quantitative and qualitative factors (Güneri, Yücel & Ayyıldız, 2009, p.9223; Kılıncı & Önal, 2011, p.9656), as strategic and operational elements such as quality, delivery, and flexibility must be considered alongside price.

Accordingly, the purpose of this study is to determine the importance of supplier selection criteria for a manufacturing firm operating in the furniture industry. To achieve this, the Interval Valued Pythagorean Fuzzy Analytic Hierarchy Process (IVPF-AHP) method was employed to calculate the weighting of each criterion. Because, when constructing comparison matrices using Pythagorean Fuzzy Sets (PFS), the evaluation is conducted along two dimensions—membership and non-membership unlike the AHP method which relies on a single dimension—degree of importance—for comparisons (Milošević, Milošević, Stevic & Kovacevic, 2023, p.7). In addition, experts may employ interval numbers instead of crisp values to better capture uncertainty when evaluating criteria in the decision-making process (Ayyıldız & Gümüş, 2021, p.567).

The biggest contribution of this study is one of the first applications focusing on the weighting of supplier selection criteria with the IVPF-AHP method, specific to the furniture sector.

## Literature Review

Supplier selection is one of the principal domains within supply chain management. One of the earliest studies on this subject was conducted by Dickens (1966), who identified 23 criteria for supplier selection based on survey responses from 273 purchasing representatives. The study concluded that quality, delivery, and past performance were the top three most important criteria (Ha & Krishnan, 2008, p.1304).

Weber et al. (1991) reviewed 74 articles published between 1966 and 1990 in the manufacturing and retail sectors, which addressed supplier selection criteria. They found that most of these studies considered the 23 criteria originally defined by Dickens. Furthermore, they identified net price, delivery, and quality as the three most critical selection factors.

Akyüz et al. (2020) employed the Analytic Hierarchy Process (AHP) to determine the most suitable supplier for a company in the furniture industry. The study assessed five main criteria—quality, price, delivery, flexibility, and service—and 24 sub-criteria. Among these, quality, price, delivery,

flexibility, and service were ranked as the most significant main criteria, respectively.

Tekez and Bark (2016) applied the fuzzy TOPSIS method to solve the supplier selection problem of a furniture company based in Sakarya. Six of the 23 criteria from Dickens' study were adopted in their evaluation: production equipment capacity, cost advantage, quality, performance, on-time delivery, and geographical location.

A review of the literature reveals that while Dickens' 23 criteria are frequently referenced in supplier selection, not all are utilized. The selection criteria often vary and are narrowed down depending on the industry, the type of enterprise, and consultations with decision-makers or experts.

Ali et al. (2023) aimed to establish a general framework for supplier selection criteria applicable across various businesses. They scanned databases such as Web of Science, Google Scholar, and Scopus, analyzing relevant studies using the PRISMA methodology. From this, they identified 30 key criteria and used a random forest classifier and feature selection algorithm to determine the nine most critical ones: quality, delivery on-time, material cost, information sharing, after-sales service, delivery time, volume discount, occupational health and safety system, and transportation cost. These nine criteria were adopted in this study.

Prioritizing supplier selection criteria constitutes a multi-criteria decision-making (MCDM) problem (Güneri, Yücel & Ayyıldız, 2009, p.9223; Kılınçcı & Önal, 2011, p.9656).

Various methods have been employed in the literature for this purpose, including AHP, ANP, Fuzzy AHP, ANN, DEA, Integer Programming, Genetic Algorithms, and its combinations (Sultana et al., 2016, s.56). Tursun & Özkoç (2022) conducted a bibliometric analysis of studies using MCDM techniques for supplier selection between 2000 and 2020. According to their findings, the most frequently used methods are AHP (Zolfani et al., 2012; Supçiller & Çapraz, 2011; Perçin, 2006), Fuzzy AHP (Chan, et al., 2008; Chen et al., 2016; Laosirihongthong et al., 2019; Kahraman et al., 2003), Fuzzy TOPSIS (Petrovic et al., 2019), VIKOR (Demir et al., 2018), and PROMETHEE (Dağdeviren & Eraslan, 2008).

In a pioneering study, Erdebilli et al. (2023) combined the AHP and COPRAS methods with interval-valued Pythagorean fuzzy (IPF) logic. They identified four criteria for supplier selection and used the IPF-AHP method to determine their importance rankings: quality, delivery time, service performance, and cost.

Yalçın (2024) utilized the IPF-AHP method to identify key criteria for companies using 3D printers in their supplier selection processes. Based on literature review and expert opinion, the study evaluated five main and eighteen sub-criteria, concluding that quality is the most critical main criterion, followed by technical service, cost, accessibility to technology, and logistical support.

The literature review indicates that no prior studies have applied the interval-valued Pythagorean fuzzy AHP method to determine the importance of supplier selection criteria specifically for furniture manufacturing firms.

**Table 1. Supplier Selection Criteria**

| Criteria                                      | Definition of Criteria                                                                                                                                                                                                                                                     |
|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Quality (Q)                                   | It is the supplier's ability to consistently meet quality attributes—including material, dimensions, design, durability—product variety, manufacturing quality such as production lines, techniques, and machinery, as well as quality systems and continuous improvement. |
| Delivery On-Time (DOT)                        | It refers to the supplier's ability to fulfill specified delivery schedules, including delivery time, on-time performance, fill rate, return management, location, transportation, and incoterms.                                                                          |
| Material Cost (MC)                            | It encompasses unit price, pricing conditions, exchange rates, taxes, and discounts.                                                                                                                                                                                       |
| Information Sharing (IS)                      | It is the disclosure of all essential information about the company to stakeholders.                                                                                                                                                                                       |
| Service After Sales (SAS)                     | It is the supplier's capability to restore damaged, defective, or worn items to a good condition.                                                                                                                                                                          |
| Delivery Time (DT)                            | It is the duration between placing an order and receiving the products.                                                                                                                                                                                                    |
| Quantity Discount (QD)                        | It is the price reduction granted based on the quantity of products purchased.                                                                                                                                                                                             |
| Occupational Health and Safety Systems (OHSS) | It involves the implementation of measures aimed at protecting employees' health and lives.                                                                                                                                                                                |
| Transportation Costs (TC)                     | It refers to the cost incurred in transporting goods.                                                                                                                                                                                                                      |

Source: Ali, M. R., Nipu, S. M. A., & Khan, S. A. (2023). A decision support system for classifying supplier selection criteria using machine learning and random forest approach. *Decision Analytics Journal*, 7, 100238.

Similarly, the method's general use in supplier selection studies remains limited, highlighting the significance of this research.

## Material and Methods

In this research, interval-valued Pythagorean fuzzy AHP method was implemented to prioritize the importance of supplier selection criteria for a furniture manufacturing firm. According to the literature review, nine criteria identified by Ali et al. (2023)—quality, delivery on time, material cost, information sharing, after-sales service, delivery time, quantity discount, occupational health and safety systems, and transportation costs—were adopted for the study. Criteria and definition of criteria were represented in Table 1.

These criteria were evaluated by production manager, purchasing manager and quality control manager.

## Pythagorean Fuzzy Set

Decision making problems generally base on opinions, intuitions and experiences of decision makers. This situation leads to uncertainty and impreciseness with decision taken. Pythagorean Fuzzy Set including Intuitionistic Fuzzy Set was developed by Yager (2013) in order to better represent to uncertain, suspicious and indefinite environments (Erdoğan, Onay & Karamaşa, 2019, p.340; Gürsoy, 2024, p.809).

**Definition 1.** A Pythagorean Fuzzy Set  $P$  as shown in Equation 1.

$$A = \{ \langle x[\mu_{A_L}(x), \mu_{A_U}(x)], [\nu_{A_L}(x), \nu_{A_U}(x)] \rangle ; x \in X \} \quad (1)$$

$\mu_P(x) : X \mapsto [0,1]$  and  $\nu_P(x) : X \mapsto [0,1]$   $x \in X$  in  $\tilde{P}$  expresses the degree of membership and non-membership in the set. Equation (2) shows that the sum of the squares of the degrees of membership and non-membership cannot be greater than 1.

$$0 \leq \mu_{A_L}(x), \mu_{A_U}(x), \nu_{A_L}(x), \nu_{A_U}(x) \leq 1, \quad \text{and} \\ (\mu_{A_L}(x))^2 + (\nu_{A_L}(x))^2 \leq 1, \quad x \in X \quad (2)$$

The hesitation interval formula of Pythagorean fuzzy sets with respect to  $A$  is as in Equation (3):

$$\pi_A(x) = [\pi_{A_L}(x), \pi_{A_U}(x)] = \left[ \sqrt{1 - (\mu_{A_U}(x))^2 - (\nu_{A_U}(x))^2}, \sqrt{1 - (\mu_{A_L}(x))^2 - (\nu_{A_L}(x))^2} \right] \quad (3)$$

If all  $x \in X$ ,  $\mu_A(x) = \mu_{A_L}(x) = \mu_{A_U}(x)$  and  $\nu_A(x) = \nu_{A_L}(x) = \nu_{A_U}(x)$  then the interval-valued Pythagorean fuzzy set becomes a Pythagorean fuzzy set. For interval-valued Pythagorean fuzzy set  $\langle [\mu_{A_L}(x), \mu_{A_U}(x)], [\nu_{A_L}(x), \nu_{A_U}(x)] \rangle$  is expressed as interval-valued Pythagorean fuzzy number. The score function for the interval-valued Pythagorean fuzzy number  $\alpha = [a, b], [c, d]$  is defined as in Equation (4).

$$S(\alpha) = \frac{a^2 + b^2 - c^2 - d^2}{2} \quad (4)$$

where  $(\alpha) \in [-1,1]$ . It is known that this function may not always be successful when ranking IVPF numbers (Ayyıldız vd., 2021; Kavus vd., 2023). For this reason, as in Equation (5) the accuracy function is proposed (Garg, 2017):

$$H(\alpha) = \frac{a^2 + b^2 + c^2 + d^2}{2} \quad (5)$$

## Interval Valued Pythagorean Fuzzy AHP (IVPF-AHP)

The analytical hierarchy process approach is a multi-criteria decision-making method that allows both objective and subjective criteria to be evaluated together. The method consists of five steps: (1) defining the problem, (2) creating the hierarchical structure, (3) creating the pairwise comparison matrix, (4) performing priority analyses, and (5) verifying consistency (Temiz & Cingöz, 2015, p.537).

The steps of Interval Valued Pythagorean Fuzzy AHP is as followed (İlkbahar et al., 2018, s.127; Bhat et al., 2021, p.43; Akhtar et al., 2022, p. 470-471; Erdebilli et al., 2023, p.124):

**Step 1:** Pairwise comparison matrices are created in accordance with the linguistic terms (İlkbahar et al., 2018, p.127).

**Table 2. Weighting Scale for Interval Valued Pythagorean Fuzzy Numbers**

| Linguistic terms       | $\mu_L$ | $\mu_U$ | $\nu_L$ | $\nu_U$ | Saaty |
|------------------------|---------|---------|---------|---------|-------|
| Absolutely Low (AL)    | 0.00    | 0.00    | 0.90    | 1.00    | 1/9   |
| Very Low (VL)          | 0.10    | 0.2     | 0.8     | 0.9     | 1/7   |
| Low (L)                | 0.20    | 0.35    | 0.65    | 0.8     | 1/5   |
| Medium Low (ML)        | 0.35    | 0.45    | 0.55    | 0.65    | 1/3   |
| Equal (E)              | 0.45    | 0.55    | 0.45    | 0.55    | 1     |
| Medium High (MH)       | 0.55    | 0.65    | 0.35    | 0.45    | 3     |
| High (H)               | 0.65    | 0.80    | 0.20    | 0.35    | 5     |
| Very High (VH)         | 0.80    | 0.90    | 0.10    | 0.20    | 7     |
| Absolutely Highly (AH) | 0.90    | 1.00    | 0.00    | 0.00    | 9     |

**Step 2:** The consistency of each matrix is calculated. If the consistency ratio is greater than 0.1, the matrix is inconsistent, if it is less than 0.1, the matrix is consistent and we proceed to Step 3. While calculating the consistency, it is calculated using the net values developed by Saaty and the consistency formulation developed by Saaty (Saaty, 2004).

**Step 3:** The matrix  $D = (d_{ij})_{m \times m}$  is constructed with lower and upper bounds for membership and non-membership degrees. Equation (6) and Equation (7) are used when creating a matrix.

$$d_{ijL} = \mu_{ijL}^2 - \nu_{ijU}^2 \quad (6)$$

$$d_{ijU} = \mu_{ijU}^2 - \nu_{ijL}^2 \quad (7)$$

**Step 4:** Calculate the multiplicative matrix  $S = (s_{ij})_{m \times m}$  by Equations (8) and (9).

$$s_{ijL} = \sqrt{1000^{d_{ijL}}} \quad (8)$$

$$s_{ijU} = \sqrt{1000^{d_{ijU}}} \quad (9)$$

**Step 5:** Calculate the hesitancy values  $H = (h_{ij})_{m \times m}$  using Equation 10.

$$h_{ij} = 1 - (\mu_{ijU}^2 - \mu_{ijL}^2) - (\nu_{ijU}^2 - \nu_{ijL}^2) \quad (10)$$

**Step 6:** Using Equation (11) determine the un-normalized weights  $T = (t_{ij})_{m \times m}$

$$t_{ij} = \left( \frac{s_{ijL} + s_{ijU}}{2} \right) h_{ij} \quad (11)$$

**Step 7:** Determine the criterion weight using Equation (12) for each criterion.

$$w_i = \frac{\sum_{i=1}^m t_{ij}}{\sum_{i=1}^m \sum_{j=1}^m t_{ij}} \quad (12)$$

## Findings

In the study, to ensure the reliability and representativeness of the evaluation, three expert opinions were consulted. The verbal statements of the experts were created according to the criteria comparison scale in Table 2. Accordingly, the pairwise comparison matrices from Experts 1–3 are presented in Tables 3–5.

**Table 3. Pairwise Comparisons Matrix created by Expert 1**

|      | Q  | DOT | MC | IS | SAS | DT | QD | OHSS | TC |
|------|----|-----|----|----|-----|----|----|------|----|
| Q    | E  | E   | MH | MH | H   | MH | MH | H    | E  |
| DOT  | E  | E   | MH | MH | H   | MH | MH | H    | E  |
| MC   | ML | ML  | E  | E  | MH  | MH | MH | MH   | ML |
| IS   | ML | ML  | E  | E  | MH  | E  | E  | MH   | ML |
| SAS  | L  | L   | ML | ML | E   | MH | MH | H    | L  |
| DT   | ML | ML  | ML | E  | ML  | E  | E  | MH   | ML |
| QD   | ML | ML  | ML | E  | ML  | E  | E  | MH   | ML |
| OHSS | L  | L   | ML | ML | L   | ML | ML | E    | L  |
| TC   | E  | E   | MH | MH | H   | MH | MH | H    | E  |

**Table 4. Pairwise Comparisons Matrix created by Expert 2**

|      | Q  | DOT | MC | IS | SAS | DT | QD | OHSS | TC |
|------|----|-----|----|----|-----|----|----|------|----|
| Q    | E  | ML  | L  | MH | H   | ML | ML | H    | VL |
| DOT  | MH | E   | MH | H  | MH  | MH | E  | VH   | ML |
| MC   | H  | ML  | E  | VH | MH  | MH | E  | VH   | ML |
| IS   | ML | L   | VL | E  | MH  | ML | L  | MH   | VL |
| SAS  | L  | ML  | ML | ML | E   | ML | ML | E    | L  |
| DT   | MH | ML  | ML | MH | MH  | E  | E  | H    | ML |
| QD   | MH | E   | E  | H  | MH  | E  | E  | H    | L  |
| OHSS | L  | VL  | VL | ML | E   | L  | L  | E    | VL |
| TC   | VH | MH  | MH | VH | H   | MH | H  | VH   | E  |

**Table 5. Pairwise Comparisons Matrix created by Expert 3**

|      | Q  | DOT | MC | IS | SAS | DT | QD | OHSS | TC |
|------|----|-----|----|----|-----|----|----|------|----|
| Q    | E  | MH  | MH | MH | E   | MH | MH | MH   | ML |
| DOT  | ML | E   | ML | MH | ML  | E  | ML | MH   | ML |
| MC   | ML | MH  | E  | MH | ML  | MH | E  | MH   | ML |
| IS   | ML | ML  | ML | E  | ML  | ML | ML | MH   | ML |
| SAS  | E  | MH  | MH | MH | E   | MH | MH | MH   | ML |
| DT   | ML | E   | ML | MH | ML  | E  | ML | MH   | ML |
| QD   | ML | MH  | E  | MH | ML  | MH | E  | H    | ML |
| OHSS | ML | ML  | ML | ML | ML  | ML | L  | E    | VL |
| TC   | MH | MH  | MH | MH | MH  | MH | MH | VH   | E  |

Initially, the consistency of expert opinions was assessed. During consistency calculations, the steps of the Analytic Hierarchy Process were followed. The consistency ratios for pairwise comparison matrices provided by the three experts were 0.0716, 0.0937, and 0.0771, respectively, indicating that the judgments were consistent.

The Interval Valued Pythagorean Fuzzy Numbers Weighted Geometric Operator (IVPFWG) (Rahman et al., 2017, p.7) was used to combine the pairwise comparison matrices created by the experts.

The difference matrix was created as in Table 6 in line with the process steps.

The weights of the criteria calculated according

Table 6. Differences Matrix

|      | Q              | DOT            | MC             | IS             | SAS            | DT             | QD             | OHSS          | TC             |
|------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|---------------|----------------|
| Q    | [-0.10, 0.10]  | [-0.10, 0.10]  | [-0.14, 0.09]  | [0.10, 0.30]   | [0.17, 0.43]   | [-0.03, 0.17]  | [-0.03, 0.17]  | [0.23, 0.50]  | [-0.41, -0.20] |
| DOT  | [-0.10, 0.10]  | [-0.10, 0.10]  | [-0.03, 0.17]  | [0.17, 0.40]   | [0.03, 0.27]   | [0.03, 0.27]   | [-0.10, 0.10]  | [0.33, 0.57]  | [-0.23, -0.03] |
| MC   | [-0.09, 0.14]  | [-0.17, 0.03]  | [-0.10, 0.10]  | [0.20, 0.41]   | [-0.03, 0.17]  | [0.10, 0.30]   | [-0.03, 0.17]  | [0.27, 0.47]  | [-0.30, -0.10] |
| IS   | [-0.30, -0.10] | [-0.40, -0.17] | [-0.41, -0.20] | [-0.10, 0.10]  | [-0.03, 0.17]  | [-0.23, -0.03] | [-0.33, -0.10] | [0.10, 0.30]  | [-0.47, -0.27] |
| SAS  | [-0.43, -0.17] | [-0.27, -0.03] | [-0.17, 0.03]  | [-0.17, 0.03]  | [-0.10, 0.10]  | [-0.03, 0.17]  | [-0.03, 0.17]  | [0.10, 0.33]  | [-0.50, -0.23] |
| DT   | [-0.17, 0.03]  | [-0.23, -0.03] | [-0.30, -0.10] | [0.03, 0.23]   | [-0.17, 0.03]  | [-0.10, 0.10]  | [-0.17, 0.03]  | [0.17, 0.40]  | [-0.30, -0.10] |
| QD   | [-0.17, 0.03]  | [-0.10, 0.10]  | [-0.17, 0.03]  | [0.10, 0.33]   | [-0.17, 0.03]  | [-0.03, 0.17]  | [-0.10, 0.10]  | [0.23, 0.50]  | [-0.40, -0.17] |
| OHSS | [-0.50, -0.23] | [-0.42, -0.19] | [-0.47, -0.27] | [-0.30, -0.10] | [-0.50, -0.23] | [-0.40, -0.17] | [-0.50, -0.23] | [-0.10, 0.10] | [-0.73, -0.50] |
| TC   | [0.20, 0.41]   | [0.03, 0.23]   | [0.10, 0.30]   | [0.27, 0.47]   | [0.23, 0.50]   | [0.10, 0.30]   | [0.17, 0.40]   | [0.50, 0.73]  | [-0.10, 0.10]  |

to Equation (12) are shown in Figure 1.

The multiplicative matrix was created as in Table 7.

Table 7. Multiplicative Matrix

|      | Q            | DOT          | MC           | IS           | SAS          | DT           | QD           | OHSS          | TC           |
|------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------------|--------------|
| Q    | [0.71, 1.41] | [0.71, 1.41] | [0.61, 1.39] | [1.41, 2.82] | [1.77, 4.41] | [0.89, 1.77] | [0.89, 1.77] | [2.24, 5.61]  | [0.25, 0.56] |
| DOT  | [0.71, 1.41] | [0.71, 1.41] | [0.89, 1.77] | [1.78, 3.99] | [1.11, 2.50] | [1.12, 2.24] | [0.71, 1.41] | [3.17, 7.07]  | [0.45, 0.89] |
| MC   | [0.72, 1.64] | [0.57, 1.13] | [0.71, 1.41] | [2.03, 4.07] | [0.89, 1.77] | [1.41, 2.82] | [0.89, 1.77] | [2.54, 5.10]  | [0.35, 0.71] |
| IS   | [0.35, 0.71] | [0.25, 0.56] | [0.25, 0.49] | [0.71, 1.41] | [0.89, 1.77] | [0.45, 0.89] | [0.32, 0.71] | [1.41, 2.82]  | [0.20, 0.39] |
| SAS  | [0.23, 0.57] | [0.40, 0.90] | [0.57, 1.13] | [0.57, 1.13] | [0.71, 1.41] | [0.89, 1.77] | [0.89, 1.77] | [1.41, 2.82]  | [0.18, 0.45] |
| DT   | [0.57, 1.13] | [0.45, 0.89] | [0.35, 0.71] | [1.12, 2.24] | [0.57, 1.13] | [0.71, 1.41] | [0.56, 1.12] | [1.78, 3.99]  | [0.35, 0.71] |
| QD   | [0.57, 1.13] | [0.71, 1.41] | [0.56, 1.12] | [1.41, 2.82] | [0.57, 1.13] | [0.89, 1.78] | [0.71, 1.41] | [2.24, 5.61]  | [0.25, 0.56] |
| OHSS | [0.18, 0.45] | [0.23, 0.51] | [0.20, 0.39] | [0.35, 0.71] | [0.18, 0.45] | [0.25, 0.56] | [0.18, 0.45] | [0.71, 1.41]  | [0.08, 0.18] |
| TC   | [2.03, 4.07] | [1.12, 2.24] | [1.41, 2.82] | [2.54, 5.10] | [2.24, 5.61] | [1.41, 2.82] | [1.78, 3.99] | [5.61, 12.57] | [0.71, 1.41] |

The degrees of hesitation were calculated using Equation (10). The degrees of hesitation are as shown in Table 8.

Table 8. Degrees of Hesitation

|      | Q    | DOT  | MC   | IS   | SAS  | DT   | QD   | OHSS | TC   |
|------|------|------|------|------|------|------|------|------|------|
| Q    | 1.05 | 0.8  | 0.76 | 0.8  | 0.74 | 0.8  | 0.8  | 0.73 | 0.8  |
| DOT  | 1.05 | 0.8  | 0.8  | 0.77 | 0.77 | 0.8  | 0.8  | 0.77 | 0.8  |
| MC   | 1.00 | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  |
| IS   | 1.05 | 0.77 | 0.8  | 0.8  | 0.8  | 0.8  | 0.77 | 0.8  | 0.8  |
| SAS  | 0.98 | 0.77 | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.77 | 0.73 |
| DT   | 1.05 | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.8  | 0.77 | 0.8  |
| QD   | 1.05 | 0.8  | 0.8  | 0.77 | 0.8  | 0.8  | 0.8  | 0.73 | 0.77 |
| OHSS | 0.97 | 0.77 | 0.8  | 0.8  | 0.73 | 0.77 | 0.73 | 0.8  | 0.77 |
| TC   | 0.99 | 0.8  | 0.8  | 0.8  | 0.73 | 0.8  | 0.77 | 0.77 | 0.8  |

The unnormalized weights calculated using Equation (11) are shown in Table 9.

Table 9. Unnormalized Weights Matrix

|      | Q    | DOT  | MC   | IS   | SAS  | DT   | QD   | OHSS | TC   |
|------|------|------|------|------|------|------|------|------|------|
| Q    | 1.11 | 0.85 | 0.76 | 1.69 | 2.27 | 1.06 | 1.06 | 2.88 | 0.29 |
| DOT  | 1.11 | 0.85 | 1.06 | 2.21 | 1.38 | 1.34 | 0.85 | 3.93 | 0.54 |
| MC   | 1.18 | 0.68 | 0.85 | 2.44 | 1.06 | 1.69 | 1.07 | 3.05 | 0.43 |
| IS   | 0.56 | 0.31 | 0.29 | 0.85 | 1.06 | 0.54 | 0.39 | 1.69 | 0.24 |
| SAS  | 0.39 | 0.50 | 0.68 | 0.68 | 0.85 | 1.06 | 1.06 | 1.76 | 0.23 |
| DT   | 0.89 | 0.54 | 0.43 | 1.34 | 0.68 | 0.85 | 0.67 | 2.21 | 0.43 |
| QD   | 0.89 | 0.85 | 0.67 | 1.76 | 0.68 | 1.07 | 0.85 | 2.88 | 0.31 |
| OHSS | 0.30 | 0.29 | 0.24 | 0.43 | 0.23 | 0.31 | 0.23 | 0.85 | 0.10 |
| TC   | 3.01 | 1.34 | 1.69 | 3.05 | 2.88 | 1.69 | 2.21 | 6.97 | 0.85 |

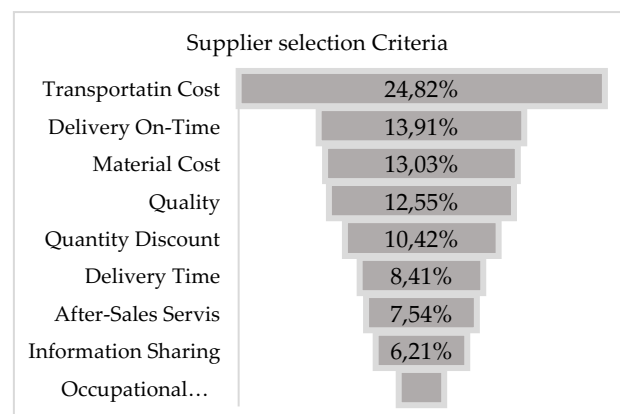


Figure 1. Supplier Selection Criteria Importance Weight

According to the Figure 1, for the furniture manufacturer, transportation costs emerged as the most important criterion in supplier selection (24.82%). This was followed by delivery on-time (13.91%), material cost (13.03%), quality (12.55%), quantity discount (10.42%), delivery time (8.41%), after-sales service (7.54%), information sharing (6.21%), and occupational health and safety systems (3.11%).

## Conclusion

Today, globalization, sustainability, and technological advancements have led to a shift in human needs. Consequently, in order to enhance their competitiveness, businesses must meet customer demands anytime, in any form, and at any location the customer desires. This is one of the fundamental functions of the supply chain.

However, to produce the desired product at the expected or familiar level of quality, it is essential to select the right suppliers and establish long-term relationships with them. At this point, supplier selection criteria become critically important.

For this purpose, in the present study, the Interval-Valued Pythagorean Fuzzy AHP method was employed to determine the supplier selection criteria of a furniture manufacturing company operating in the city of Kayseri. Based on a literature review, nine criteria identified by Ali et al. (2023)—quality, delivery on time, material cost, information sharing, after-sales service, delivery time, quantity discount, occupational health and safety systems, and transportation costs—were adopted for the study.

For the furniture manufacturer in this study, transportation costs emerged as the most important criterion in supplier selection (24.82%). This was followed by delivery on-time (13.91%), material cost (13.03%), quality (12.55%), quantity discount (10.42%), delivery time (8.41%), after-sales service (7.54%), information sharing (6.21%), and occupational health and safety systems (3.11%).

In contrast, the results of Ali et al. (2023) identified quality as the most important criterion, fol-

lowed by delivery on-time, material cost, information sharing, after-sales service, delivery time, quantity discount, occupational health and safety systems, and transportation costs. Comparing the two studies, the shift of transportation costs from the least important to the most critical criterion warrants attention. This change can primarily be attributed to the ongoing conflict between Russia and Ukraine. Since the war began in February 2024, fuel prices have surged—from an average of 14.52 ₺ to 45.12 ₺ per liter—directly inflating transportation costs. In this context, the distance between supplier and manufacturer directly effects on transportation costs. Transportation costs increase based on variables such as the weight, volume, and hazardous nature of the product, which it is transported. The raw materials used in the furniture industry are supplied to businesses in the form of materials such as lumber, veneer, plywood, particleboard, and fiberboard (Yurdakul, Çolak & Çetin, 2013, p.221). Consequently, the importance of transportation costs in supplier selection has significantly increased. In particular, due to the substantial weight of lumber and it is purchase large quantities, transportation costs tend to increase significantly during shipment. Notably, the subsequent rankings of delivery on-time and material cost remain consistent with those reported by Ali et al. (2023).

It is thought that this study will be a guide for furniture manufacturers in selecting suppliers. However, this study is not without limitations. It was conducted within a single furniture manufacturing firm, and criterion weightings may vary across different industries. For future research, applying the same methodology to another company within the same sector could allow for broader generalizations regarding the validity of the findings. Moreover, applying alternative heuristic decision-making methods to the same set of criteria could enhance the robustness of comparative results.

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## RESEARCH ARTICLE

# From Belongingness to Phubbing Behavior among Adults: The Serial Multiple Mediation Role of Leisure Boredom and Smartphone Use

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## Abstract

Although smartphones can make life easier, their excessive and uncontrolled use can lead to negative behavioural patterns. One such pattern is 'phubbing'. It is important to identify the antecedents of phubbing in order to develop effective preventive interventions. This study examined the serial multiple mediating effects of leisure boredom and smartphone use on the relationship between general belongingness and phubbing among adults. A correlational survey design was employed to collect data from 305 adults aged 18–60 years using the Personal Information Form, the General Phubbing Scale, the General Belongingness Scale, and the Leisure Boredom Scale. The proposed serial multiple mediation model was tested using a regression-based bootstrapping technique via Hayes' PROCESS Macro (model 6). The findings revealed that leisure boredom and smartphone use significantly mediated the link between general belongingness and phubbing. As general belongingness decreased, leisure boredom increased, which in turn, led to greater smartphone use and subsequently higher levels of phubbing behaviour in adult sample. Contributions to future research and implications for potential interventions to reduce phubbing were discussed, along with suggestions for researchers and practitioners.

**Keywords:** Phubbing, general belongingness, leisure boredom, smartphone use, adults

## Öz

Akıllı telefonlar yaşamı kolaylaştırmalarına rağmen aşırı ve kontrolsüz kullanım sonucu olumsuz davranış kalıplarına neden olabilmektedir. Bu davranış kalıplarından biri de sosyotelizmdir. Sosyotelizmin öncüllerinin belirlenmesi önleyici müdahaleler açısından önem taşımaktadır. Bu araştırmanın amacı, yetişkinlerde genel aidiyet duygusunun sosyotelizm ile ilişkisinde boş zaman can sıkıntısı ve akıllı telefon kullanımının sıralı çoklu aracılık rolünü sınamaktır. İlişkisel tarama modelinde yürütülen araştırmanın örneklemi 18-60 yaş arası 305 yetişkinden oluşmaktadır. Veriler Kişisel Bilgi Formu, Genel Sosyotelizm Ölçeği, Genel Aidiyet Ölçeği ve Boş Zaman Can Sıkıntısı Ölçeği kullanılarak toplanmıştır. Önerilen sıralı çoklu aracılık modeli Hayes'in PROCESS Macro programı (model 6) aracılığıyla regresyon temelli bootstrapping tekniği ile sınanmıştır. Bulgular, boş zaman can sıkıntısı ve akıllı telefon kullanımının genel aidiyet duygusu ve sosyotelizm arasındaki ilişkide sıralı çoklu aracılık rolünün olduğunu göstermektedir. Bu bulgu, yetişkinlerde genel aidiyet duygusu azaldıkça boş zaman can sıkıntısının arttığını, bunun da akıllı telefon kullanımına daha fazla odaklanmaya yol açarak sosyotelizm davranışını artırdığını göstermektedir. Araştırmadan elde edilen bulgular ileride yapılacak araştırmalara katkısı ve sosyotelizmin azaltılmasına yönelik müdahalelere ilişkin doğrularını açısından değerlendirilerek araştırmacılara ve uygulamacılara yönelik bazı öneriler getirilmiştir.

**Anahtar Kelimeler:** Sosyotelizm, genel aidiyet duygusu, boş zaman can sıkıntısı, akıllı telefon kullanımı, yetişkinler

## Introduction

Technological advancements have rapidly transformed communication tools, making smartphones an indispensable part of daily life. According to Dataportal's February 2025 report, 87% of the 5.78 billion mobile users worldwide own a smartphone, and this number is projected to reach 6.38 billion by 2029. The average daily use is 4 hours 37 minutes globally, with Turkey ranking 18th at 4 hours 7 minutes (Kepios, 2025). Statista reports that smartphones are most commonly used for gaming (94%), social media (92%), and entertainment (83%), particularly among individuals aged 18 to 49 (Kumar, 2025). These statistics highlight the widespread nature of smartphone usage in Turkey and around the world. However, excessive and unconscious smartphone use can lead to psychological and social problems, including addiction and problematic behaviors (Bulut & Nazir, 2020; Larsen et al., 2023). One of the most notable behaviours in this context is '*phubbing*'.

Phubbing is defined as the act of focusing attention on a smartphone during face-to-face interaction, thereby ignoring the other person and interrupting the communication process (Chotpitayasunondh & Douglas, 2016; Karadağ et al., 2015). This behavioral pattern is thought to involve addiction to smartphones, the internet, social media, and games, as well as the problematic use of these technologies (Karadağ et al., 2015; Yam & İlhan, 2020). Individuals who display phubbing behavior (phubbers) are often preoccupied with social media, games, or similar applications, neglecting the person they are interacting with. In contrast, those exposed to this behavior (phubbees) frequently experience feelings of exclusion (Karadağ et al., 2016; Roberts & David, 2016; Yam & İlhan, 2020). Phubbing is recognized as a widespread social issue that harms interpersonal communication and negatively impacts psychological well-being (Çizmeçi, 2017; Chotpitayasunondh & Douglas, 2018b; David & Roberts, 2021a; Mir, 2020; Karadağ et al., 2015). Research shows that phubbing is a risk factor for psychological problems such as depression, anxiety, and stress (Ergün et al., 2019; Nagarajappa et al., 2020; Parmaksız, 2021) and is more prevalent

among individuals who are introverted, lonely, or dependent on technology (Bakır & Dilmaç, 2023). In addition, social isolation (Błachnio & Przepiorka, 2019; Chotpitayasunondh & Douglas, 2018a; David & Roberts, 2021b) and feelings of loneliness (Aydoğdu & Çevik, 2020; David & Roberts, 2017) are frequently reported psychological consequences of phubbing.

Understanding the antecedents of phubbing is as important as its consequences. Literature identifies smartphone and internet addiction (Davey et al., 2018; Błachnio et al., 2016), frequent social media use (Balta et al., 2020; Guazzini et al., 2021), and loneliness (Ivanova et al., 2020) as meaningful predictors of phubbing. Furthermore, unmet basic psychosocial needs (e.g. Butt & Arshad, 2021; Karaman & Arslan, 2024; Shen et al., 2024) have also been considered as contributing factors to phubbing. Belonging is one such basic psychosocial need. Depending on the context (e.g. romantic relationships, family or the work environment), phubbing can undermine this sense of belonging leading to decreased relationship satisfaction (Chotpitayasunondh & Douglas, 2018b; Roberts & David, 2016), increased problematic internet use (Geng et al., 2021) and diminished employees' sense of work meaningfulness (Khan et al., 2022). Conversely, a weak sense of belonging may trigger phubbing (Chotpitayasunondh & Douglas, 2016). Nevertheless, a review of the literature reveals that the influence of belonging on phubbing has not been sufficiently or thoroughly explored. Research mostly focuses on victims of phubbing (e.g., Chotpitayasunondh & Douglas, 2018a; Geng et al., 2021), with fewer studies on how general belonging affects phubbing behavior (Butt & Arshad, 2021; Karaman & Arslan, 2024; Chotpitayasunondh & Douglas, 2016). Given the increasing prevalence of phubbing and its addictive nature, understanding its antecedents is vital for the development of effective prevention and intervention strategies. Therefore, the present study examines the relationship between general belonging and phubbing, including potential mediators.

A sense of belonging is defined as the need to feel connected to and accepted by a group or individual, and to experience meaningful and lasting relationships in which one feels valued (Allen et

al., 2016; Baumeister & Leary, 1995). Baumeister and Leary's (1995) *'belongingness theory'* propose that people are innately and strongly motivated to form and maintain positive, enduring relationships with others. Developing a sense of belonging requires the establishment of satisfying, meaningful and stable social bonds. According to *'belongingness theory'*, individuals who are unable to satisfy their need for belonging seek alternative ways to fulfill this need (Baumeister & Leary, 1995), which may lead to an increased inclination toward digital communication tools (David & Roberts, 2017; Roberts & David, 2020; Özteke Kozan et al., 2019; Malone et al., 2012). Those who struggle to form real social connections may use their phones in uncomfortable social settings, which can potentially trigger phubbing (Chotpitayasunondh & Douglas, 2016; David & Roberts, 2021b). Moreover, exposure to phubbing can increase the likelihood of engaging in it due to unmet belonging needs (Chotpitayasunondh & Douglas, 2016; David & Roberts, 2017). On the other hand, a review of the literature suggests that the link between belonging and phubbing—as well as variables related to phubbing, such as excessive social media use and problematic internet use—is often indirect, shaped by mediating variables (Przybylski et al., 2013; Alt & Boniel-Missiou, 2018; Roberts & David, 2017; El-hai et al., 2016). Boredom is one such potential mediator.

Boredom proneness is defined as *"an aversive emotional state that arises when an individual is unable to successfully focus attention on the internal and external stimuli required to engage in a satisfying activity, becomes aware of this inability, and attributes the negative experience to the environment"* (Eastwood et al., 2012, p. 482). To escape this negative feeling, individuals may turn to various activities (Van Tilburg et al., 2012), particularly smartphone use (Tam & Inzlicht, 2024; Wang et al., 2022; Zhang et al., 2022), which in turn, may trigger phubbing. Indeed, previous research has identified boredom proneness as a strong predictor of phubbing (Al-Saggaf, 2021; Al-Saggaf et al., 2019; Duradoni, 2023; Gao et al., 2023; Tam & Inzlicht, 2024; Gupta & Nagar, 2024). However, Al-Saggaf and colleagues (2019) emphasized that most existing studies have focused on trait boredom, while context-specific forms such as

leisure boredom have not yet been adequately explored in relation to phubbing behavior. Therefore, the present study focuses on leisure boredom.

Leisure time is defined as the period in which individuals engage in activities of their own choosing, outside of work and obligatory responsibilities (Iso-Ahola & Baumeister, 2023). Leisure activities support subjective well-being, enhance resilience to stress, contribute to personal growth and transformation, and enabling individuals to build social support networks, most importantly, establish social bonds with others (Fancourt et al., 2021; Kara et al., 2018). Leisure boredom, on the other hand, occurs when activities are insufficient, repetitive, and unfulfilling or unmeaningful, resulting from a mismatch between expectations and actual activities (Iso-Ahola & Weissinger, 1990; Caldwell et al., 1999). According to *'optimal arousal theory'*, a lack of adequate mental or emotional stimulation during leisure time—i.e., under-stimulation—is also considered one of the main causes of leisure boredom (Iso-Ahola, 1980). *'The structure activity deficit theory'*, developed by Iso-Ahola and Weissinger (1990), suggests that a lack of planning and structuring skills regarding how to spend leisure time may also lead to leisure boredom. Due to the aforementioned reasons highlighted in the literature, individuals often turn to easily accessible smartphones to escape or alleviate the distress and discomfort caused by such boredom (Kil et al., 2021; Allaby & Shannon, 2020; Lepp et al., 2025). We Are Social's Turkey report show that 50% of people aged 16–64 use the internet during leisure time, mostly via smartphones (We Are Social, 2024), and boredom is a common reason for social media use (Duarte, 2025). Empirical studies have shown that leisure boredom is linked to excessive smartphone use, internet, mobile phone, and social media addictions (Kil et al., 2021; Kara & Gürbüz, 2022; Wang et al., 2020; Huang, 2014). Given these addictions' strong relation to phubbing (e.g., Alhazmi et al., 2018; Al-Saggaf & O'Donnell, 2019; Davey et al., 2018; Guazzini et al., 2021; Karadağ et al., 2011), it can be expected that individuals who experience high levels of leisure boredom are more likely to engage in phubbing.

On the other hand, the *'leisure motivation theory'* emphasizes that individuals' motivation to find

satisfying leisure activities is associated with their ability to meet certain basic psychological needs (Iso-Ahola, 1980) like the sense of belonging, which develops through meaningful social engagement (Mahar et al., 2013). A weekend sense of belonging may cause individuals to distance themselves from meaningful social activities and perceive their leisure time as more tedious (Marshall et al., 2019). Considering that leisure boredom generally arises in situations where there are no opportunities to engage in meaningful activities (Iso-Ahola & Weissinger, 1990), a low sense of belonging may trigger boredom by reducing motivation to spend leisure time meaningfully. As previously noted, the motivation to escape this negative emotional state may lead individuals to turn to short-term gratifications via smartphones, triggering phubbing as an escape or coping strategy (Jiang & Li, 2018; Chotpitayasunondh & Douglas, 2018b). In this context, leisure boredom may serve as a bridge in the relationship between low sense of belonging and increased smartphone use.

Boredom is more common in adolescence and can lead to risky behaviors like addiction (Biolcati et al., 2018; Wegner, 2011; Weybright, 2015). Therefore, the majority of studies in the relevant literature focus primarily on adolescent populations. However, leisure boredom also occurs in different age groups including young, middle, and older adulthood (An et al., 2023). It has been associated with increased digital media use, internet addiction and time spent in virtual social environments in these groups (Al-Saggaf et al., 2019; Tam & Inzlicht, 2024). Given that leisure boredom can affect various life stages, this study included a broader age range beyond young adulthood.

Research shows that smartphone addiction and problematic smartphone use are strong predictors of phubbing (Al-Saggaf & O'Donnell, 2019; Karadağ et al., 2015; Balta et al., 2020), and that increased smartphone usage time triggers this behavior (Alhazmi et al., 2018; Bulut & Nazir, 2020; Karadağ et al., 2015; Verma et al., 2019). Moreover, internet and social media addiction also increase phubbing through excessive or addictive phone use (Davey et al., 2018; Guazzini et al., 2021; Karadağ et al., 2015). Based on the findings of existing studies, it can be assumed that increased

smartphone use fuels phubbing behaviour. There are also studies in the literature indicating significant relationships between the sense of belonging and duration of smartphone usage as well as problematic smartphone use. These studies indicated that low social satisfaction directs individuals towards digital environments (Elhai et al., 2017), and that individuals who experience a lack of belonging attempt to fill the void created by this deprivation in virtual social environments, as they lack lasting social bonds (Zhan et al., 2022). Easy access to virtual social environments and the use of smartphones for entertainment and social interaction may lead individuals to engage in phubbing during face-to-face communication (Chotpitayasunondh & Douglas, 2018b). Therefore, in this study, smartphone use was examined as a second mediator in the relationship between belonging and phubbing.

### Aim of the Present Study

This study addresses the gap in the literature, which has mostly focused on those exposed to phubbing rather than on why people engage in it. It assumes that a lower sense of belonging may increase phubbing tendencies. No prior research has explored the indirect link between belonging and phubbing via leisure boredom and smartphone use. Identifying these mediators that help explain the mechanism underlying the relationship between sense of belonging and phubbing may offer important contributions to the protective, preventive, and therapeutic interventions to mitigate phubbing. Thus, the current study aims to examine the serial multiple mediating role of leisure boredom and smartphone use in the relationship between general sense of belonging and phubbing among adults. The following hypotheses were developed on the basis of theoretical explanations and empirical findings in the literature.

*Hypothesis 1:* General belongingness is negatively associated with phubbing in adults.

*Hypothesis 2:* Leisure boredom plays a mediating role between general belongingness and phubbing in adults.

*Hypothesis 3:* Smartphone usage duration plays a mediating role between general belongingness and phubbing in adults.

*Hypothesis 4:* Leisure boredom and duration of smartphone usage play a serial mediating role between general belongingness and phubbing in adults.

### Research Model

This cross-sectional study employed a correlational survey model, one of the quantitative research methods. While not establishing causality, this design enables prediction between variables (Karasar, 2000). The present study explored the relationships among phubbing, general belongingness, leisure boredom, and duration of smartphone use via a **serial multiple mediation model**. In this model, a predictor (X) affects an outcome (Y) through two sequential mediators (M1 and M2), enabling both direct and indirect effect analyses (Hayes, 2022).

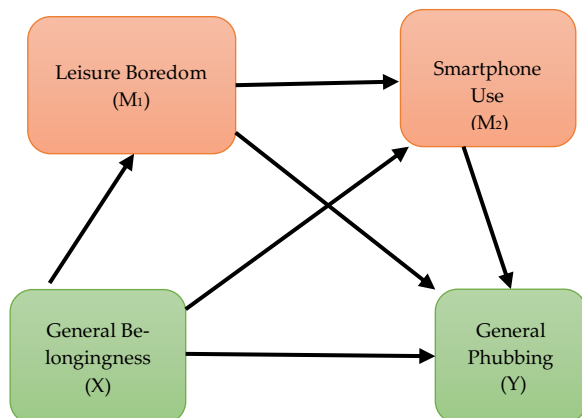


Figure 1. The proposed serial multiple mediation model

Based on prior research and theoretical background, the proposed model includes general belongingness as the main predictor (X), leisure boredom (M<sub>1</sub>) and duration of smartphone use (M<sub>2</sub>) as potential mediators, and phubbing (Y) as the outcome variable (see Figure 1). In conclusion, the study examines whether belongingness indirectly influences phubbing through these mediators.

### Population and Sample

The study targeted adults aged 18 and over residing in Turkey who use smartphones. Due to difficulty of reaching diverse age groups, convenience sampling, a non-probability method, was used based on participants' availability and willingness (Creswell, 2017). The sample size was determined via *power analysis* method, which helps identify the minimum sample size required to achieve accurate results and minimize Type I and Type II errors (Faul et al., 2009; Kang, 2021). The minimum sample size for mediation analysis was estimated using G\*Power 3.1.9.7 software (Faul et al., 2007) and Daniel Soper's online calculator (Soper, 2025), both are widely used in the literature.

Table 1. Demographics of the participants (N= 305)

| Variable                               | Category                                        | f                 | %               |
|----------------------------------------|-------------------------------------------------|-------------------|-----------------|
| Gender                                 | Male                                            | 97                | 31.8            |
|                                        | Female                                          | 208               | 68.2            |
| Age                                    | 18-25                                           | 111               | 36.4            |
|                                        | 26-45                                           | 49                | 16.1            |
|                                        | 46 +                                            | 145               | 47.5            |
| Education level                        | Primary education                               | 18                | 5.9             |
|                                        | High School                                     | 44                | 14.4            |
|                                        | Undergraduate                                   | 189               | 62.0            |
|                                        | Graduate                                        | 54                | 17.7            |
| Purpose of Smartphone Use              | Entertainment and Leisure Activities            | 245               | 80.3            |
|                                        | Playing games                                   | 11                | 3.6             |
|                                        | Listening to music                              | 11                | 3.6             |
|                                        | Watching movies, series, sports, etc.           | 33                | 10.8            |
|                                        | Following social media                          | 190               | 62.3            |
|                                        | Activities Other Than Entertainment and Leisure | 60                | 19.7            |
|                                        | Sending text messages                           | 11                | 3.6             |
|                                        | Shopping and banking                            | 9                 | 3.0             |
|                                        | Studying and work-related use                   | 4                 | 1.3             |
|                                        | Researching a topic of interest                 | 13                | 4.3             |
|                                        | Following news and current events               | 23                | 7.5             |
| Duration of Daily Smartphone Use /Hour |                                                 | Min.= 1, Max.= 20 | M= 4.36 SD=2.29 |

Assuming a medium effect size ( $f^2 = 0.15$ ), a target statistical power of 0.95, six predictor variables (including covariates such as age, gender and education level), and a significance level of  $\alpha = 0.05$ , these software programs recommended sample sizes of 146 and 151, respectively. Considering that the minimum number of participants recommended by both software programs was similar,

the inclusion of 318 participants was deemed sufficient to meet the requirements of serial multiple mediation analysis. After data collection, a total of 13 incomplete and outlier responses were excluded from the data set. The final sample comprised 305 participants aged 18–60. Demographic details are shown in Table 1.

Of the participants, 68.2% were female and 31.8% were male. Most were aged 26–45 (47.5%) and held an undergraduate degree (62.0%). Beyond communication, the primary use of smartphones was for social media (62.3%), while work- or study-related use was the least common (1.3%). Participants predominantly preferred to use their smartphones for entertainment and leisure activities (80.3%). Daily smartphone use ranged from 1 to 20 hours, averaging 4.36 hours (SD = 2.29).

## Measures

**Personal Information Form (PIF):** This form was developed by the researchers to collect information from participants about their demographic characteristics. These characteristics include gender, age, level of education, the approximate duration of daily smartphone use (in hours) and the primary purpose of smartphone use.

**Generic Scale of Phubbing (GSP):** The Generic Scale of Phubbing (GSP), developed by Chotpitayasunondh and Douglas (2018a), has 15 items in four subdimensions—*nomophobia*, *interpersonal conflict*, *self-isolation*, and *problem acknowledgement*—rated on a 7-point Likert scale, with higher scores indicating more phubbing. The Turkish adaptation by Orhan-Göksun (2019) confirmed the four-factor structure ( $\chi^2/df = 1.99$ , RMSEA = 0.07, SRMR = 0.06, NFI = 0.92, CFI = 0.96, GFI = 0.89) and showed high reliability (overall scale  $\alpha = .93$ ; subdimensions  $\alpha = .73-.88$ ). In this study, CFA indicated good fit ( $\chi^2/df = 2.47$ , GFI = 0.96, CFI = 0.96, NFI = 0.95, TLI = 0.95, IFI = 0.97, RMSEA = 0.07, SRMR = 0.05), with high reliability for the overall scale ( $\alpha = 0.93$ ,  $\omega = 0.93$ ) and acceptable to excellent for subdimensions ( $\alpha = 0.76-0.92$ ,  $\omega = 0.78-0.92$ ).

**Leisure Boredom Scale (LBS):** The original 16-item LBS by Iso-Ahola and Weissinger (1990), rated on a 5-point Likert scale, was adapted to Turkish by Soyulu and Siyez (2014). Higher scores indicate greater leisure boredom. The scale has two subdimensions: *competence*, assessing the ability to organize and manage leisure time (higher scores = lower competence), and *motivation*, assessing productive use of leisure time (higher scores = lower motivation). During adaptation, one item was removed for cross-loading and three for low factor loadings ( $<0.30$ ), yielding a 12-item, two-factor structure confirmed by CFA. Reliability was  $\alpha = 0.85$  (competence),  $\alpha = 0.70$  (motivation), and  $\alpha = 0.84$  (overall). In this study, CFA showed acceptable fit ( $\chi^2/df = 2.75$ , GFI = 0.93, CFI = 0.93, NFI = 0.90, TLI = 0.91, IFI = 0.93, RMSEA = 0.076, SRMR = 0.05). Reliability was  $\alpha = 0.91$ ,  $\omega = 0.91$  for overall scale,  $\alpha = 0.87$ ,  $\omega = 0.87$  for competence subdimension, and  $\alpha = 0.67$ ,  $\omega = 0.68$  for motivation subdimension.

**General Belongingness Scale (GBS):** The GBS, developed by Malone et al. (2012) and adapted to Turkish by Duru (2015), is a 12-item scale rated on a 7-point Likert scale with two subdimensions: *acceptance/inclusion* and *rejection/exclusion*. Rejection/exclusion items are reverse-coded and combined with acceptance/inclusion items for a total score, with higher scores indicating stronger general belonging. CFA confirmed the two-factor structure. In the Turkish version, reliability was  $\alpha = 0.92$  (overall),  $\alpha = 0.89$  (acceptance/inclusion), and  $\alpha = 0.91$  (rejection/exclusion). In this study, CFA showed acceptable fit ( $\chi^2/df = 2.75$ , GFI = 0.93, CFI = 0.96, NFI = 0.93, TLI = 0.94, IFI = 0.96, RMSEA = 0.076, SRMR = 0.05). Reliability for the current sample was  $\alpha = 0.91$ ,  $\omega = 0.91$  (overall);  $\alpha = 0.88$ ,  $\omega = 0.89$  (acceptance/inclusion); and  $\alpha = 0.87$ ,  $\omega = 0.87$  (rejection/exclusion).

## Procedure

After determining the sample size and selecting the instruments for data collection, permission was obtained from the developers or adapters of the scales. The Ethics Committee of Educational Sciences at Istanbul Medeniyet University granted ethical approval (Decision: 17/05/2021, No:

2021/05-06). Data were collected online via Google Forms. Participants provided written informed consent after reviewing details on the study's purpose, confidentiality, voluntary participation, and potential publication use. The scale forms were completed by participants in approximately 20-25 minutes.

### Data Analysis

The dataset's normality was first assessed. Univariate outliers, identified via z-scores exceeding  $\pm 3.29$ , led to the removal of 10 cases (Büyüköztürk, 2021). Multivariate outliers, detected using Mahalanobis distance at  $p < 0.001$ , resulted in 3 further exclusions (Hair et al., 2019; Stevens, 2009). Descriptive statistics (M, SD, skewness, kurtosis) were calculated, with skewness and kurtosis within  $\pm 1.5$ , indicating normal distribution (Tabachnick & Fidell, 2019; see Table 2). Autocorrelation of residuals, assessed via Durbin-Watson (1.79), fell within the acceptable range (1.5–2.5; Field, 2024). Multicollinearity checks showed VIF = 1.02–1.61, tolerance = 0.62–0.98, and correlations  $< 0.90$  (see Table 2), meeting accepted thresholds (VIF  $< 10$ , tolerance  $> 0.20$ , correlations  $< 0.90$ ) and suggesting no multicollinearity issues (Büyüköztürk, 2021).

ual (SRMR), and Normed Fit Index (NFI). Acceptable fit criteria were  $\chi^2/df \leq 3$  (Tabachnick & Fidell, 2019; Kline, 2016; Schermelleh-Engel et al., 2003), SRMR  $\leq 0.10$ , RMSEA  $\leq 0.08$  (Browne & Cudeck, 1993; Kline, 2016), and CFI, GFI, TLI, IFI, NFI  $\geq 0.90$  (Hu & Bentler, 1999; Kline, 2016). Good fit criteria were  $\chi^2/df \leq 2$ , RMSEA and SRMR  $\leq 0.05$ , and CFI, GFI, TLI, IFI, NFI  $\geq 0.95$ . Reliability was assessed using Cronbach's  $\alpha$  and McDonald's  $\omega$ .

Pearson correlation was used to examine the relationships among variables. Gender, age, and education differences in phubbing were analyzed with t-tests (two groups) and ANOVA (more than two). Due to equal variances but unequal group sizes, Bonferroni post-hoc tests were applied in case of significant ANOVAs (Field, 2024; Tabachnick & Fidell, 2019). The hypothesized serial multiple mediation model was tested with Hayes' PROCESS Macro (Model 6), using 5000 bootstrap samples and 95% bias-corrected confidence intervals. This model assessed serial indirect effects through two mediators and specific indirect effects through each mediator separately. Mediation was considered significant when BootLLCI and BootULCI for indirect effects excluded zero (Hayes, 2022).

**Table 2. Means, standart deviations, kurtosis and skewness values of study variables (N=305)**

| Variable                       | M    | SD   | Skewness | SD <sub>skewness</sub> | Kurtosis | SD <sub>kurtosis</sub> |
|--------------------------------|------|------|----------|------------------------|----------|------------------------|
| <i>Phubbing (Total)</i>        | 3.21 | 1.14 | 0.54     | 0.14                   | -0.25    | 0.28                   |
| Nomophobia                     | 4.51 | 1.32 | -0.28    | 0.14                   | -0.59    | 0.28                   |
| Self-Isolation                 | 2.67 | 1.40 | 0.73     | 0.14                   | -0.22    | 0.28                   |
| Interpersonal Conflict         | 2.32 | 1.28 | 1.00     | 0.14                   | 0.20     | 0.28                   |
| Problem Acknowledgment         | 3.41 | 1.42 | 0.19     | 0.14                   | -0.84    | 0.28                   |
| <i>Belongingness (Total)</i>   | 5.74 | 0.97 | -0.73    | 0.14                   | -0.28    | 0.28                   |
| Acceptance                     | 5.68 | 1.04 | -0.83    | 0.14                   | 0.24     | 0.28                   |
| Rejection                      | 2.20 | 1.11 | 0.87     | 0.14                   | -0.04    | 0.28                   |
| <i>Leisure Boredom (Total)</i> | 2.32 | 0.76 | 0.21     | 0.14                   | -0.82    | 0.28                   |
| Competence                     | 2.32 | 0.10 | 0.40     | 0.14                   | -0.72    | 0.28                   |
| Motivation                     | 2.32 | 0.69 | 0.05     | 0.14                   | -0.73    | 0.28                   |

The scales' compatibility with the dataset was tested using Confirmatory Factor Analysis (CFA), with model fit evaluated via Chi-square/Degrees of Freedom ( $\chi^2/df$ ), Comparative Fit Index (CFI), Goodness of Fit Index (GFI), Tucker–Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), Standardized Root Mean Square Resid-

The following paths were examined: (1) belongingness  $\rightarrow$  phubbing (direct), (2) belongingness  $\rightarrow$  leisure boredom  $\rightarrow$  phubbing (ind1), (3) belongingness  $\rightarrow$  smartphone use  $\rightarrow$  phubbing (ind2), and (4) belongingness  $\rightarrow$  leisure boredom  $\rightarrow$  smartphone use  $\rightarrow$  phubbing (ind3). Analyses used IBM SPSS 24.0 (descriptives, correlations, Cronbach  $\alpha$ ), Jamovi 2.3.26 (McDonald's  $\omega$ ),

AMOS 21.0 (CFA), and PROCESS Macro 4.0 (mediation), with significance at  $p < 0.05$ .

## Findings

Preliminary analyses included bivariate correlations among variables and examinations of differences in phubbing by gender, age, and education. A serial multiple mediation analysis was then performed to test the direct and indirect effects of general belongingness on phubbing. Findings are reported below.

## Bivariate correlations

To examine the relationships among phubbing, general belongingness, leisure boredom, and duration of smartphone use, a Pearson correlation analysis was conducted. Results are presented in Table 3.

Table 3. Bivariate correlations (N= 305)

|                               | 1       | 2       | 3      | 4 |
|-------------------------------|---------|---------|--------|---|
| 1. Phubbing                   | 1       |         |        |   |
| 2. General Belongingness      | -0.38** | 1       |        |   |
| 3. Leisure Boredom            | 0.45**  | -0.48** | 1      |   |
| 4. Duration of Smartphone Use | 0.31**  | -0.22** | 0.30** | 1 |

\*\*  $p < 0.01$

As shown in Table 3, phubbing was negatively correlated with general belongingness ( $r = -0.38$ ,  $p < .01$ ; 95% CI [-0.47, -0.27]) and positively with leisure boredom ( $r = 0.45$ ,  $p < .001$ ; 95% CI [0.37, 0.53]). General belongingness was negatively associated with leisure boredom ( $r = -0.48$ ,  $p < .001$ ; 95% CI [-0.56, -0.39]). Smartphone use was positively related to phubbing ( $r = 0.31$ ,  $p < .01$ ; 95% CI [0.19, 0.43]) and leisure boredom ( $r = 0.30$ ,  $p < .01$ ; 95% CI [0.20, 0.39]), and negatively to general belongingness ( $r = -0.22$ ,  $p < .01$ ; 95% CI [-0.33, -0.09]).

## Covariates

Phubbing levels differed significantly by gender, age, and education level. Males reported higher phubbing than females ( $M_{\text{male}} = 3.60$ ,  $SD = 1.10$ ;  $M_{\text{female}} = 3.03$ ,  $SD = 1.11$ ;  $t = -4.22$ ,  $p < 0.001$ ; 95% CI [0.31, 0.85]). ANOVA results showed significant differences by age ( $F_{(2, 302)} = 4.39$ ,  $p < 0.01$ ; 95% CI

[1.04, 1.20]), with higher phubbing in participants aged 46+ ( $M = 3.55$ ,  $SD = 1.12$ ) than in those aged 26–45 ( $M = 3.03$ ,  $SD = 1.10$ ). However, there was no significant difference in the 18–25 age group ( $M = 3.30$ ,  $SD = 1.16$ ). Phubbing also differed by education level ( $F_{(3, 301)} = 7.08$ ,  $p < 0.001$ ; 95% CI [1.01, 1.18]), that is, phubbing decreased with higher education. It was highest among those with a primary education ( $M = 3.87$ ,  $SD = 1.22$ ) and lowest among those with graduate degrees ( $M = 2.94$ ,  $SD = 1.12$ ). All three variables were included as covariates in the mediation model.

## Serial Multiple Mediation Analysis

The study tested one direct and three indirect effects of general belongingness on phubbing using a serial multiple mediation model. Gender, age, and education level were included as covariates to control for their potential influence. Results are presented in Figure 2.

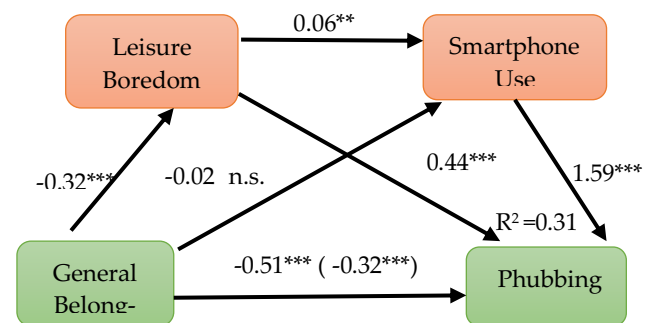


Figure 2. The serial multiple mediation linking general belongingness and phubbing

Notes. Unstandardized beta coefficients are reported.  $N = 305$ , with 5000 bootstrapped samples; Covariate variables: Gender (female=0, male=1), age (18–25=1, 26–45=2, 46 and above=3), education level (primary education=1, high school=2, undergraduate=3, graduate=4), \*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$

In the serial multiple mediation model, general belongingness negatively predicted leisure boredom ( $B = -0.32$ ,  $p < 0.001$ ; 95% CI [-0.40, -0.25]). However, when leisure boredom was controlled for, the effect of general belongingness on smartphone use became insignificant ( $B = -0.02$ ,  $p > 0.05$ ; 95% CI [-0.04, 0.01]). Leisure boredom positively predicted both smartphone use ( $B = 0.06$ ,  $p < 0.01$ ; 95% CI [0.03, 0.09]) and phubbing ( $B = 0.44$ ,

$p < 0.001$ ; 95% CI [0.22, 0.67]). Additionally, smartphone use also positively predicted phubbing ( $B = 1.59$ ,  $p < 0.001$ ; 95% CI [0.82, 2.36]). Consistent with Hypothesis 1, general belongingness had a direct negative effect on phubbing ( $B = -0.51$ ,  $p < 0.001$ ; 95% CI [-0.66, -0.35]), which remained significant after including mediators (leisure boredom and smartphone use;  $B = -0.32$ ,  $p < .001$ ; 95% CI [-0.48, -0.15]), indicating partial mediation.

### Bootstrapping

The significance of the indirect paths in the model was tested through bootstrapping analysis, and the findings are presented in Table 4.

preliminary analysis, lower belongingness was associated with higher leisure boredom, greater smartphone use, and more phubbing. Additionally, higher leisure boredom was linked to increased smartphone use and phubbing (see Table 3). These results align with prior research (Al-Saggaf et al., 2019; Lep et al., 2025; Serdar et al., 2022; Sun & Wong, 2024; Wang et al., 2020) and provide empirical support for the proposed mediation model.

The study tested four hypotheses regarding the direct (H1) and indirect (H2-H4) effects of general belongingness on phubbing. H1 was supported, showing that higher general belongingness directly reduces phubbing, consistent with prior theories and research. According to Baumeister and

**Table 4. Direct and indirect pathways from general belongingness to phubbing (N= 305)**

| Model Pathways                       | Boot Effect | SE   | t        | 95% CI |       |
|--------------------------------------|-------------|------|----------|--------|-------|
|                                      |             |      |          | LLCI   | ULCI  |
| Total Effect (c: GA→GB)              | -0.51       | 0.08 | -6.60**  | -0.67  | -0.36 |
| Direct Effect (c': GA→GB)            | -0.32       | 0.08 | -3.85*** | -0.48  | -0.15 |
| Total Indirect Effect                | -0.20       | 0.05 |          | -0.30  | -0.11 |
| Indirect effect 1 (GA→ LB → GB)      | -0.14       | 0.04 |          | -0.24  | -0.06 |
| Indirect effect 2 (GA→ DSU → GB)     | -0.02       | 0.02 |          | -0.08  | 0.02  |
| Indirect effect 3 (GA→ LB → DSU →GB) | -0.03       | 0.01 |          | -0.06  | -0.01 |

Notes. GP: General Phubbing, GB: General Belongingness, LB: Leisure Boredom, DSU: Duration of Smartphone Use, \*\*\* $p < .001$ , \*\* $p < .01$ , \* $p < .05$

As shown in Table 4, the total indirect effect of general belongingness on phubbing was significant (bootstrap = -0.20, 95% CI [-0.30, -0.11]), as the confidence intervals did not include zero. The indirect effect via leisure boredom alone, was also significant (bootstrap = -0.14, 95% CI [-0.24, -0.06]), supporting Hypothesis 2. In contrast, the indirect effect via smartphone use alone was not significant (bootstrap = -0.02, 95% CI [-0.08, 0.02]), therefore Hypothesis 3 was rejected. The serial path, through both leisure boredom and smartphone use, was significant (bootstrap = -0.03, 95% CI [-0.06, -0.01]), supporting Hypothesis 4. The model accounted for 28% of the variance in phubbing ( $F_{(4, 300)} = 28.71$ ,  $p < 0.001$ ).

### Discussion and Conclusion

This study examined the serial mediating roles of leisure boredom and smartphone use between belongingness and phubbing in adults. According to

Leary's (1995) 'belonging theory', unmet belonging needs lead individuals to withdraw from face-to-face interactions and seek alternatives. Chotpitayasunondh and Douglas (2016) reported that unmet needs for belonging and social connection trigger excessive phone use in social settings, which may cause phubbing. Studies also emphasize that individuals who are unable to meet their need for belonging through real-life relationships experience feelings of social exclusion. For this reason, they tend to seek social connections in virtual environments – such as social media – in an effort to regain a sense of belonging (e.g. Akıncı & Durmuş, 2024; Al-Saggaf & O'Donnell, 2019; David & Roberts, 2020). This can lead to phubbing by ignoring others in social situations where their need to belong is not satisfied.

This finding can also be explained in terms of the 'escape theory' (Heatherton & Baumeister, 1991), which suggests that lack of belonging leads to 'aversive self-awareness' which in turn, feelings of inadequacy and exclusion. To avoid these negative

emotions, individuals may narrow their attention and focus on concrete, immediate stimuli, such as their smartphones. In this context, phubbing may serve as an escape or coping strategy for dealing with negative emotions. '*Social identity theory*' posits that feeling part of social groups strengthens our social identity and increases our self-esteem (Haslam et al., 2000). Lee and Robbins (1998) propose that social connectedness represents an internal sense of belonging. They suggest that individuals with low levels of connectedness struggle to manage their needs and emotions effectively, have low self-esteem and lack a sense of social identity. This results in low levels of trust in interpersonal relationships. Such individuals may avoid or distance themselves from social opportunities that could foster a stronger sense of social connectedness. According to Lee and Robbins (2000), these individuals often appear distant, reluctant to establish intimacy, and struggle to establish genuine and empathetic social bonds with others. As a result, individuals who do not feel a sense of belonging in real-life social environments may turn to virtual platforms such as social media or the internet via smartphones instead of face-to-face communication, potentially leading to phubbing.

Conversely, individuals with a strong sense of connectedness—or in other words, a heightened sense of belonging—easily participate in social environments, feel accepted, and trust others. This, in turn, contributes to the formation of social environments characterized by mutual care, respect, and empathy, ultimately strengthening interpersonal relationships. Indeed, research findings show that individuals with high empathy skills find it easy to maintain social relationships and form healthy social bonds, and are less likely to engage in phubbing (Öztekin & Yıldırım, 2025; Uncu et al., 2024). The current finding is also consistent with the results of similar studies in the related literature (David & Roberts, 2020; Al-Saggaf & O'Donnell, 2019; Roberts & David, 2016).

The second hypothesis (H2) proposed that leisure boredom mediates the relationship between general belongingness and phubbing. The findings confirmed H2, showing that lower belongingness leads to greater leisure boredom, which in turn increases phubbing.

A review of the literature shows that general boredom proneness is a strong predictor of phubbing behavior (e.g., Al-Saggaf et al., 2019; Duradoni, 2023; Gao et al., 2023; Kara & Gürbüz, 2022). However, studies specifically examining the link between leisure boredom and phubbing are limited (Hasanuddin et al., 2024; Gürbüz et al., 2023; Wazkia & Primanita, 2023). Still, research indicates that leisure boredom is associated with excessive smartphone use (Kil et al., 2021; Allaby & Shannon, 2020; Lepp et al., 2025), internet and mobile phone addiction (Wang et al., 2020; Kara & Gürbüz, 2022), and social media addiction (Huang, 2014). These digital addictions are also strongly linked to phubbing (e.g., Karadağ et al., 2015; Al-Saggaf & O'Donnell, 2019). Thus, previous findings support the connection between leisure boredom and phubbing. There is also evidence supporting the mediating role of leisure boredom in the relationship between sense of belonging and phubbing. For instance, Gao et al. (2023) found that individuals with higher loneliness levels are more prone to boredom, experience greater boredom during leisure time, and turn to their phones as a coping mechanism, making them more susceptible to phubbing. Similarly, those with high leisure boredom and FOMO are also more prone to phubbing (Gürbüz et al., 2023; Ding & Si, 2024). Research further suggests that a low sense of belonging increase FOMO, which in turn, may raise phubbing tendencies (Alabri, 2022). A reduced sense of belonging has been reported to lower the motivation to spend leisure time meaningfully, which may lead to greater boredom and increased smartphone use for quick relief—especially through phubbing in social contexts (Iso-Ahola & Weissinger, 1990; Chotpitayasunondh & Douglas, 2018). In fact, individuals who are more sensitive to boredom are more likely to develop smartphone addiction and tend to use friendship or dating applications (Wang et al., 2020; Lepp et al., 2025).

Furthermore, inadequate leisure management and planning skills, coupled with low leisure satisfaction, are said to increase boredom. Combined with increased smartphone use, this may promote phubbing behaviour (Van Tilburg & Igou, 2017; Kil et al., 2021). Therefore, socially disconnected individuals, are also more likely to engage in phubbing

due to their lower ability or motivation to create or participate in leisure activities. In conclusion, the findings that leisure boredom functions as a mediating mechanism in the relationship between a sense of belonging and phubbing are consistent with both theoretical explanations and empirical evidence.

The third hypothesis (H3) of the study proposed that smartphone use mediates the relationship between general sense of belonging and phubbing. However, findings showed that duration of smartphone use was not a significant mediator, and H3 was rejected. This hypothesis was based on the assumption that individuals with a low sense of belonging are less satisfied with face-to-face social interactions and may therefore withdraw from real-life social environments. Individuals with low belongingness might turn to virtual platforms, especially social media, via smartphones to meet their social needs, potentially increasing phubbing. In this study, 63% of participants ranked social media use as their primary purpose of using a smartphone, and they reported an average daily usage time of over four hours ( $M = 4.36$ ; see Table 1). According to the literature, daily smartphone use of four hours or more is considered a risk factor for phubbing (Atalay, 2023; Alhazmi et al., 2018; Bulut & Nazir, 2020; Toker & Tuncay, 2020). Therefore, the sample group can be seen at risk for both smartphone addiction and phubbing. Existing studies showed that social media is mainly accessed via smartphones (Sha et al., 2019; Marino et al., 2021), and excessive smartphone use is a risk factor for both addiction and phubbing (e.g., Atalay, 2023; Karadağ et al., 2015; Toker & Tuncay, 2020), and all these variables are strongly interconnected (Bulut & Nazir, 2020; Verma et al., 2019). However, the finding of this study suggested that a sense of general belonging indirectly influences smartphone use through leisure boredom (see Figure 2). When leisure boredom intervenes, the link between belonging and smartphone use becomes insignificant, highlighting leisure boredom's key role in the pathway to phubbing. Thus, the lack of a mediating role of daily smartphone use between belonging and phubbing—independent of leisure boredom—appears understandable. In conclusion, the findings

suggested that increased smartphone use linked to lower belonging has limited power to explain phubbing alone and is better explained through mediators.

Additionally, researchers have noted that phubbing is triggered not by total amount of time spent on smartphones, but by frequent short-interval phone checking (Guazzini et al., 2021). Therefore, examining this behavior's role between belonging needs and phubbing could clarify the relationship.

After examining the individual mediating roles of leisure boredom and smartphone use in the relationship between general sense of belonging and phubbing, the H4 hypothesis—proposing a serial multiple mediation effect of these two variables—was also tested. The results showed that leisure boredom and smartphone use sequentially mediated this relationship, and thus, H4 was supported. According to this finding, as adults' general sense of belonging decreases, their leisure boredom increases, which in turn leads to longer smartphone use and, consequently, a rise in phubbing behavior.

This finding is notable when considered alongside the previous one. Leisure boredom alone serves as a significant mediator in the relationship between sense of belonging and phubbing, while smartphone use only mediates this relationship through leisure boredom. The data indicate that the decrease in general sense of belonging has a weak direct explanatory power on the increase in smartphone use, and this increase becomes meaningful only through another mediating variable, leisure boredom. Thus, leisure boredom plays a key role between sense of belonging and phubbing. Although intensive smartphone use is known to be one of the main determinants of phubbing behavior (Karadağ et al., 2015), the fact that a lack of sense of belonging can lead to various psychological outcomes may weaken this variable's explanatory power for phubbing behavior through smartphone use alone. The fact that the relationship between a sense of belonging and phubbing remains significant even when leisure boredom and smartphone use are included in the model suggests that other psychological factors may also influence this relationship.

As previously stated, the literature indicates that a sense of belonging is directly related to smartphone use, phubbing, and other digital addictions (Roberts & David, 2016; Akinci & Dursun, 2024). However, this relationship is often mediated by variables such as feelings of exclusion, fear of missing out (FOMO), difficulty regulating emotions, feelings of social exclusion, and the desire to form social bonds (Roberts & David, 2020; Przybylski et al., 2013; Elhai et al., 2016; Chotpitayasunondh & Douglas, 2016). Similarly, this study found that a decrease in the sense of belonging increases leisure boredom, which in turn leads to increased smartphone use and phubbing behavior in a sequential manner.

Moreover, recent studies examining the relationship between phubbing, social exclusion, and weakened feelings of belonging have revealed that phubbing behavior can create a reinforcing cycle through mutual interactions. This interaction model is often referred to as the "phubbing vicious cycle," in which smartphone use functions as a tool for emotional regulation and social escape. This dynamic perpetuates the cycle of phubbing behavior (Chotpitayasunondh & Douglas, 2018; Nuñez & Radtke, 2023). Based on the findings of the present study, it can be proposed that the interaction among the variables in the model creates the following vicious cycle:

*Weakening of General Sense of Belonging → Increase in Leisure Boredom → Need to Escape (Emotional Regulation / Seeking Distraction) → Turning to Smartphone (e.g., social media use) → Phubbing Behavior (Neglecting Close Social Circle) → Deterioration/Exclusion in Social Relationships → Further Decrease in Sense of Belonging → The cycle returns to the beginning and progressively reinforces itself*

In conclusion, these findings highlight that the relationship between a sense of belonging and phubbing is indirect and that psychological mediators should be considered in this process. Theoretical frameworks (e.g., escape theory), empirical studies, and the findings of this study suggest examining this behavior within multiple mediation/moderation models due to its complex, vicious cyclical nature.

### Implications for Practitioners

According to this study, adults' sense of belonging influences phubbing directly and indirectly through leisure boredom and smartphone use, with leisure boredom as the strongest mediator. To reduce phubbing and strengthen belonging, several recommendations are offered:

Awareness programs focusing on time management, hobbies, and social participation may help reduce excessive reliance on smartphones and prevent phubbing. Indeed, researchers emphasize that encouraging individuals to spend their leisure time meaningfully can enhance self-worth, foster a sense of belonging, support psychological well-being, and facilitate cultural adaptation (Kim et al., 2021).

Encouraging activities that support the development of healthy social bonds—such as art, sports, and volunteering—and ensuring access to these activities are also important areas of intervention. Within the framework of university curricula, courses like "Community Service Practices" can offer opportunities for social interaction through informational and recreational group activities tailored to various age groups. In doing so, individuals can meet their basic relational needs through real-life social relationships and reinforce their sense of belonging.

Institutions such as schools, universities, and community centers—supported by local authorities and NGOs—can organize interest-based recreational programs to encourage participation and social bonding. Society-wide public awareness campaigns can also be set up. Public campaigns, seminars, podcasts, or social media content that highlight the negative effects of belongingness deficits and digitalization on social relationships can help reach a broader audience. Additionally, targeted interventions can be developed for schools, workplaces, and community spaces to foster healthier social connections and raise awareness.

Within the scope of guidance and counseling services, psychoeducational programs can be developed to support individuals in coping with leisure boredom. These programs should aim to enhance emotional regulation skills and equip individuals with healthy coping strategies. In addition, developing leisure skills—such as planning, trying new activities, and initiating social interactions—is

also essential. Awareness-raising training sessions and workshops on balancing technology use can help individuals avoid becoming overly dependent on digital tools and instead use their leisure time in more satisfying ways.

Finally, digital awareness training should be provided, including topics such as digital detox, screen time management, and healthy technology use, to promote balanced digital habits and thereby prevent phubbing.

### Limitations of the Study and Suggestions for Future Research

This study has several limitations. First, the cross-sectional design restricts causal inference. Future longitudinal studies could more accurately capture how relationships among variables evolve over time. Another limitation relates to the context in which phubbing and general belongingness occur. In this study, both were assessed broadly and without relational specificity. Researchers recommend investigating phubbing in various contexts, including romantic, parent-child, and peer relationships (Akbağ & Sayiner, 2021; Sayiner & Akbağ, 2023). Similarly, examining sense of belonging within different relational contexts –e.g., using the actor-partner interdependence model – may provide a deeper understanding of the relationships between the variables. Additionally, this study included duration of smartphone usage as a mediating variable due to its association with phubbing and smartphone addiction risk. However, examining individuals who have been clinically diagnosed with smartphone addiction may yield more precise findings. Another limitation of this study is its focus on the antecedents of phubbing. However, a more comprehensive understanding of the phenomenon could be gained by future research addressing both the causes and outcomes of phubbing together. On the other hand, this study examined the relationships between variables while statistically controlling for gender, age, and education level. Future research could employ multi-group analyses to investigate demographic differences more thoroughly. Finally, the finding that a sense of belonging influences smartphone use through

leisure boredom and sequentially leads to phubbing suggests that additional psychological factors—such as loneliness, difficulties in emotion regulation, social connectedness, and social anxiety—should also be examined as potential mediators and moderators to better explain the underlying dynamics of this relationship.

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RESEARCH ARTICLE

# Setting Out Unwillingly: A Qualitative Analysis of the ‘Career Drift’ Experience Through Social Media Narratives

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## Abstract

This study examines the increasingly visible phenomenon of “career drift” in the context of 21st-century work life, characterized by uncertainty, fragility, and flexibility, through the lens of social media narratives. Employing a qualitative research design, the study analyzed 120 publicly available posts collected from Twitter (now X) and Ekşi Sözlük using purposive sampling. Thematic analysis revealed five key themes: externally driven career orientation, occupational meaninglessness and identity ambiguity, permanence of temporary solutions, digital lamentation and narrative coping, and reorientation and deferred future construction. The findings reveal that users often make career choices based on coincidences, economic constraints, or environmental pressures, and experience significant ruptures in terms of meaning, identity, and belonging in these decisions. It was also observed that individuals express these experiences on social media through humor, irony, and a critical tone, using these platforms as a form of emotional coping. The study emphasizes the need to conceptualize career drift within a distinct theoretical framework and offers structural recommendations for career counseling practices and vocational guidance services.

**Keywords:** Career drift, life narrative, digital narratives, career counseling

## Öz

Bu çalışma, 21. yüzyılın belirsizlik, kırılganlık ve esneklikle tanımlanan iş yaşamı bağlamında giderek görünür hâle gelen “kariyer sürüklenmesi” olgusunu sosyal medya anlatıları üzerinden incelemeyi amaçlamaktadır. Nitel araştırma desenine göre yapılandırılan çalışmada, Twitter (X) ve Ekşi Sözlük platformlarından kamuya açık 120 paylaşım amaçlı örnekleme yoluyla toplanmış; elde edilen veriler tematik analiz yöntemiyle çözümlenmiştir. Analizler sonucunda beş ana tema ortaya çıkmıştır: kontrol dışı mesleki yönelim, mesleki anlamsızlık ve kimlik belirsizliği, geçici çözümün kalıcılığı, dijital serzeniş ve anlatsal başa çıkma, yeniden yönelme ve geç gelecek kurgusu. Bulgular, bireylerin kariyer tercihlerini çoğu zaman rastlantısal, ekonomik ya da çevresel zorunluluklara bağlı olarak gerçekleştirdiğini ve bu tercihlerde anlam, kimlik ve aidiyet eksenli ciddi kırılmalar yaşadıklarını göstermektedir. Ayrıca bireylerin sosyal medya üzerinden bu deneyimlerini mizah, ironi ve eleştirel dille dışavurdıkları ve bu mecraları bir tür duygusal başa çıkma alanı olarak kullandıkları gözlemlenmiştir. Çalışma, kariyer sürüklenmesi kavramının özgün bir kuramsal çerçeveye kavuşturulması gerektiğini vurgulamakta ve kariyer psikolojik danışmanlığı uygulamaları ile mesleki yönlendirme hizmetlerine ilişkin yapısal öneriler sunmaktadır.

**Anahtar Kelimeler:** Kariyer sürüklenmesi, yaşam anlatısı, dijital anlatılar, kariyer danışmanlığı

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## Introduction

Traditional career theories explain individuals' career development processes through the alignment between personal characteristics and environmental opportunities (Super, 1990; Holland, 1997). These approaches typically adopt a linear and predictable view of career progression. However, the social and economic transformations of the 21st century have highlighted the limitations of such theories (Pryor & Bright, 2015; Bozgeyikli, 2022). With globalization, technological advances, and shifts in employment structures, individuals face increasing uncertainty in their career paths, complicating decision-making processes and adding layers of complexity (Savickas, 2013; Guichard, 2018). Consequently, people are being steered toward lifestyles that are partially planned, largely incidental, and constantly subject to change (Bozgeyikli, 2022). This new reality has given rise to novel approaches and concepts within the field of career psychology—one of which is "career drift."

Career drift is defined as a tendency shaped not by intrinsic awareness or motivation, but rather by external obligations and passive responses to chance events (Kato & Suzuki, 2006). The concept of career drift was initially developed to explain the professional uncertainties experienced by young adults in Japan. According to Kato and Suzuki (2006), it is not primarily about conflicts between professional identities and values. It is therefore important to note that career drift does not occur solely at the individual level; it can also be observed within institutional systems. It describes a process in which individuals are unable to plan their career choices consciously and meaningfully, lose direction, and are often unintentionally guided into working life (Davidson et al., 2015).

Some related definitions in the literature—such as Krumboltz's (2009) Happenstance Learning Theory—shed light on how unplanned events can influence career choices. However, such frameworks do not fully capture the passive and unconscious aspects that define career drift. In this context, career drift is difficult to comprehend within the boundaries of traditional career theories and is best understood as an emerging concept that has

yet to be fully grounded in theoretical frameworks (Costa & Oliveirai, 2016, p.39).

Career drift not only highlights the ambiguity in individual decision-making processes but also underscores the guiding influence of social and institutional structures on individuals. According to Davidson et al. (2015), rapidly changing conditions in the modern workforce have led individuals to exert limited control over their careers, pushing them toward less predictable trajectories. From this perspective, career drift serves as an analytical tool that goes beyond adaptation to chance events and helps explain how broader systems shape individuals. Hall's (2002) concept of the "protean evolution of careers" is relevant in this context, as both approaches highlight a structural transformation in which individuals lose agency over their careers while external factors gain prominence.

In Turkey, this transformation is intensified by structural problems such as the inability of university graduates to find employment in their fields (Gündoğar & Yelboğa, 2014), growing pressure to enter the public sector (Öktem & Yıldız, 2022), and the prevalence of insecure, low-paid jobs. As such, the phenomenon of career drift becomes more pronounced. In this context, it can be argued that career drift leads individuals to shape their careers not through active planning, but in response to available opportunities, thereby increasing career vulnerability at a societal level.

This study aims to examine the phenomenon of career drift through professional experiences shared on digital platforms such as X (formerly Twitter) and Ekşi Sözlük. These platforms serve as notable digital spaces where public discourse—often anonymous, emotional, critical, and occasionally humorous—tends to concentrate (Papacharissi, 2015). Phrases encountered on these platforms, such as "I just found myself in this job," "I realized I've been doing this for years," or "It has nothing to do with my field, but I'm working anyway" (representative examples drawn from the social media posts analyzed in this study), illustrate a departure from planned career development and a shift toward reactive and incidental career orientations.

The primary objective of this study is to explore the descriptive and interpretive dimensions of the

career drift phenomenon through a qualitative analysis of social media content. Grounded in the Life Design Paradigm (Savickas, 2005a; Nota & Rossier, 2015), the study seeks to examine how individuals construct identity, assign meaning, and navigate career orientations through narratives shared on social media. By analyzing these digital narratives in terms of coping strategies, levels of awareness, and career orientation styles, this study aims to contribute to the theoretical literature and support the development of innovative approaches in career counseling.

### 1.1 Theoretical Foundations of Career Drift

Career drift refers to a condition in which individuals shape their career paths not through conscious, intrinsically motivated decisions, but rather through external pressures, incidental opportunities, and passive acceptance (Kato & Suzuki, 2006). The concept was introduced primarily to understand the states of uncertainty, lack of direction, and indecisiveness experienced by young adults (Davidson et al., 2015). Career drift is not merely an individual-level condition of indecision; it also offers critical insights into how societal, structural, and institutional factors influence an individual's professional life. In this regard, the concept signals a shift in which the individual becomes less an active agent in career planning and more a respondent to environmental influences.

For example, while Savickas's (2005a) Life Design Paradigm emphasizes the individual's capacity to create meaning and actively construct their career through intentional choices, individuals experiencing drift tend to move away from this active process and instead engage in passive adaptation. Similarly, career development theories generally warn that the loss of career control can lead to various psychosocial consequences (Super, 1990; Lent & Brown, 2013). Thus, it is necessary to investigate career drift not only conceptually but also empirically.

Studies examining how uncertainty, indecision, and lack of direction impact life satisfaction, professional fulfillment, and psychological well-being have supported the validity of this concept (Hirschi, 2012; Urbanaviciute et al., 2019). In the Turkish context, analyzing individuals' narratives

on social media regarding career choice and orientation can offer insights into the local manifestation of this phenomenon. Therefore, preliminary research is needed to aid in the empirical understanding of career drift. The findings presented in this study serve as an initial analysis toward fulfilling that need.

### 1.2. Social Media Narratives and Career Experience

The widespread use of social media platforms today has transformed them into digital spaces where individuals can express not only personal matters but also their career experiences (McFarland & Ployhart, 2015; Davis et al., 2020; Zhang et al., 2024). In this context, digital platforms such as X (formerly Twitter) and Ekşi Sözlük serve as public arenas where individuals narrate, evaluate, and share emotions related to their professional lives (Papacharissi, 2015). Through social media, individuals share not only personal stories but also career-related narratives and experiences (Corvite & Hui, 2024). Accordingly, the content individuals generate through these social media narratives constitutes a rich source of data for analyzing career experiences.

Microblog-style platforms, in particular, allow individuals to articulate their career journeys in non-linear, multidimensional, and emotionally charged ways. These narratives offer a means for individuals to reconstruct their career experiences while making their professional histories visible and exposing critiques of systemic workplace issues. (Page, 2012). Digital storytelling is a form through which individuals convey their lived experiences from a first-person perspective in the digital realm. These narratives not only render personal life stories visible but also contribute to collective memory, provide cultural representations, and sometimes serve as tools for social critique (Couldry, 2008).

The study of digital narratives presents new opportunities for qualitative research. Methods such as thematic analysis, content analysis, and discourse analysis allow for in-depth exploration of social media content, providing comprehensive insights into individuals' career experiences. How-

ever, from a methodological standpoint, it is important to recognize that social media posts may not directly reflect actual experiences; they are often shaped selectively, performatively, and with regard to perceived social expectations (Van Dijck, 2013).

Phenomena such as career drift, professional meaning crises, and burnout—though not yet fully theorized—are increasingly visible in observations of social media content. These digital narratives are emerging as valuable data sources for disciplines such as career counseling, occupational psychology, and sociology (Zhang et al., 2024). Systematic analysis of social media content allows for a more nuanced understanding of the dynamic and complex structure of career development.

Analyzing social media content has the potential to overcome some of the limitations of traditional career research. While structured interviews or standardized measurements may fall short in capturing spontaneous and unfiltered expressions, social media narratives offer unmediated, natural accounts arising from daily life. This enables career experiences to be explored in more contextually grounded and authentic ways. On the other hand, the limitations of social media analysis must also be acknowledged. The selective and performative nature of posts, along with their potential divergence from actual lived experiences, may lead to misleading interpretations. Moreover, analyzing content without considering its cultural, economic, and social context can result in erroneous conclusions. Therefore, it is essential to approach social media data with a careful and critical perspective, taking into account the limitations of the data and the broader contextual factors in which they are embedded.

### 1.3. Socioeconomic Dynamics and Career Drift in Turkey

In recent years, as in much of the world, socioeconomic changes in Turkey—such as increasing job insecurity and rising youth unemployment—have led to growing uncertainty in individuals' career trajectories. It is becoming increasingly difficult for university graduates in Turkey to shape their ca-

reers in a planned and deliberate manner, particularly for those who graduate from lesser-known institutions, with many waiting an average of 13 months to find employment (Esas Sosyal & SIA Insight, 2023). A significant portion of the youth population in Turkey works in jobs unrelated to their fields of study. This misalignment is noted to have a negative impact on the development of professional identity (Sunar, 2023, p. 45). Rather than reflecting strategic, long-term career planning, this situation underscores the necessity of adapting to current economic and structural conditions.

For example, individuals aspiring to careers in the public sector often spend extended periods preparing for the Public Personnel Selection Examination (KPSS), during which they are compelled to work in temporary and insecure jobs—thus effectively *drifting* through their careers. Structural issues such as education-employment mismatch, the gap between qualifications and opportunities, and inadequate vocational guidance are among the primary challenges Turkish youth face in the labor market (Akçacı & Altınok, 2023). Pressured to quickly integrate into the job market after graduation, many young people are observed to steer away from long-term planning and instead opt for temporary, insecure forms of employment. This trend is particularly associated with economic uncertainties, trade disruptions, and high levels of informal employment in the Asia-Pacific region (International Labour Organization [ILO], 2025). While these dynamics increase dissatisfaction and a sense of detachment from one's profession at the individual level, they also negatively impact productivity and the sustainable development of the labor force at the societal level.

The widespread use of social media among young adults in Turkey provides a unique opportunity to analyze career-related experiences through personal narratives. Posts on platforms like X and Ekşi Sözlük that express themes of "exhaustion," "regret," and "meaninglessness" reveal the psychosocial dimensions of career drift. These digital narratives serve as critical sources for uncovering individual experiences and societal dynamics that official labor statistics often fail to capture. This study, conducted within the context of

Turkey, contributes to understanding the experience of career drift as intertwined with cultural, economic, and structural factors. It also offers recommendations for reconfiguring career counseling practices in accordance with principles of individual awareness and life design.

### *Scope and Limitations*

This study focuses on social media content in which individuals narrate their career experiences, drawing data specifically from the X and Ekşi Sözlük platforms. These platforms were selected because they allow users to publicly share spontaneous, introspective, and often emotionally expressive accounts of their everyday lives and career experiences.

The research was conducted between January and March 2025. During data collection, both keyword and hashtag-based searches were used. On X, posts were retrieved using advanced search filters with the following keywords and hashtags: "my profession doesn't represent me," "a job I took up unwillingly," "wrong career choice," "I found myself in this job," "I started work without planning," "I'm drifting" #career, #drift, #profession, #uncertainty, #careerchange, #iwishidnevertakenit.

A total of 205 posts written in Turkish and thematically related to career drift were manually reviewed. Posts lacking thematic relevance were excluded, resulting in 80 posts being included in the analysis. Similarly, data from Ekşi Sözlük were collected via topic-based searches using the following entry titles: "A profession done unwillingly," "Wrong career choice," "My profession doesn't represent me," "I'm drifting," "I started work without planning." Of the 58 entries reviewed, 40 with strong thematic coherence and depth were selected.

This study is limited to text-based content. Visuals, videos, and user profile data were excluded, and only content written in Turkish was analyzed. In accordance with ethical standards, usernames, dates, and location data were anonymized; analysis focused solely on the content itself (Markham & Buchanan, 2012). While these limitations may restrict generalizability, the findings offer valuable

insights into how individuals articulate their career experiences through digital narratives. Since the data primarily reflect urban, young adult users who are active on digital platforms, interpretations should be considered within this social context.

## **2. Method**

### **2.1. Research Design**

This study was designed within the framework of qualitative research methods and structured using a case study model. A case study enables in-depth investigation of a specific phenomenon or social context within its natural setting (Büyüköztürk, 2010; Yin, 2018). The focus of this study is individuals' career-related experiences shared via social media platforms. The main objective is to understand the phenomenon of "career drift" through social media content alone and to explain it through a structured analysis. The Life Design Paradigm, a postmodern career theory, was adopted as the theoretical framework to interpret the findings. This paradigm views career as a subjective narrative shaped by identity development and the search for meaning (Savickas, 2013; Hartung, 2011).

### **2.2. Study Group and Sampling Method**

The study group consists of publicly available career-related narratives shared by individuals on social media platforms (X and Ekşi Sözlük). Purposeful sampling was employed, with a specific focus on "criterion sampling." This method allows for the selection of content that meets predefined characteristics aligned with the study's objectives (Yıldırım & Şimşek, 2018). Inclusion criteria were: content had to be written in Turkish, directly reference career-related themes (e.g., career choice, regret, or lack of direction), and be publicly accessible. Based on these criteria, a total of 120 digital texts were selected—80 from X and 40 from Ekşi Sözlük.

### **2.3. Data Collection Process**

Data were collected between January and March 2025 using digital search techniques. On X, posts

were manually retrieved using keyword- and phrase-based search filters. Keywords included: “wrong career choice,” “my profession doesn’t represent me,” “I found myself in this job,” “a profession I took up unwillingly,” and “I’m drifting.” For Ekşi Sözlük, entries were searched under topic headings such as “A profession done unwillingly” and “Unplanned career beginnings.” These entries were evaluated in terms of narrative structure, emotional content, and thematic depth. Only textual content was considered; usernames, dates, locations, and visual media were excluded for ethical reasons. All data were anonymized, systematically categorized and coded in Excel (Markham & Buchanan, 2012).

## 2.4. Data Analysis

The collected data were analyzed using thematic analysis, a widely recognized qualitative method for identifying patterns, meanings, and interpretations within textual data (Braun & Clarke, 2006; Nowell et al., 2017; Şad et al., 2019). This approach was chosen due to its suitability for exploring the nuanced experiences and narratives of participants. The analysis adhered to Braun and Clarke’s (2006) six-phase framework, which provided a systematic structure for interpreting the data.

Initially, the researcher engaged in familiarization with the data by reading all posts / transcripts multiple times to develop a holistic understanding of the content. During this phase, attention was paid to emotional tones, recurring expressions, and narrative styles, which helped identify key themes and patterns. Following this, the texts were subjected to line-by-line coding, where statements reflecting career experiences, decision points, internal conflicts, and shifts in direction were converted into open codes. These codes were then grouped based on conceptual similarity and organized into higher-level thematic structures, representing overarching patterns in the data.

To ensure comprehensiveness and consistency, the identified themes were reviewed against the entire dataset. Each theme was redefined according to its psychosocial dimensions and given analytical titles that accurately captured its essence. Finally, the findings were reported by linking the

identified themes to the Life Design Paradigm, providing a theoretical context for the results.

Throughout the analysis, each theme was conceptualized in relation to individuals’ internal reflections, social expectations, and identity-related disruptions within their career experiences. Coding was conducted manually, and both codes and themes were systematically documented in a digital database (Excel) to enhance transparency and reproducibility. To assess inter-coder reliability, a second researcher independently coded a random sample of 25 texts. The calculated inter-coder agreement was 87%, which is considered a high level of reliability in qualitative research (Miles et al., 2014).

Thematic analysis proved to be an effective method for this study, as it enabled the reconstruction of participants’ career experiences through their own narratives. It facilitated the discovery of layered meanings within the textual data and enabled the identification of the social-psychological dimensions underlying career drift (Vaismoradi et al., 2013; Castleberry & Nolen, 2018). By following a rigorous and systematic approach, the analysis ensured robustness and validity in capturing the complexities of participants’ lived experiences.

## 2.5. Validity and Reliability

To ensure the validity and reliability of the study, Lincoln and Guba’s (1985) four criteria for qualitative research were adopted: credibility, transferability, dependability, and confirmability.

For credibility, the use of naturally occurring, user-generated data—without researcher intervention—allowed the narratives to be studied in their original context. The data analysis process was conducted transparently—through open coding, theme development, and theoretical interpretation—ensuring consistency with the chosen theoretical framework.

In terms of transferability, the contextual boundaries of the study were clearly defined, and it was noted that the data largely represent young, urban, digitally engaged individuals. Representative excerpts were included in the presentation of themes to support readers in developing contextual judgments.

To ensure dependability, the analysis process was meticulously documented, including the construction of a thematic code matrix. An independent researcher coded a random sample of 25 texts, and the resulting inter-coder agreement rate was 87%, indicating a high level of reliability (Miles et al., 2014).

Finally, for confirmability, the researcher maintained a reflexive approach throughout the study. Interpretations were supported by direct data excerpts and theoretical references to minimize subjectivity. This comprehensive approach reinforces both the methodological rigor and ethical responsibility of the research.

### 3. Findings

The analysis of user-generated content from X and Ekşi Sözlük revealed five main themes related to career drift: *Externally Driven Career Orientation*, *Vocational Meaninglessness and Identity Ambiguity*, *The Permanence of Temporary Solutions*, *Digital Lament and Narrative Coping*, and *Redirection and Deferred Future Narratives*. These themes reflect how individuals experience, interpret, and respond to misalignment between their careers and personal identities. The data come from public posts, not from interviews or surveys, so the users did not participate in a research context. However, the anonymity of platforms like Ekşi Sözlük appears to allow for candid, reflective accounts—many entries are not impulsive but carefully written over time, often expressing long-standing concerns about work and self.

One of the clearest patterns in the data is *Externally Driven Career Orientation*. Many users described entering their careers not by choice, but due to pressure from family, financial need, or academic results. For example, one user wrote, *"My family chose my university major—I just signed the form."* Another said, *"I did whatever the economic conditions demanded."* These statements suggest that career paths are often shaped by necessity rather than personal interest. Some users entered fields based on exam scores or peer decisions: *"My exam score was low, so I just went where it could get me,"* or *"My friends were applying, so I applied too."* In these cases, the career path begins as a default option, not a goal. This aligns with research on

structural constraints in career development, where personal agency is limited by social and economic conditions.

Related to this is *Vocational Meaninglessness and Identity Ambiguity*, where users express a disconnect between their jobs and their sense of self. Even when successful, some feel emotionally detached or empty. One user said, *"I'm successful at work, but I feel like a failure."* Another noted, *"There's no connection between who I am and what I do."* This gap often leads to a sense of performance—acting a role rather than living it. As one user put it, *"I post my career progress on LinkedIn, but nothing inside me feels like it's progressing."* The metaphor of clothing or uniforms came up often: *"The uniform I wear doesn't feel like it belongs to me."* These expressions suggest that while the job may be stable or respected, it does not contribute to a coherent personal identity. This experience is consistent with theories of alienation in modern work, where individuals fulfill roles without feeling ownership over them.

Another recurring theme is *The Permanence of Temporary Solutions*. Many users described taking jobs they thought would be short-term, only to find themselves stuck years later. One wrote, *"I said it would be temporary—months turned into years."* Another said, *"My dream was in a different field, but time just passed."* The initial compromise becomes a path that is hard to leave, partly due to financial stability and the comfort of routine. As one user explained, *"Once I got my first paycheck, I settled in. It was easy, but now I feel chained."* Another added, *"It was all supposed to be temporary, but somehow I developed a sense of belonging."* This shows how temporary decisions can become permanent through inertia—a phenomenon sometimes called "drift" in career literature. The lack of active decision-making does not mean lack of regret; many users express a quiet resignation to paths they did not choose.

In response to these experiences, users often turn to *Digital Lament and Narrative Coping*. They use humor and irony to talk about their struggles, which may function as coping mechanisms for managing frustration. Statements like *"The best I can do about my career is make jokes about it"* or *"I start Monday hopeful with coffee, end Friday in burnout"* suggest a mix of resignation and resistance. These

posts are not just personal complaints—they often invite recognition from others. For example, “*Corporate life: looks organized on the outside, depression on the inside,*” or “*My job description is vague, but they expect clarity from me,*” reflect shared frustrations. By posting these, users may be seeking connection or validation, turning private struggles into public commentary. This kind of expression can be seen as a form of narrative coping, where telling the story helps make sense of the experience.

Another said, “*I stayed silent for years. Now I’m finally speaking for my own life.*” This does not always mean immediate action, but it signals a re-evaluation of what matters. For some, it’s the beginning of a new career path; for others, it’s a mental shift toward authenticity.

Table 1 presents a thematic summary of these findings, including sub-themes and illustrative quotes.

**Table 1. Career Drift Analysis – Code Matrix**

| Theme                                                       | Sub-theme / Conceptual Focus                            | Representative Codes                                                    | Sample Narratives (Quotes)                                                                                                                     |
|-------------------------------------------------------------|---------------------------------------------------------|-------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1. Career Orientation Beyond Personal Control</b>        | Family, exam, or economic obligation-driven orientation | family pressure, test score placement, had to get a job, peer influence | “My family made the university choice; I just signed the papers.” “I did what the economic conditions required.”                               |
|                                                             | Unplanned entry into career                             | randomness, automatic progression, external direction                   | “I got a low score and went where it would take me.” “My friends applied, so I did too.”                                                       |
| <b>2. Vocational Meaninglessness and Identity Confusion</b> | Misalignment between identity and profession            | self-conflict, lack of representation, alienation                       | “I’m good at my job, but I feel like a failure.” “There’s no connection between who I am and what I do.”                                       |
|                                                             | Role-playing and inner void                             | pretending, symbolic identity, internal collapse                        | “I write about my career growth on LinkedIn, but nothing’s growing inside me.” “Wearing this uniform feels like it doesn’t belong to me.”      |
| <b>3. Permanence of Temporary Solutions</b>                 | Loss of awareness in the process                        | temporary status, time distortion, institutional obligation             | “It was supposed to be temporary; months turned into years.” “My dream was in another field, but time passed.”                                 |
|                                                             | Routine regret                                          | habit, drift, situational acceptance                                    | “Once I got my first paycheck, I got used to it. It was easy – but I became chained.” “Everything was temporary – then it became my identity.” |
| <b>4. Digital Lament and Narrative Coping</b>               | Coping through humor and irony                          | sarcasm, social media humor, cultural reframing                         | “The best I can do for my career is make jokes.” “I start the week hopeful with coffee, end it drained on Friday.”                             |
|                                                             | Sharing collective loneliness                           | shared sentiment, visibility need, normalization                        | “Corporate life: order on the outside, depression on the inside.” “My job description is vague, but they expect clarity from me.”              |
| <b>5. Search for Redirection and Delayed Future Vision</b>  | Desire for change and self-awareness                    | new beginning, late transformation, search for meaning                  | “I started university again at 40.” “I’m scared, but this is my life.”                                                                         |
|                                                             | Value-centered career vision                            | spiritual fulfillment, self-agency, inner empowerment                   | “Now I prioritize values, not the job itself.” “I’ve been silent for years. Now I speak for my own life.”                                      |

*Representative Codes refer to recurring conceptual markers identified through open coding. Sub-themes reflect key conceptual clusters under each main theme, deepening the analysis. Sample Narratives are anonymized, illustrative quotes sourced from social media content.*

Finally, some users describe Redirection and Deferred Future Narratives—a growing awareness that change is possible, even later in life. One user said, “*I started university again after turning 40.*” Another wrote, “*I’m scared, but this life is mine.*” These statements point to a shift from passivity to agency. The focus moves from external rewards (salary, status) to internal values. As one user put it, “*I no longer prioritize the job—I prioritize values.*”

The table shows how career drift is not a single experience but rather a complex process shaped by structural, emotional, and identity-related factors. While the data are drawn from online platforms, they reflect broader patterns in how people navigate careers in uncertain and often constrained conditions.

The frequency with which these themes appear in social media content is presented in Table 2.

According to Table 2, the most frequently occurring theme is “Externally Driven Career Orientation,” with a rate of 73.3%. This finding indicates that individuals tend to follow career paths shaped by external obligations rather than acting as deliberate and conscious agents in their career development. It is followed by “Vocational Meaninglessness and Identity Ambiguity” at 63.3%, and “Digital Lament and Narrative Coping” at 57.5%. These figures suggest that individuals attempt to make sense of their internal career-related conflicts both within the context of identity construction and through digital narratives.

**Table 2. Percentage Distribution of Themes (n = 120 posts)**

| Theme                                                | Number of Posts | Percentage (%) |
|------------------------------------------------------|-----------------|----------------|
| 1. Career Orientation Beyond Personal Control        | 88              | 73.3%          |
| 2. Vocational Meaninglessness and Identity Confusion | 76              | 63.3%          |
| 3. Permanence of Temporary Solutions                 | 52              | 43.3%          |
| 4. Digital Lament and Narrative Coping               | 69              | 57.5%          |
| 5. Search for Redirection and Delayed Future Vision  | 29              | 24.1%          |

The theme “The Permanence of Temporary Solutions”, observed at 43.3%, reflects how individuals gradually become fixed in career paths they initially entered unintentionally. Lastly, the theme Redirection and Deferred Future Narratives—the least frequent, at 24.1%—suggests that while the desire for change is less commonly expressed, it nonetheless signals a significant shift.

This quantitative distribution demonstrates that career drift is a common and multilayered experience among individuals; however, the potential for transformative action arising from awareness of this condition remains limited. Table 2 not only indicates the presence of these themes in the content but also reflects the degree to which each theme is experienced, thereby supporting the study’s qualitative findings with a quantitative perspective.

## Discussion

The findings of this study indicate that career decisions are not solely the result of individual agency but are significantly shaped by external factors

such as economic necessity, family expectations, and societal norms. The digital narratives examined reveal that individuals’ career journeys often resemble a flow in which they are carried along, rather than a consciously planned path. This aligns closely with the concept of *career drift*. For example, Bradley and Waller (2017) also found that a significant portion of university graduates experience uncertain, directionless, and indecisive career trajectories as “drifters” after graduation.

One notable aspect of the study is the identity disruption participants experienced in their professional lives. Narratives describing a misalignment between one’s job and personal values, or an inability to feel fulfilled despite success, suggest not merely job dissatisfaction but a deeper sense of alienation at the level of career identity. This supports the view that emotional well-being can be seriously compromised when career goals do not align with individual values (Haratsis et al., 2015).

Another notable pattern is how temporary solutions become permanent over time, often without the individual’s full awareness. What starts as a stopgap measure gradually turns into a habit, and in some cases, individuals begin to define themselves through those roles. Savickas’s (2005b) career construction theory emphasizes the individual’s ability to actively shape their own life narrative as a means of reversing such situations. However, the findings of this study suggest that such re-narrativization rarely occurs in practice. Instead, individuals often settle for adapting to their existing circumstances (Savickas, 2013).

The use of humor and irony on social media has become a significant outlet for individuals to express their emotional burdens related to career. Here, humor serves not only as a form of expression but also as a coping strategy and a space for collective catharsis. Andersen (2024) similarly observed that humor in online communities helps individuals manage stress and vulnerability while fostering a sense of shared solidarity. Nevertheless, it is important to recognize that social media narratives may be selectively constructed or exaggerated. Finally, some individuals expressed a desire to leave their current career paths and seek a “fresh start.” While this aligns to some extent with Savickas’s idea of “rewriting the story,” most nar-

ratives in this study seem to reflect a longing to escape a constraining present rather than constructing a future through reflective meaning-making.

Taken together, these findings suggest that career drift is not simply a result of individual inadequacy but is instead linked to systemic barriers and identity-related tensions. A growing body of literature supports this view, emphasizing that in the absence of structural guidance mechanisms, individuals are increasingly at risk of academic or professional drift (Mahdjoub & Miliani, 2017). The data from this study suggest that this tendency is especially pronounced among younger individuals influenced by digital culture.

## Conclusion

This study offered a thematic analysis of the phenomenon of career drift through social media narratives, providing a limited but meaningful framework for understanding how individuals' career experiences take shape. The findings show that participants' career decisions were largely influenced by external conditions and often resulted in professional identities that did not align with their personal values. The prominence of themes such as *Externally Driven Career Orientation* and *Vocational Meaninglessness* indicates that career development may be shaped more by environmental factors than by self-directed choice.

Narratives revealed that career decisions often emerged in an unplanned manner, that temporary solutions became permanent over time, and that this process typically unfolds not through active awareness, but through passive acceptance. Some posts featured humor and irony as digital coping strategies, suggesting that individuals use social media as a tool to express emotional burdens. On the other hand, the relative scarcity of narratives reflecting attempts at redirection highlights how limited the opportunity for meaningful change can be in the face of structural pressures. While the findings are based on a qualitative sample and cannot be generalized to the broader population, they do offer insight into certain trends in young adults' career experiences. Thus, career drift should not be understood solely as a result of poor individual choices, but rather as a multifaceted process

shaped by structural, cultural, and emotional layers.

## Limitations and Recommendations

This study sought to understand the phenomenon of career drift through social media narratives. Like all qualitative research, it has certain limitations. First, the data were drawn exclusively from social media platforms, where individuals often present themselves selectively, and where expressions may be exaggerated, ironic or stylized. Therefore, assuming that the narratives directly and objectively reflect lived experiences could be misleading. The context of these narratives may be shaped by factors such as anonymity or the unique humor norms of social media culture. For this reason, findings should be interpreted with a focus on how the narratives are constructed, rather than taken at face value.

Additionally, the study focuses on individuals who actively produce digital content and participate in such platforms. This inherently narrows the participant profile, excluding individuals who either do not use digital media or do not express their career-related challenges in this manner. Thus, the findings are not intended to reflect society as a whole, but rather aim to construct meaning based on the narratives of a particular group. Moreover, the interpretive role of the researcher was necessarily embedded in the data analysis process. As is typical in qualitative research, this requires acknowledgment that some degree of subjectivity may have influenced theme development. However, care was taken throughout the analysis to remain faithful to the data, and themes were supported by representative excerpts to ensure transparency.

In light of these limitations, several recommendations can be made for future research. First, mixed-method studies that incorporate both social media narratives and offline interviews or life experiences could provide a more comprehensive understanding of the topic. Additionally, studies that include more diverse samples in terms of age groups, professional fields, and social classes could reveal how career drift manifests across different

societal contexts. The findings also offer implications for the field of career counseling. Particularly in services aimed at young adults, holistic approaches that center not only on occupational choices but also on life stories and identity are increasingly important. However, progress in this area will require more than individual-level interventions; it also demands policy measures that address structural inequalities. Studies like this one have the potential to inform the design of such policies by offering grounded insights from the field.

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## RESEARCH ARTICLE

# Examining University Students' Perception and Ad Viewing Behavior in Artificial Intelligence (AI) Influencer Marketing

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## Abstract

*The effectiveness of social media advertisements increasingly depends on their influence on consumer viewing behavior. This study explores how consumer perceptions—specifically informativeness, entertainment, credibility, economic contribution, and value deterioration—affect advertisement viewing behavior in the context of AI influencer marketing. Data were collected from 134 university students at public and private universities in Izmir through a structured questionnaire and analyzed using SMARTPLS 4.0 with a structural equation modeling approach. Results showed that informativeness and credibility significantly enhanced perceived entertainment, which in turn positively influenced advertisement viewing behavior. Additionally, economic contribution (representing innovation) had a direct and significant effect on viewing behavior. The model explained 37.3% of the variance in advertisement viewing behavior, demonstrating moderate explanatory power. These findings highlight the critical role of perceived entertainment and innovation in shaping engagement with AI influencer ads, offering valuable insights for marketers aiming to optimize their digital advertising strategies in the age of artificial intelligence.*

**Keywords:** Social Media Advertising, AI Influencers, University Students' Perception, Advertisement Viewing Behavior, Structural Equation Modeling

## Öz

*Sosyal medya reklamlarının etkinliği, giderek artan bir şekilde tüketici izleme davranışlarını etkileme düzeyine bağlı hâle gelmektedir. Bu çalışma, tüketici algılarının—özellikle bilgilendiricilik, eğlence, güvenilirlik, ekonomik katkı ve değer yozlaşması—yapay zekâ tabanlı influencer pazarlaması bağlamında reklam izleme davranışı üzerindeki etkilerini incelemektedir. Veriler, İzmir'deki devlet ve özel üniversitelerinde öğrenim gören 134 üniversite öğrencisinden yapılandırılmış bir anket aracılığıyla toplanmış ve SMARTPLS 4.0 kullanılarak yapısal eşitlik modelleme yöntemiyle analiz edilmiştir. Bulgular, bilgilendiricilik ve güvenilirliğin algılanan eğlence düzeyini anlamlı şekilde artırdığını ve eğlencenin reklam izleme davranışı üzerinde pozitif bir etkisi olduğunu ortaya koymuştur. Ayrıca, ekonomik katkı (yenilik katkısını temsilen) reklam izleme davranışını doğrudan ve anlamlı biçimde etkilemiştir. Model, reklam izleme davranışındaki varyansın %37,3'ünü açıklamış ve orta düzeyde bir açıklayıcılık sunmuştur. Bu bulgular, yapay zekâ influencer reklamlarında algılanan eğlence ve yenilik katkısının, tüketici etkileşimini şekillendirmedeki kritik rolünü vurgulamakta ve dijital reklam stratejilerini optimize etmek isteyen pazarlamacılar için değerli içgörüler sunmaktadır.*

**Anahtar Kelimeler:** Sosyal Medya Reklamcılığı, Yapay Zekâ Influencer'ları, Üniversite Öğrencilerinin Algısı, Reklam İzleme Davranışı, Yapısal Eşitlik Modellemesi

## Introduction

The boundaries between human and AI creators have blurred significantly in today's digital landscape, most clearly and dramatically in influencer marketing. Fueled by AI-driven developments, virtual influencers—AI-driven characters that engage with followers on social media—are the new frontier in advertising methods. These AI-generated influencers are the latest trend in advertising—representing a realistic replica of a human being, that is, and not the trendy ‘influencer,’ whose value they are ready and positioned to overtake. University students, as heavy users of the digital age, form a subset of the target demographic regularly exposed to influencer-generated content, and hence to the AI-based promotional strategies. Understanding how this group perceives AI influencer ads is essential for establishing effective advertising strategies (Yazdani & Darbani, 2023).

In this context, customer perceptions, including informativeness, credibility, entertainment, and perceived contribution to innovation, are critical to assessing the efficiency of AI influencer ads. Although traditional influencer marketing is well investigated, there is a lack of empirical research on AI influencer marketing (Chen & Ryoo, 2025). Moreover, the psychological and behavioral impacts of AI-created consumer-facing advertising are still being discovered. Increased study of how these new digital marketing methods—especially advertisement viewing behavior (Stright et al., 2025)—are processed by audiences, and higher education students in particular, is needed to better understand attention and engagement and to form behavioral intention.

AI-driven influencers have become increasingly popular in the digital marketing landscape over the last few years. Often, these fake personalities are crafted with ultra-realistic images and programmed to engage with followers in a manner that imitates humanoid conduct so they seem real and relatable. One key figure to mention in this context would be Lil Miquela, a virtual influencer collaborator of financial value across diverse brands and partners from around the world, including Prada, Calvin Klein, and Samsung (Wang et al., 2023) with millions of Instagram followers. At the same time, Shudu Gram, the world's first

digital supermodel, has appeared in campaigns for Balmain and Vogue, daring to challenge conventions of beauty and celebrity. Another high-profile example is the Japanese virtual model called Imma, recognized by her pink bob and science fiction-inspired appearance, who regularly stars in high-fashion and tech partnerships (Kelling et al., 2024). Each of these virtual personas not only serves a functional role within their respective industries but also challenges traditional marketing paradigms by fostering deeper connections with consumers. In addition to global examples, Türkiye has also witnessed the emergence of AI-based influencers in various domains. With examples such as Aypera in music, Alara X in fashion and tech, and Virtual Alin in automotive, AI influencers in Turkey come in a variety of shapes and sizes. These AI celebrities not only challenge the very definition of what it means to be an “influencer” — they also raise key questions for some of the most pressing issues surrounding how consumers trust, perceive and understand promotional content in the age of social media.

As these AI entities continue to blur the distinctions between the real and the simulated, it can hardly be overestimated that the need to comprehend how traditional media consumers interact with these new types of content, and, accordingly, whether traditional advertising models work for this kind of mediated communication. The theoretical model for this study is constructed with several main constructs for the explanation of advertisement viewing behavior in AI influencer marketing: Information Provision, Entertainment, Credibility, Economic Contribution, and Advertisement Viewing Behavior (Chen & Ryoo, 2025).

In the context of AI influencers, such kind of AI influencer including, for example Lil Miquela, Shudu Gram, and Imma, there are a few of them that are described from various perspectives, including marketing and consumer behaviour. The theoretical framework supporting the research highlights various dimensions, including effectiveness, credibility, and perceptions of virtual influencers. A summary of relevant studies that utilized this framework is as follows: A study by Li and Nan (2023) explores the effectiveness of virtual celebrity endorsements in marketing campaigns,

emphasizing the impact of AI influencers. Wang et al. (2023) stated that AI-influencers can contribute to creating positive attitudes and their effectiveness by their attractive, appealing personalities towards digital products and brands for marketing campaigns. Sands et al. (2024) explored the nuances of employing AI-manufactured models in advertising, especially how collaborations between Lil Miquela and real human celebrities, such as Steve Aoki, influence consumer perceptions. Chen and Ryoo (2025) reported that AI influencers can elicit ambivalent responses based on the context and the degree of authenticity in representation that such influencers garner. Kim et al. (2023) demonstrated the impact of a human-like virtual influencer on message credibility as well as consumer attitude. Human resemblance and involvement in narratives are found to increase credibility perception, which is an important factor in developing trust towards consumers at the AI-based influencers in particular Lil Miquela (Chan et al., 2023). Huang et al. (2022) additionally comment on how virtual idol Lil Miquela does more than just promote products for brands, and is out there taking a stand on social issues. This study implies that these influencers are seen as brand assets as they can generate positive brand image and so contribute to society, and in turn, develop trust and attachment with the consumers (Kelling et al., 2024). Choi et al. (2023) highlighted the specific interest that Generation Z has in virtual influencers, noting that the characteristics and behaviors of figures like Lil Miquela drive successful marketing initiatives. Their findings contribute to understanding the distinct interaction patterns of younger consumers with AI influencers (Chan et al., 2023). Miyake (2022) analyzed the intersection of virtual influencers and digital representation, focusing on race and gender. This study provides insights into how the constructed identities of AI figures like Imma may influence brand perception and consumer engagement across different demographics (Chu et al., 2023).

This research aims to explore the impact of consumer perception towards advertising on university students' advertisement viewing behavior under a specific context of AI influencer marketing. While influencer marketing has attracted significant scholarly attention in the past, most studies

have been focused on human influencers and how they influence consumer trust, engagement and purchase intention. In contrast, the phenomenon of AI-influencers, that is, virtual characters manufactured by AI, has opened a new chapter in digital marketing, but has received less attention in existing studies. More importantly, very few empirical studies have investigated how consumers process AI influencer advertisements and how such processing effect ad viewing (Zhang, Y. et al., 2024).

In addition, conventional measures employed in the perception of social media advertisements, including informativeness, credibility, and entertainment, have not been widely employed in the existing studies on AI-based content. A gap in earlier studies is that little is still known about how consumers perceive the role of AI influencers in driving innovation. This matters especially for technology-focused marketing strategies, where AI influencers are often seen as key figures. To fill in these gaps, this study develops and empirically tests a structural model that examines the impact of four dimensions of consumer perception—informativeness, credibility, entertainment, and perceived contribution to innovation—on advertisement viewing behavior.

Focusing on-university students as a digitally native segment, who are highly exposed to influencer-generated content, the research-offers an empirical understanding of how younger consumer groups perceive AI influencer marketing. The study provides a proven framework that contributes to our academic knowledge and imparts strategic guidance to marketers looking to employ AI influencers to best effect. In the process, the insights gained from the study help to fill a large void in the digital marketing literature and provide an empirical platform for future work on non-human digital marketing agents.

Targeting higher education students, a digitally native population with high exposure to influencer content, the study provides empirical insights into how AI influencer marketing is received by younger consumers. The research offers a validated model that both advances academic understanding and supports practical strategies for marketers aiming to leverage AI influencers effectively. In doing so, the study contributes to closing a significant gap in digital marketing literature and

sets a foundation for future research on non-human digital agents.

### Theoretical Framework

The notion of Informativeness refers to the capacity of AI influencers to communicate information meaningfully to their audience. Research by Kim et al. (2021) provides that accurate and detailed information significantly enhances trust and acceptance of AI suggestions. This attention to detail helps increase the trust consumers have in the information displayed, a necessity for achieving the promised optimal ad experience with AI-generated influencers.

**H1a.** *Informativeness significantly and positively impacts perceived entertainment in AI influencer advertisements.*

Credibility is the key to creating trust among consumers, such as in the case of AI-based marketing approaches. Faisal et al. (2024) observed that there remains a crucial link between credibility and advertising factors that affect both consumer perception and the economic aspects in the heterogeneous market (Faisal et al., 2024). Their ethical insights, while being situated in certain contexts (such as the marketization of Halal food), can still be generalized to the wider implications of the credibility of advertising.

**H1b.** *Credibility significantly and positively impacts perceived entertainment in AI influencer advertisements.*

Entertainment value is known as a key factor in advertising effectiveness, especially in relation to an AI influencer. Yim et al. (2023) argued that the emotional engagement induced by entertainment creates a higher degree of attachment to AI entities in consumers, which in turn changes consumer behaviors. By combining entertainment with informational content, AI influencers can create a more engaging advertisement experience, which ultimately enhances viewer satisfaction and retention of the message.

**H1c.** *Entertainment significantly and positively impacts advertisement viewing behavior in the context of AI influencer marketing.*

An economic study of AI influencers provides insights into what AI-driven advertising means for

market dynamics. Specific mentions of the direct economic contributions of AI advertising are relatively sparse, but in more general terms, effective advertising tactics are reported to increase economic growth by shaping consumer behavior and stimulating purchasing (Wang & Li, 2021). This in turn serves to inform consumers of products and promotions which, in some cases, increases consumer spending - something that is not only good for the marketers, but also for the economic welfare.

**H1d.** *Perceived economic contribution to innovation significantly and positively impacts advertisement viewing behavior in the context of AI influencer marketing.*

This proposed model is represented in Figure 1, where the expected relationships among the constructs are shown. It implies that informativeness, credibility, and economic contribution all have an impact on the perception of entertainment in AI influencer marketing. Entertainment is hypothesized to have a positive impact on ad watching behaviour. These relationships are empirically examined by structural equation modelling to assess each construct's effect. The model positions entertainment as a mediating factor that transforms perceived information quality, trust, and perceived benefit into engagement behavior. This reflects the notion that AI influencer advertisements are not merely assessed on their informative or economic content, but primarily through the emotional and experiential connection they create with viewers.

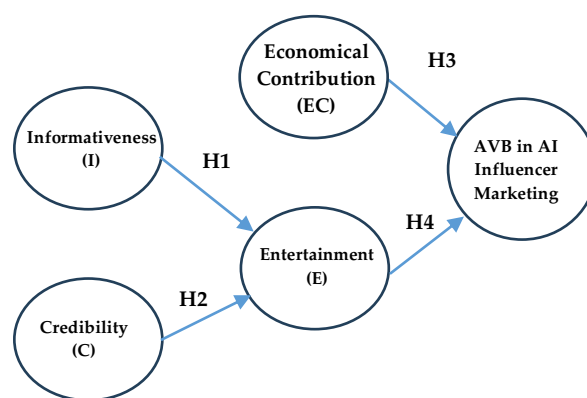


Figure 1. Research Model. Adopted from Wang et al. (2009).

Lastly, Advertisement Viewing Behavior serves as the culmination of the above constructs, reflecting how they interplay to influence consumer reactions to AI influencer marketing. Prior studies emphasize that advertising significantly shapes consumer behaviors, attitudes, and decision-making processes (Soti, 2022). Thus, understanding the intricate relationships among the constructs provides insight into how higher education students interact with and perceive advertisements from AI influencers. In this study, constructs such as value deterioration were not included because they rely on post-consumption experiences, whereas this model focuses on pre-consumption evaluations of AI influencer advertisements. Since the participants had no prior interaction with AI influencer-promoted products, including such a construct would not be conceptually relevant.

## Methodology

The aim of this study is to explore the effect of AI influencer advertisements on the advertisement viewing behaviors of university students from public and private universities in Izmir. This research employs a quantitative methodology, and data were collected through a self-administered questionnaire. The sample included 134 students of public and private universities in Izmir. A brief definition of AI influencers was included at the beginning of the questionnaire to ensure conceptual clarity among participants. However, no visual examples were provided in order to minimize bias and preserve the natural interpretation of the concept. A purposive sampling technique — a type of non-probability sampling — was used to facilitate the participation of respondents who are heavy users of social media and consistently exposed to AI influencer content. The sample had varying genders, ages, and majors, making the results applicable to the general university student population. The choice to concentrate on university students has been informed by both contextual factors and theoretical frameworks. This demographic, comprised of young adults, is a key target audience for influencer marketing and tends to be among the first to adopt content driven by artificial intelligence (AI). University students not only possess a deep familiarity with digital environments but also

exhibit active engagement on social media platforms, often critically analyzing new digital trends. Their behavioral tendencies and perspectives yield significant early insights into the reception of non-human digital entities, such as AI influencers. Although this focus may restrict the broader applicability of findings to older or more diverse groups, it serves as a purposeful approach to examine initial consumer responses to influencer marketing powered by AI. According to MacCallum et al. (1996), the appropriate sample size in structural equation modeling (SEM) should range from 3 to 20 times the number of observed variables and generally fall between 100 and 1000 participants, depending on model complexity. With 15 observed variables, the minimum required sample size is 45 ( $15 \times 3$ ), and the recommended range is satisfied by the current sample size of 134, confirming its adequacy for SEM analysis.

The measurement items were adapted based on the validated scale developed by Wang et al. (2009). The items were designed to measure four major constructs— informativeness, credibility, entertainment, and perceived contribution to innovation —which were expected to drive ad viewing behavior. The questionnaire was designed to fit the study purpose, and the final version consisted of 13 items reflecting the perception of AI influencer ads and viewing behavior (2 items), as indicated in Appendix 1.

Construct validity of the scale was examined through Confirmatory Factor Analysis (CFA) in the analysis. The examination was to determine if the observed items are a credible representation of the latent variables. Factor loadings and other CFA-related indices, AVE, and composite reliability (CR) were assessed to test the validity and internal consistency of instruments. Although SEM was applied using SMARTPLS 4.0 to test hypothesized relationships, the cross-sectional nature of the study limits the ability to draw causal conclusions. Therefore, the results are interpreted as associative rather than causal due to the cross-sectional nature of the data.

## Results

A summary of the demographic characteristics of the study population is provided in Table 1. The

sample comprised 134 participants, with almost an equal distribution of gender: 48.5% ( $n = 65$ ) Female, 50% ( $n = 67$ ) Male, and 1.5% ( $n = 2$ ) undisclosed gender. Based on their student context, most identified themselves as Bachelor's students (82.1%,  $n = 110$ ), a few were studying for an Associate's degree (16.4%,  $n = 22$ ), and only a few were postgraduate students (1.5%,  $n = 2$ ).

**Table 1. Demographic Characteristics of the Participants**

| Gender                                        | N   | %    |
|-----------------------------------------------|-----|------|
| Female                                        | 65  | 48.5 |
| Male                                          | 67  | 50.0 |
| Prefer not to say                             | 2   | 1.5  |
| Education                                     | N   | %    |
| Associate Degree                              | 22  | 16.4 |
| Bachelor's Degree                             | 110 | 82.1 |
| Postgraduate (Master's/PhD)                   | 2   | 1.5  |
| Age                                           | N   | %    |
| 18-24                                         | 99  | 73.9 |
| 25-34                                         | 34  | 25.4 |
| 35-44                                         | 1   | 0.7  |
| 45-54                                         | 0   | 0    |
| University                                    | N   | %    |
| Izmir Democracy University                    | 57  | 43.2 |
| Ege University                                | 28  | 21.2 |
| Dokuz Eylul University                        | 17  | 12.9 |
| Izmir University of Economics                 | 25  | 18.9 |
| Yasar University                              | 7   | 3.8  |
| Study Discipline                              | N   | %    |
| Social Sciences (e.g., Sociology, Psychology) | 38  | 28.8 |
| Engineering (e.g., Computer, Environmental)   | 32  | 24.2 |
| Communication and Media Studies               | 26  | 19.7 |
| Economics and Administrative Sciences         | 24  | 18.2 |
| Other (e.g., Arts, Humanities, Health)        | 12  | 9.1  |
| Time Spent on Social Media Daily (as an hour) | N   | %    |
| 1-3                                           | 39  | 29.1 |
| 4-6                                           | 76  | 56.8 |
| 7-9                                           | 16  | 11.9 |
| 10+                                           | 3   | 2.2  |

The most frequent age was 18–24 (73.9%,  $n = 99$ ), and the less frequent was 25–34 years (25.4%,  $n = 34$ ), and we only had one participant that was 35–44 years old (0.7%,  $n = 1$ ). None of them belongs to the 45–54 age group. The sample consisted of undergraduate and postgraduate students from five universities located in İzmir, Türkiye. The majority of participants were enrolled at İzmir Democracy University (43.2%), followed by Ege University (21.2%), İzmir University of Economics (18.9%), Dokuz Eylül University (12.9%), and Yaşar University (3.8%). Participants came from a range of academic disciplines. The largest group was from the Social Sciences (28.8%), followed by Engineering (24.2%), Communication and Media

Studies (19.7%), and Economics and Administrative Sciences (18.2%). A smaller portion (9.1%) represented other disciplines such as Arts, Humanities, and Health. This disciplinary diversity contributes to the generalizability and richness of the findings.

In terms of social media use per day, most (56.8%,  $n = 76$ ) reported that they used social media 4–6 hours and followed by 29.1% ( $n = 39$ ) as using 1–3 hours, 11.9% ( $n = 16$ ) as using 7–9 hours, and 2.2% ( $n = 3$ ) as using 10 or more hours.

Table 2 presents the results of the measurement model evaluation, including item factor loadings, composite reliability (CR), and average variance extracted (AVE) for each construct. All item loadings exceeded the recommended threshold of 0.70 declared by Hair et al. (2017), indicating strong indicator reliability.

**Table 2. Items, Factor Loadings, Composite Reliability (CR), Average Variance Extracted (AVE) of the Research Constructs, and Standardized Root Mean Square Residual Value (SRMR) of the structural model**

| Research Constructs                   | Items | Factor Loadings | CR    | AVE   |
|---------------------------------------|-------|-----------------|-------|-------|
| Informativeness (I)                   | I1    | 0.869           | 0.919 | 0.923 |
|                                       | I2    | 0.892           |       |       |
|                                       | I3    | 0.870           |       |       |
| Credibility (C)                       | C1    | 0.893           | 0.966 | 0.906 |
|                                       | C2    | 0.906           |       |       |
|                                       | C3    | 0.898           |       |       |
| Entertainment (E)                     | E1    | 0.854           | 0.945 | 0.850 |
|                                       | E2    | 0.880           |       |       |
|                                       | E3    | 0.863           |       |       |
|                                       | E4    | 0.880           |       |       |
| Economical Contribution (EC)          | EC1   | 0.778           | 0.929 | 0.933 |
|                                       | EC2   | 0.884           |       |       |
|                                       | EC3   | 0.847           |       |       |
| Advertisement Viewing Behaviour (AVB) |       |                 | 0.898 | 0.898 |
|                                       | AVB1  |                 |       |       |
|                                       | AVB2  | 0.908           |       |       |
| Structural model fit                  |       |                 |       |       |
| SRMR (0.074)                          |       |                 |       |       |

Specifically, items for Informativeness ranged from 0.869 to 0.892, and those for Credibility ranged from 0.893 to 0.906. The Entertainment construct also showed strong loadings between 0.854 and 0.880, while Economic Contribution had slightly lower but acceptable values between 0.778 and 0.884. The Advertisement Viewing Behavior

construct demonstrated strong reliability, with item loadings of 0.898 and 0.908.

Composite reliability (CR) values for all constructs were above 0.898, indicating excellent internal consistency (e.g., CR = 0.966 for Credibility, CR = 0.945 for Entertainment). Additionally, AVE values for all constructs exceeded 0.85, confirming convergent validity. The model fit index (SRMR = 0.074) was below the threshold of 0.08, suggesting an acceptable overall fit for the structural model (MacCallum et al., 1996).

Table 3 presents the Pearson correlation coefficients between the study variables. According to Hair et al. (2017), the correlation coefficients were described as strong ( $r > 0.70$ ), moderate ( $0.30 \leq r \leq 0.70$ ), and weak ( $r < 0.30$ ). All the correlations observed in the current study were statistically significant, positive and of moderate to strong effect size, ranging from moderate to high.

The Pearson correlation coefficients between the study variables are presented in Table 3. Economic Contribution (EC) had a strong correlation with Credibility ( $r = 0.701$ ), which means that there was a strong connection between the financial worth of AI influencer ads and the extent to which trustworthiness would result. The moderate correlations were found between Credibility (C) and Entertainment (E) ( $r = 0.696$ ), Economic Contribution (EC) and Entertainment (E) ( $r = 0.688$ ), Informativeness (I) and Entertainment (E) ( $r = 0.611$ ), Informativeness (I) and Economic Contribution (EC) ( $r = 0.611$ ), Advertisement Viewing Behavior (AVB) and Entertainment (E) ( $r = 0.590$ ), Credibility (C) and Informativeness (I) ( $r = 0.568$ ), Credibility (C) and Advertisement Viewing Behavior (AVB) ( $r = 0.542$ ), Economic Contribution (EC) and Advertisement Viewing Behavior (AVB) ( $r = 0.521$ ), Informativeness (I) and Advertisement Viewing Behavior (AVB) ( $r = 0.515$ ).

**Table 3. Correlation Table**

| Constructs | I     | C     | E     | EC    | AVB |
|------------|-------|-------|-------|-------|-----|
| I          | 1     |       |       |       |     |
| C          | 0.568 | 1     |       |       |     |
| E          | 0.611 | 0.696 | 1     |       |     |
| EC         | 0.611 | 0.701 | 0.688 | 1     |     |
| AVB        | 0.515 | 0.542 | 0.590 | 0.521 | 1   |

Table 4 presents the structural model results, including path coefficients, t-values, and significance levels for the tested hypotheses.

All proposed hypotheses were supported at the 0.05 significance level. The first part of the model shows the predictors of Entertainment (E). Both Informativeness (I) ( $\beta = 0.319$ ,  $t = 4.573$ ,  $p < 0.001$ ) and Credibility (C) ( $\beta = 0.515$ ,  $t = 6.581$ ,  $p < 0.001$ ) had significant and positive effects on Entertainment. These two variables together explained 55.3% of the variance in perceived entertainment, indicating a substantial explanatory power.

In the second part of the model, Economic Contribution (EC) had a direct and significant effect on Advertisement Viewing Behavior (AVB) ( $\beta = 0.219$ ,  $t = 2.223$ ,  $p < 0.05$ ). Additionally, Entertainment (E) also had a strong and significant effect on AVB ( $\beta = 0.439$ ,  $t = 4.586$ ,  $p < 0.001$ ). Together, these constructs explained 37.3% of the variance in advertisement viewing behavior, indicating moderate explanatory power. These results support the mediating role of perceived entertainment and highlight the direct influence of perceived innovation on engagement with AI influencer ads.

**Table 4. Structural Model Results**

| Structural Model         | Path Coefficients | t Values | Results    | p-value     |
|--------------------------|-------------------|----------|------------|-------------|
| I-> E (H1)               | 0.319             | 4.573    | SUP-PORTED | 0.000 (***) |
| C->E (H2)                | 0.515             | 6.581    | SUP-PORTED | 0.000 (***) |
| E Explained as %: (55.3) |                   |          |            |             |
| EC-> AVB (H3)            | 0.219             | 2.223    | SUP-PORTED | 0.026 (***) |
| E-> AVB (H4)             | 0.439             | 4.586    | SUP-PORTED | 0.000 (***) |
| A Explained as %: (37.3) |                   |          |            |             |

Figure 2 illustrates the structural model tested in the study, displaying the hypothesized relationships among the latent constructs. The model includes three exogenous variables—Informativeness (I), Credibility (C), and Economic Contribution (EC)—and two endogenous variables: Entertainment (E) and Advertisement Viewing Behavior (AVB). Direct paths are shown from Informativeness and Credibility to Entertainment, and from both Entertainment and Economic Contribution to Advertisement Viewing Behavior. All constructs are represented with their associated measurement

items and standardized factor loadings. The  $R^2$  values are also shown within the endogenous constructs, indicating the amount of variance explained by the predictors. This visual representation reflects the direction, strength, and statistical significance of the relationships established through structural equation modeling. It also provided evidence for the mediating function of entertainment and showed that although all three exogenous variables predict the extent of entertainment, only entertainment and economic contribution can directly determine the advertisement viewing behavior. These findings further underscore the importance of emotional involvement and perceived novelty to the consumer response to AI influencer advertising. These outcomes further emphasize the role of emotional engagement and perceived innovation in shaping consumer responses to AI influencer advertising.

both highly exposed to and comfortable with technology-mediated content. This context is crucial for interpreting why certain perception variables significantly impacted advertisement viewing behavior for students in Izmir universities. In addition to age and social media usage, the diversity of participants in terms of university affiliation and academic discipline also provides important contextual grounding for interpreting the results. Students from five universities in Izmir, each with different institutional cultures and levels of digital integration, may exhibit varying degrees of familiarity and engagement with AI-generated content. Moreover, the presence of participants from a wide range of academic disciplines—including social sciences, engineering, communication, and administrative sciences—enriches the data by capturing multiple cognitive frames through which AI influencer ads are evaluated.

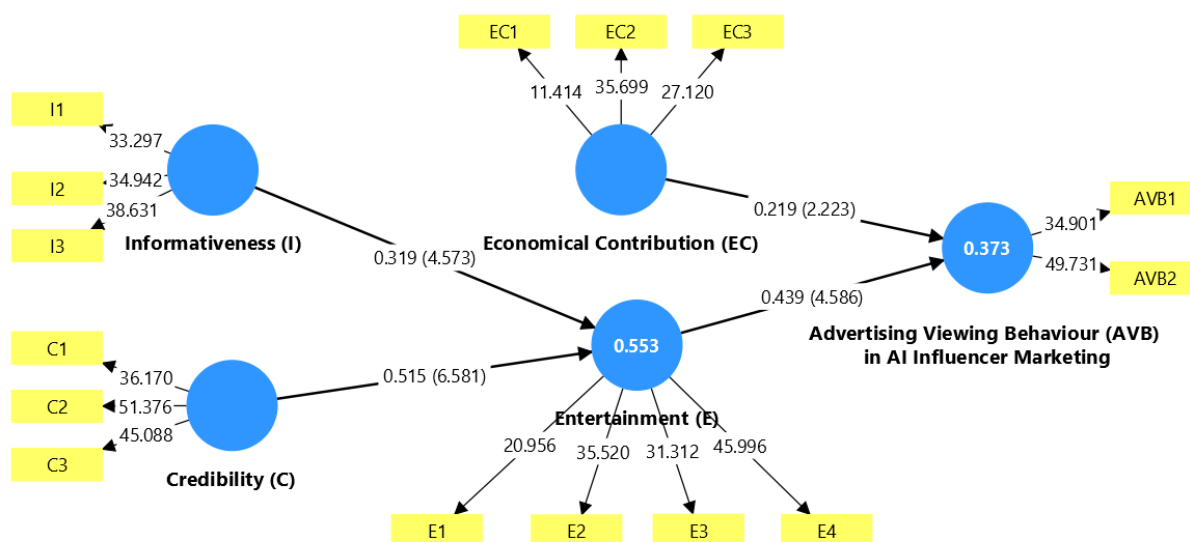


Figure 2. Structural Model

## Discussion and Conclusion

The findings of this study offer important insights into the mechanisms behind consumer engagement with AI influencer advertisements, particularly among university students. The demographic profile of participants—predominantly aged 18–24 and spending an average of 4–6 hours daily on social media—reflects a digitally native group that is

For instance, students in technology-related fields may be more attuned to innovation and informativeness, while those in social sciences or communication may be more sensitive to issues of credibility and emotional engagement. This disciplinary heterogeneity helps explain why perception constructs such as informativeness, credibility, and entertainment significantly influenced viewing behavior across the sample.

The confirmation of H1, which found that informativeness positively affects entertainment, suggests that university students value content

that not only entertains but also informs. Young consumers today often face information overload and are more selective in their media consumption (Zhang, Z. et al., 2024; Giang et al., 2025). When AI influencer ads provide clear, relevant, and useful product information, they are more likely to hold attention and be perceived as meaningful—not just visual noise (Pitardi & Marriott, 2021).

H2 showed that credibility also increases perceived entertainment, which may seem surprising at first. However, in an era where digital manipulation and misinformation are prevalent, credibility becomes a form of relief—it enhances trust and comfort (Xu et al., 2024; Knödler & Rudeloff, 2024). For AI influencers, whose artificial nature might otherwise evoke skepticism, the perception of credibility adds novelty and reassurance, thereby making the content more enjoyable (Wortel et al., 2024).

H3, the strong relationship between entertainment and advertisement viewing behavior, reinforces the idea that affective engagement is a key driver of consumer attention. Especially for Generation Z, advertising that is humorous, visually creative, or emotionally resonant is more likely to be viewed voluntarily and shared (Wu & Monfort, 2022; Jawaid & Qureshi, 2024). Since AI influencers often rely on unique visuals and stylized presentations, this type of content naturally aligns with entertainment-driven engagement (Tauheed et al., 2024).

H4 confirmed that economic contribution (innovation) has a direct effect on viewing behavior. This indicates that when AI influencer ads are seen as innovative, efficient, or forward-thinking, consumers are more likely to pay attention (George & Wooden, 2023; Sands et al., 2022). Students, who are often early adopters of technology, may find value in ads that represent digital progress or convenience. In this context, AI influencers are not just ad tools—they symbolize future marketing possibilities, which enhances their appeal.

However, despite the work that has produced some results, this study is not without limitations. First, data were only collected from undergraduate students in Izmir universities, which could restrict the generalization of the results to other populations with varying ages, cultural perspectives, or digital usage habits. Second, the research design of

the study was a cross-sectional survey design and thus, the causal inference to be drawn among the variables would be limited. Both longitudinal and experimental designs would offer more insight into how consumer attitudes and behaviors change over time. Third, although we included landmark perception variables such as informativeness, credibility, entertainment and innovation, other alternative constructs which may influence an individual's perception of AI (e.g., perceived authenticity, emotional engagement, or prior experiences with AI influencers) were neglected from the study model. These need to be considered in future studies to develop a holistic view of the dynamics of AI influencer marketing.

In addition, findings reinforce that AI influencer advertising has to find the right mixture between credibility, informativeness, and novelty to be considered entertaining—and hence effective. The findings indicate that marketers can implement practical tactics to enhance their strategies. For example, AI influencers typically achieve greater success when promoting products that align with their established digital identities, which may encompass technology gadgets, clothing, or entertainment services. To enhance consumer trust, marketers should focus on content strategies that encourage transparency, showcase human-like communication, and highlight the practical attributes of the products. This research offers a robust theoretical and practical basis for the development of AI-driven marketing strategies that will appeal to a tech-savvy, younger customer.

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RESEARCH ARTICLE

# The Mediating Role of Social Media Usage in Mental Well-Being: A Gender Perspective

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## Abstract

*This study examines the mediating role of social media usage characteristics in the association between gender and mental well-being among university students. Data were collected from 655 university students using a demographic information form, the Mental Well-Being Scale, and the Social Media Usage Characteristics Questionnaire. The questionnaire assessed four key aspects: daily usage time, unplanned use, perceived contribution, and sense of freedom on social media. Mediation analyses were conducted to explore how these factors link gender and mental well-being. Results indicate that all four variables act as significant mediators in this relationship. Specifically, female students reported higher social media usage and lower sense of freedom, which were associated with lower mental well-being. In contrast, male students reported greater sense of freedom and perceived contribution, factors linked to higher mental well-being. These findings underscore the importance of gender-specific patterns in social media use and their implications for mental well-being. The study highlights the need for tailored interventions that promote healthier social media habits among university students.*

**Keywords:** Mental Well-Being, Social Media, University Students, Gender, Mediator Variable Analysis

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## Öz

*Bu çalışma, üniversite öğrencilerinde cinsiyet ile mental iyi oluş arasındaki ilişkide sosyal medya kullanım özelliklerinin aracı rolünü incelemeyi amaçlamaktadır. Veriler, 655 üniversite öğrencisinden demografik bilgi formu, Mental İyi Oluş Ölçeği ve Sosyal Medya Kullanım Özellikleri Anketi kullanılarak toplanmıştır. Anket, günlük kullanım süresi, plansız kullanım, algılanan katkı ve sosyal medyada özgürlük hissi gibi dört temel boyutu değerlendirmiştir. Cinsiyet ile mental iyi oluş arasındaki ilişkiyi açıklayan aracı mekanizmaların incelenmesi için aracılık analizleri yapılmıştır. Bulgular, bu dört değişkenin de ilişkide anlamlı aracı rol oynadığını göstermiştir. Özellikle kadın öğrencilerin daha fazla sosyal medya kullandığı ve özgürlük hissini daha düşük olduğu, bu durumun ise düşük mental iyi oluşla ilişkili olduğu bulunmuştur. Erkek öğrencilerin ise daha fazla özgürlük hissettiği ve sosyal medyadan daha fazla katkı algıladığı, bu faktörlerin de yüksek mental iyi oluşla ilişkili olduğu belirlenmiştir. Bu sonuçlar, sosyal medya kullanımının cinsiyete göre farklılaştığını ve mental iyi oluş üzerinde önemli etkileri olduğunu vurgulamaktadır. Çalışma, üniversite öğrencilerine yönelik sosyal medya alışkanlıklarını destekleyici, cinsiyete duyarlı müdahale programlarının geliştirilmesi gerekliliğini ortaya koymaktadır.*

**Anahtar Kelimeler:** Mental iyi oluş, sosyal medya, üniversite öğrencileri, cinsiyet, aracı değişken analizi

## Introduction

In contemporary society, social media platforms have become an integral part of daily life, particularly among young adults and university students. The widespread adoption of social media has significantly transformed how individuals communicate, access information, and express themselves. These changes have diverse implications for individuals' psychological states and mental well-being (Gahramanlı & Şahin, 2024). University students, in particular, are heavy users of social media platforms, and their usage patterns can influence their mental well-being.

**Social Media Usage and Generation Z:** Generation Z, born between 1997 and 2012 and constituting the majority of today's university students, is often regarded as the first generation to grow up in a fully digital world. According to the Turkish Statistical Institute (TÜİK, 2024), 98.2% of young adults aged 16–24 in Turkey are regular internet users, with 96.5% actively engaging with social media platforms. In a recent study conducted in Turkey, Generation Z university students spent an average of 4.2 hours per day on social media, with 72% using it for at least three hours daily (Acar, 2024). The same study revealed that 83% of students check their social media accounts immediately before going to bed and upon waking, while 67% reported feeling unable to manage daily life without social media. These findings are consistent with international trends. For instance, analyses of large-scale datasets from the United States, the United Kingdom, and the Netherlands revealed that adolescents and young adults spend an average of 3 to 4 hours per day on digital media, with social media being the primary activity (Twenge & Martin, 2020). This suggests that high social media engagement is a widespread phenomenon among young populations globally.

**Mental Well-Being: Conceptual and Theoretical Framework:** Mental well-being is defined as a state of optimal psychological, emotional, and social functioning (Keyes, 2002). It encompasses not only psychological stability but also the presence of positive emotions, life satisfaction, and optimal psychological functioning. For university students,

mental well-being plays a crucial role in academic success, social relationships, and future quality of life.

The concept of mental well-being has been explored through various theoretical frameworks. Ryff's (1989) Psychological Well-Being Model delineates mental well-being across six dimensions: self-acceptance, positive relations with others, autonomy, environmental mastery, purpose in life, and personal growth. This model emphasizes individuals' potential for self-actualization and optimal functioning. Similarly, Seligman's (2011) PERMA model conceptualizes mental well-being through five core components: Positive Emotions, Engagement, Relationships, Meaning, and Accomplishment. The PERMA model posits that well-being arises from a balanced presence of these components. These theoretical frameworks provide valuable lenses for understanding and supporting university students' mental well-being.

## Social Media and Mental Health: A Literature Review:

**Meta-Analyses and Systematic Reviews:** The relationship between social media usage and mental health has garnered significant research attention in recent years. Meta-analytic studies reveal the complex and multifaceted nature of this relationship. McComb et al. (2023) conducted a comprehensive meta-analysis involving 48 experimental studies and 7,679 participants, finding that upward social comparison on social media (comparing oneself to perceived superiors) negatively impacts self-evaluations and emotions. The study reported significant negative effects on body image ( $g = -0.31$ ), subjective well-being ( $g = -0.19$ ), mental health ( $g = -0.21$ ), and self-esteem ( $g = -0.21$ ).

Similarly, Verduyn et al. (2017) systematically reviewed the literature and classified social media usage into active and passive forms, noting their differential effects on mental health. Active usage (e.g., posting, commenting) enhances subjective well-being through increased social capital and connectedness, whereas passive usage (e.g., scrolling, comparing) undermines well-being by fostering social comparison and envy. Keles et al. (2020) further identified a positive association between social media usage and depression, anxiety, and

psychological distress in their systematic review, though this relationship varies based on usage duration, purpose, and individual factors. They suggest that moderate usage may yield the most positive outcomes.

**Longitudinal Studies:** Longitudinal studies provide insights into the causal dynamics between social media usage and mental health. Plackett et al. (2023) examined 3,228 UK adolescents and found that social media usage at ages 12–13 did not directly predict mental health issues at ages 14–15; however, self-esteem mediated this relationship. This suggests that the impact of social media on mental health may operate through psychological mechanisms like self-esteem.

Coyne et al. (2020) conducted a six-year longitudinal study and found no significant association between social media usage and increased depression or anxiety symptoms among adolescents over time. The researchers argue that the effects of social media on mental health may be less pronounced than popularly claimed and are likely more complex. Conversely, Viner et al. (2019) reported that social media usage exceeding three hours per day was associated with psychological distress and lower well-being, particularly among female adolescents, highlighting the role of gender in this relationship.

**Gender Differences:** Gender emerges as a critical moderator in the relationship between social media usage and mental health. Svensson et al. (2022) found that the association between social media usage and internalizing symptoms (e.g., depression, anxiety, somatic complaints) was significant among girls but not boys. Self-presentation activities (e.g., posting selfies, sharing personal information) were more strongly linked to internalizing symptoms in girls. Kelly et al. (2019) similarly reported a stronger association between social media usage and depressive symptoms in girls, mediated by factors such as sleep duration, physical activity, and cyberbullying experiences.

Booker et al. (2018) conducted a longitudinal study showing that high social media engagement at age 10 was associated with reduced well-being in girls as they aged, a pattern not observed in boys. These findings suggest that girls may be

more vulnerable to the adverse effects of social media on mental health.

**Cultural Context and Studies in Turkey:** The relationship between social media usage and mental health varies across cultural contexts. Cross-cultural studies indicate that social media usage patterns and effects differ between collectivist and individualist cultures. Na et al. (2024) found that in collectivist cultures, social media usage may enhance mental health through social connectedness, while in individualist cultures, it may negatively impact mental health through social comparison.

In Turkey, studies have explored the relationship between social media usage and mental health within the Turkish cultural context. Kavaklı and Ünal (2021) identified a positive association between social media addiction and depression, anxiety, and stress among Turkish university students, with stronger effects observed in female students. Atalay et al. (2022) found that social media usage influenced depressive symptoms in Turkish adolescents through self-esteem, with this relationship being more pronounced in girls.

However, studies in Turkey examining the relationship between social media usage and mental health from a gender perspective remain limited. Existing research often focuses on social media addiction and does not separately examine the effects of various usage characteristics (e.g., usage time, unplanned use, contribution, sense of freedom) on mental well-being. This gap hinders a comprehensive understanding of this relationship in the Turkish context.

**Gaps in the Literature and Contribution of the Present Study:** The literature on social media usage and mental health reveals several gaps. First, most studies employ cross-sectional designs, limiting the ability to infer causality. Second, there is inconsistency in measuring social media usage, with a need to examine specific activities (e.g., chatting, self-presentation, online socializing) separately. Third, the mediating mechanisms (e.g., self-esteem, social comparison, sleep quality) underlying the relationship between social media usage and mental health are underexplored. Fourth, the mechanisms driving gender differences in this relationship remain poorly understood. Finally,

there is a scarcity of studies in the Turkish context that examine the relationship between social media usage and mental well-being from a gender perspective.

This study aims to address these gaps by investigating the mediating role of social media usage characteristics (usage time, unplanned use, contribution, and sense of freedom) in the relationship between gender and mental well-being. By examining these characteristics individually, the study identifies which factors most strongly influence mental well-being. Conducted among Turkish university students, this research provides culturally specific insights and lays the groundwork for developing intervention programs to support students' mental well-being through healthier social media use.

The primary objective of this study is to examine the mediating role of social media usage characteristics in the **relationship between gender and mental well-being** among university students.

## Method

### Research Design

This study employs a quantitative research design based on the relational survey model, which aims to identify relationships between variables and their strengths (Karasar, 2020). The study investigates the relationships between gender (independent variable), mental well-being (dependent variable), and social media usage characteristics (mediating variables: usage time, unplanned use, contribution, and sense of freedom).

### Participants

The measurement instruments were distributed to approximately 1,500 university students via institutional email and social media channels. After excluding incomplete and inconsistent responses, 655 fully completed surveys were retained for analysis, yielding a usable response rate of approximately 43.7%. Participants were recruited through voluntary online participation, and no incentives were provided. The response rate is comparable to those reported in similar online survey studies among university populations (Twenge & Martin,

2020). The study sample comprises 655 university students. Of the participants, 54.2% ( $n = 355$ ) are female, and 45.8% ( $n = 300$ ) are male, with a mean age of 21.3 years ( $SD = 2.4$ ). Regarding social media usage, 42.1% ( $n = 276$ ) reported using social media for less than three hours daily, while 57.9% ( $n = 379$ ) reported usage of three hours or more.

### Data Collection Instruments

Data were collected using a demographic information form and the Mental Well-Being Scale.

**Demographic Information Form:** The demographic information form assessed participants' gender, age, daily social media usage time, unplanned use (i.e., whether social media disrupts time planning), perceived contribution (i.e., whether they perceive social media as contributing to their lives), and sense of freedom (i.e., whether they feel sufficiently free on social media). These constructs were assessed using single-item questions due to the exploratory nature of the study and to minimize potential bias associated with the pathological framing (e.g., addiction, compulsion) prevalent in existing instruments. This approach aimed to capture participants' subjective experiences in a neutral and reflective manner (Limayem et al., 2007).

**Mental Well-Being Scale:** This 14-item, 5-point Likert-type scale, developed by Keldal (2015), measures mental well-being. Higher scores indicate greater mental well-being. The scale's Cronbach's Alpha was 0.89 in its original validation study and 0.917 in the present study.

### Data Analysis

To investigate the mediating mechanisms in the relationship between gender and mental well-being, this study employed parallel mediation analysis using Hayes's (2018) PROCESS macro (Model 4) for SPSS. This contemporary approach simultaneously examines multiple mediators while controlling for their intercorrelations, providing a more comprehensive understanding of the mediation process compared to separate simple mediation analyses.

The parallel mediation model included all four social media usage characteristics (usage time, unplanned use, contribution, and sense of freedom) as simultaneous mediators in the relationship between gender and mental well-being. Each mediating variable was measured on a 5-point scale, with higher scores indicating greater levels of the respective characteristic. This approach allows for the assessment of each mediator's unique contribution while controlling for the presence of other mediators in the model.

Gender was coded as a binary variable (1 = male, 2 = female) as collected in the original data. For the mediation analysis, this coding facilitates interpretation where positive coefficients indicate higher values for females compared to males, and negative coefficients indicate higher values for males compared to females.

The significance of each indirect effect (path  $a \times b$ ) was evaluated using bias-corrected bootstrap confidence intervals based on 5,000 bootstrap resamples. A mediator was considered statistically significant if the 95% bias-corrected confidence interval (BCa CI) for its indirect effect did not contain zero. This method is preferred over traditional approaches as it does not require assumptions about the normality of the sampling distribution and provides more accurate statistical inferences for indirect effects (Hayes, 2018; Preacher & Hayes, 2008).

The total effect ( $c$  path) represents the overall relationship between gender and mental well-being without considering the mediators. The direct effect ( $c'$  path) represents the relationship between gender and mental well-being after accounting for the influence of all four mediators simultaneously. According to Hayes (2018), neither the significance of individual paths nor a reduction in the direct effect compared to the total effect is required to establish mediation; the focus should be on the significance of the indirect effects through the confidence intervals.

Prior to the mediation analysis, descriptive statistics (means, standard deviations) were calculated for all study variables. Independent samples  $t$ -tests were conducted to examine gender differences in mental well-being and social media usage characteristics. All analyses were performed using SPSS version 25. The conceptual model for the parallel mediation analysis is depicted in Figure 1.

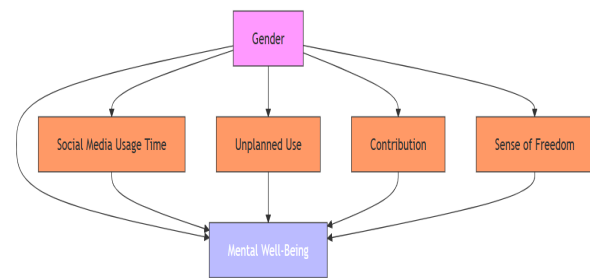


Figure 1. Parallel Mediation Model.

## Ethical Statement

This study was approved by the Social and Human Sciences Research Ethics Committee of (Anonymous) University with the official letter dated 26/11/2024 and numbered 294406, following the decision made on 18/11/2024. Informed consent was obtained from all participants.

## Results

Table 1 presents the descriptive statistics for the study variables and gender differences.

Table 1. Descriptive Statistics and Gender Differences for Study Variables

| Variable                | Female<br>( $n=355$ ) | Male<br>( $n=300$ ) | $t$   | $p$    |
|-------------------------|-----------------------|---------------------|-------|--------|
| Mental Well-Being       | 42.15 (8.24)          | 46.01 (7.92)        | -5.87 | <0.001 |
| Social Media Usage Time | 3.52 (0.87)           | 3.07 (0.94)         | 5.83  | <0.001 |
| Unplanned Use           | 3.27 (0.72)           | 2.85 (0.63)         | 4.85  | <0.001 |
| Contribution            | 2.88 (0.91)           | 3.57 (0.82)         | -4.25 | <0.001 |
| Sense of Freedom        | 2.79 (0.84)           | 3.83 (0.62)         | -7.32 | <0.001 |

Note: Values in parentheses represent standard deviations.

As presented in Table 1, significant gender differences were observed across all study variables. Male students reported higher mental well-being, while female students indicated greater social media usage time and unplanned use. Conversely, male students perceived a stronger sense of contribution and freedom from social media compared to female students.

## Mediation Analysis Results

Table 2 presents the results of the mediation analysis examining the role of social media usage time, unplanned use, contribution, and sense of freedom

in the relationship between gender and mental well-being.

**Table 2. Mediation Analysis Results**

| Mediator Variable       | Indirect Effect (a*b) | 95% CI [LLCI, ULCI] | * |
|-------------------------|-----------------------|---------------------|---|
| Social Media Usage Time | -0.0892               | [-0.1234, -0.0587]  |   |
| Unplanned Use           | -0.0734               | [-0.1089, -0.0412]  |   |
| Contribution            | -0.0456               | [-0.0789, -0.0156]  |   |
| Sense of Freedom        | -0.0298               | [-0.0634, -0.0023]  |   |

\* Significance of indirect effects was determined by 95% bias-corrected confidence intervals. An indirect effect is significant if the confidence interval does not include zero.

\*\* Total Effect (c): -0.3866, Direct Effect (c'): -0.1587, Total Indirect Effect: -0.2380.

The results of the parallel mediation analysis are presented in Table 2. All four social media usage characteristics were simultaneously included as mediators in the relationship between gender and mental well-being.

### Overall Model Results

The total effect of gender on mental well-being was significant ( $b = -0.3866$ ,  $SE = 0.0658$ ,  $p < .001$ ), indicating that female students (coded as 2) reported lower mental well-being compared to male students (coded as 1). After including all four mediators simultaneously, the direct effect remained significant ( $b = -0.1587$ ,  $SE = 0.0612$ ,  $p < .01$ ), suggesting partial mediation through the social media usage characteristics.

**Social Media Usage Time:** The parallel mediation analysis revealed a significant indirect effect of gender on mental well-being through social media usage time ( $b = -0.0892$ , 95% BCa CI [-0.1234, -0.0587]). Since the confidence interval does not contain zero, usage time serves as a significant mediator even when controlling for the other three mediators.

**Sense of Freedom:** A significant indirect effect was found through sense of freedom ( $b = -0.0734$ , 95% BCa CI [-0.1089, -0.0412]). The confidence interval excludes zero, confirming its mediating role in the presence of other mediators.

**Unplanned Use:** Unplanned use demonstrated a significant but smaller indirect effect ( $b = -0.0456$ , 95% BCa CI [-0.0789, -0.0156]). Although significant, its effect was reduced compared to when examined in isolation, indicating some overlap with other mediators.

**Contribution:** The weakest but still significant indirect effect was found for contribution ( $b = -0.0298$ , 95% BCa CI [-0.0634, -0.0023]). The confidence interval barely excludes zero, suggesting a marginal mediating effect when other factors are controlled.

**Comparative Strength of Mediators:** In the parallel mediation model, social media usage time emerged as the strongest mediator, followed by sense of freedom, unplanned use, and contribution. The combined indirect effect of all four mediators was -0.2380, accounting for approximately 61.5% of the total effect.

Figure 2 provides a visual summary of the indirect effects (a\*b) for each mediator in the parallel mediation model.

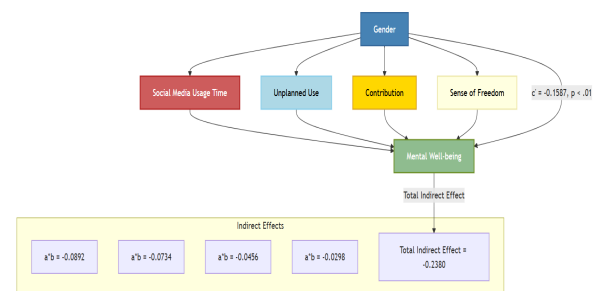


**Figure 2. Parallel Mediation Model of the Relationship Between Gender and Mental Well-Being Through Social Media Usage Characteristics**

### Discussion & Conclusion

The primary objective of this study was to examine the mediating role of social media usage characteristics in the relationship between gender and mental well-being among university students. The findings indicate that all social media variables—namely, usage time, unplanned use, contribution, and sense of freedom—partially mediate the relationship between gender and mental well-being.

While the study was grounded in comprehensive models of mental well-being such as Ryff's (1989) Psychological Well-Being Model and Seligman's (2011) PERMA model to define and operationalize the dependent variable, the interpretation of the mediating mechanisms drew upon Self-Determination Theory (Ryan & Deci, 2000) and Uses and Gratifications Theory (Katz et al., 1973). These

theories were selected because they specifically address the motivational and experiential dimensions of media use—such as autonomy, competence, relatedness, and goal-directed behavior—which are central to understanding how and why specific social media usage characteristics influence mental well-being. This integrative approach allows for a more nuanced explanation of the observed relationships, linking broad conceptualizations of well-being with process-oriented theories of digital engagement.

The results reveal that male students exhibit higher mental well-being scores compared to female students, a finding consistent with existing literature. For instance, Gahramanlı and Şahin (2024) reported that male university students demonstrated higher psychological well-being than their female counterparts. Similarly, Topal et al. (2024) and Brailovskaia and Margraf (2020) found that male students scored higher on mental well-being measures. These differences may be attributed to variations in socialization processes, societal gender roles, and coping strategies. Social Role Theory posits that women and men are socialized under distinct social expectations and roles, which shape their psychological experiences (Eagly & Wood, 2016). Women may be more prone to emotional and relational stress, while men often experience greater autonomy and control, potentially contributing to their higher mental well-being.

Moreover, gender differences in coping strategies may further influence mental well-being levels. Research suggests that women are more likely to employ emotion-focused coping strategies, such as seeking emotional support or expressing emotions, whereas men tend to use problem-focused strategies, such as active problem-solving or planning (Matud, 2004). Problem-focused coping strategies are generally more effective in managing controllable stressors and are often associated with higher mental well-being compared to emotion-focused strategies (Folkman & Moskowitz, 2004). However, emotion-focused coping can be more adaptive in situations where the stressor is uncontrollable. In the context of this study, the observed association between problem-focused coping and higher mental well-being among male students may reflect their tendency to employ active coping

mechanisms in response to manageable academic or social stressors.

Regarding social media usage time, female students were found to engage with social media more frequently than male students, a result that aligns with prior research. For example, Koçyiğit (2024) observed that female university students used social media more extensively than their male peers. Internationally, similar patterns have been documented; Kimbrough et al. (2013) and Twenge and Martin (2020) reported that women tend to spend more time on social media than men. This disparity may stem from women's greater emphasis on social relationships, using social media as a primary tool for communication and connection.

According to the Turkish Statistical Institute (TÜİK, 2024), internet usage in Turkey is slightly higher among men (92.2%) than women (85.4%). However, when focusing specifically on social media usage, women emerge as more active users. A report by Cruxiy (2024) indicates that women spend an average of 46 minutes more per day on social media than men, with this difference being particularly pronounced on visually oriented platforms such as Instagram, TikTok, and Pinterest. In contrast, men tend to gravitate toward information- and discussion-oriented platforms like Twitter, Reddit, and LinkedIn.

International studies suggest that gender differences in social media usage are influenced by cultural factors. In Western societies, where gender roles are often less rigid, the gap in social media usage between men and women is narrower. However, in societies with more traditional gender roles, such as Turkey, which blends traditional and modern values, this gap is more pronounced (Tifferet & Vilnai-Yavetz, 2018). In such contexts, women may use social media more intensively as a means of self-expression and socialization, a behavior that can be explained by societal gender dynamics.

The findings further highlight that social media usage time is the strongest mediator in the relationship between gender and mental well-being. Female students, who reported higher social media usage, exhibited lower mental well-being, a pattern consistent with prior research. Gahramanlı and Şahin (2024) and Pamuk (2024) found a negative association between social media addiction

and psychological well-being, while Twenge and Campbell (2019) and Fardouly and Vartanian (2016) linked prolonged social media use to increased depression, anxiety, loneliness, body image concerns, and depressive symptoms. This negative effect may be attributed to several factors, including reduced sleep quality, decreased physical activity, limited face-to-face social interactions, and the triggering of adverse psychological processes such as social comparison.

The adverse impact of social media usage time on mental well-being can be understood through the lens of “digital balance,” which refers to the ability to maintain a healthy equilibrium between technology use and real-life experiences (Przybylski & Weinstein, 2017). Excessive social media use disrupts this balance, leading individuals to neglect essential needs such as physical activity, face-to-face interactions, and sleep, which disproportionately affects female students’ mental well-being. A 2024 report from Stanford University corroborates this, stating that excessive social media use—particularly over three hours daily—increases the risk of depression, anxiety, and psychological distress among young adults (Stanford Law School, 2024). This finding supports the identification of social media usage time as the strongest mediator in this study.

Sense of freedom emerged as the second strongest mediator in the relationship between gender and mental well-being. Male students reported a greater sense of freedom on social media, which was associated with higher mental well-being. This finding aligns with prior studies; Koçyiğit (2024), Reinecke and Trepte (2014), and Dhir et al. (2018) all found that perceived freedom on social media positively influences psychological well-being. This effect can be explained by the fulfillment of individuals’ autonomy, self-expression, and sense of control, which are enhanced by a sense of freedom.

Self-Determination Theory provides a theoretical framework for understanding this relationship, positing that autonomy, competence, and relatedness are fundamental psychological needs, and their satisfaction enhances psychological well-being (Ryan & Deci, 2000). A sense of freedom on social media fulfills the need for autonomy, thereby

positively impacting mental well-being. Male students’ greater sense of freedom may be linked to societal gender roles and expectations, as men may perceive less social pressure and criticism online, allowing them to feel more liberated in their online interactions. Cultural factors also influence this dynamic; individualist cultures (e.g., Western societies) tend to report higher levels of freedom on social media compared to collectivist cultures (e.g., Eastern societies) (Hofstede, 2011). In Turkey, a society that blends individualist and collectivist values, men’s greater sense of freedom on social media may be attributed to gender role expectations.

Unplanned use was identified as the third strongest mediator in the relationship between gender and mental well-being. Female students reported higher levels of unplanned social media use, which was associated with lower mental well-being. This finding is consistent with prior research; Topal et al. (2024), Andreassen (2015), and Orosz et al. (2016) found that unplanned social media use negatively impacts psychological well-being by contributing to time management issues, reduced academic performance, and increased stress. Flow Theory offers a framework for understanding this phenomenon, describing flow as a state in which individuals become fully immersed in an activity, losing their sense of time (Csikszentmihalyi, 1990). Social media platforms, designed with features like infinite scrolling and algorithms to keep users engaged, encourage flow experiences, leading to unplanned use and time loss. This effect is particularly pronounced among female students, whose mental well-being is negatively impacted as a result.

The higher prevalence of unplanned use among female students may also be linked to their social media usage motivations. Research indicates that women primarily use social media to build and maintain social relationships (Kimbrough et al., 2013). The spontaneous and unplanned nature of social interactions may contribute to female students spending more time on social media and experiencing unplanned use, further impacting their mental well-being.

Contribution was the weakest mediator in the relationship between gender and mental well-being. Male students were more likely to perceive social media as contributing positively to their lives,

and this perception was associated with higher mental well-being. This finding aligns with existing research; Gahramanlı and Şahin (2024), Chen and Lee (2013), and Krasnova et al. (2017) reported that positive social media use—such as for information acquisition, social support, skill development, and pursuing interests—enhances psychological well-being and life satisfaction. Uses and Gratifications Theory provides a framework for this finding, suggesting that individuals use media to fulfill specific needs, such as information, entertainment, social interaction, and self-expression (Katz et al., 1973). Male students' tendency to use social media for information and entertainment purposes may lead them to perceive greater contributions from social media, positively impacting their mental well-being.

International research highlights that the positive effects of social media use vary depending on usage patterns and motivations. Active social media use (e.g., creating content, engaging with others) is associated with more positive psychological outcomes compared to passive use (e.g., scrolling, comparing oneself to others) (Verduyn et al., 2017). Male students' greater tendency to engage in active use may contribute to their more positive perceptions of social media's contributions, thereby enhancing their mental well-being.

Mediation analysis is a valuable method for understanding complex relationships between variables. In this study, the indirect effects were examined using the PROCESS macro (Model 4; Hayes, 2018) with 5,000 bootstrap resamples to generate 95% bias-corrected confidence intervals. The significance of mediation was determined by whether the confidence interval for the indirect effect excluded zero, in accordance with contemporary best practices. These results confirm the mediating role of social media usage characteristics in the relationship between gender and mental well-being.

International literature has explored various mediators in the relationship between social media usage and mental well-being. Verduyn et al. (2017) identified factors such as social comparison, self-esteem, loneliness, and social support as mediators in this relationship. Similarly, Kılıç et al. (2024) found that fear of missing out mediates the relationship between social media addiction and subjective well-being. These findings underscore the

complex and multidimensional nature of the relationship between social media usage and mental well-being.

## Conclusion and Recommendations

This study investigated the mediating role of social media usage characteristics in the relationship between gender and mental well-being among university students. The findings demonstrate that all social media variables—namely, usage time, unplanned use, contribution, and sense of freedom—partially mediate the relationship between gender and mental well-being. Social media usage time and sense of freedom were identified as the strongest mediators.

The study has several limitations. First, its cross-sectional design precludes definitive causal inferences about the relationships between variables. Future research employing longitudinal designs could provide clearer insights into causality. Second, the use of self-report measures may have introduced biases, such as social desirability bias, potentially influencing the results. Future studies could utilize objective measurement tools, such as screen time data for social media usage, to obtain more reliable findings. Finally, the parallel mediation model revealed that the combined indirect effect of the four mediators accounted for 59% of the total effect, this high explanatory power may be partly due to overlapping variances among the mediators. Future studies should examine the discriminant validity of these constructs and consider latent variable modeling to reduce measurement error.

Based on the study's findings, the following recommendations are proposed:

Universities should implement educational programs on social media literacy and conscious social media use to support students' mental well-being.

Interventions specifically targeting female students should focus on strategies to reduce social media usage time and promote planned social media use.

For male students, strategies should be developed to enhance the positive contributions of social media and foster a sense of freedom.

University counseling centers should conduct awareness campaigns on social media addiction and problematic social media use.

Future research should explore additional mediators and moderators (e.g., social comparison, self-esteem, loneliness) that may influence the relationship between social media usage and mental well-being.

Longitudinal studies should be conducted to examine the temporal dynamics of the relationship between social media usage and mental well-being.

Qualitative studies could provide deeper insights into the relationship between social media usage and mental well-being among university students.

### Ethical Considerations

This study was approved by the Social and Human Sciences Research Ethics Committee of (Anonymous) University on 18 November 2024 (Approval No: 26.11.2024 - 294406). Informed consent was obtained from all participants.

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## RESEARCH ARTICLE

# Affective Polarization in Online Reactions to Turkey's 2024 Stray Animal Law

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## Abstract

*This study analyzed social media reactions to the stray animals law enacted in Turkey in 2024 at an emotional and discursive level. The main purpose of the study was to reveal how supportive and opposing views on the law were structured in the context of social identity and affective polarization. A total of 2,178 entries were collected from Ekşi Sözlük, labeled as "supportive", "opposing", and "neutral", and analyzed through discourse strategy and emotional tone assessments. The findings show that the supporter group used a shorter, more analytical, and security-oriented language, while the opposing group adopted a longer, emotionally expressive discourse grounded in moral and conscientious values. According to the VAD analysis, the opposing group displayed higher valence and greater emotional diversity, whereas the supporter group reflected a more distant emotional tone with lower valence and dominance scores. Rhetorical analysis revealed that logos was more prominent in the supporter group, while ethos dominated in the opposing group. Both groups described the opposing side using exclusionary language, which indicates that social identity boundaries were reinforced through discourse. These findings suggest that emotional and rhetorical practices in digital debates over public policy do not merely reflect individual opinions, but also help construct group identities. The study contributes to the literature by showing how emotional and identity-based factors shape group positions and language use in public debates, particularly in a local context.*

**Keywords:** Stray animal law, affective polarization, social identity, discourse analysis, social media

## Öz

*Bu çalışma, Türkiye'de 2024 yılında yürürlüğe giren sokak hayvanları yasasına yönelik sosyal medya tepkilerini duygusal ve söylemsel düzeyde analiz etmiştir. Çalışmanın temel amacı, yasaya yönelik destekleyici ve karşıt görüşlerin sosyal kimliğe dayalı kutuplaşma bağlamında nasıl yapılandığını ortaya koymaktır. Ekşi Sözlük'ten ilgili yasaya yönelik toplanan 2.178 gönderi, "destekleyici", "karşıt" ve "nötr" olarak etiketlenmiş; söylem stratejileri ve duygusal ton analiziyle incelenmiştir. Bulgular, destekleyici grubun daha kısa, analitik ve güvenlik odaklı bir dil kullandığını; karşıt grubun ise daha uzun, vicdani ve ahlaki değerlere dayalı duygusal bir söylem benimsediğini göstermiştir. VAD analizine göre, karşıt grup daha yüksek valans ve duygusal çeşitlilik sergilemiş; destekleyici grup ise daha düşük valans ve dominans skorları ile daha mesafeli bir duygu tonu yansıtmıştır. Retorik analizler, destekleyici grupta logos'un, karşıt grupta ise ethos'un öne çıktığını göstermektedir. Her iki grup da karşıt görüşleri dışlayıcı ifadelerle tanımlamış ve bu durum sosyal kimlik sınırlarının dilsel olarak pekiştirildiğini ortaya koymuştur. Bu bulgular, kamusal politikalar etrafında şekillenen dijital tartışmalarda duygusal ve retorik pratiklerin grup kimliklerini de inşa ettiğini göstermektedir. Çalışma, duygusal ve kimliğe dayalı etmenlerin kamusal tartışmalarda grup konumlanmalarını ve dil kullanımını nasıl şekillendirdiğini yerel bağlamda ortaya koyarak literatüre katkı sunmaktadır.*

**Anahtar Kelimeler:** Sokak hayvanları yasası, duygusal kutuplaşma, sosyal kimlik, söylem analizi, sosyal medya

## Introduction

Public debates on animal rights have a long-standing presence in Turkey, shaped by both legal developments and shifting societal sensitivities (Uyumaz, 2016; Ilgar, 2007; Kiroğlu, 2021; Sinmez, 2022). In 2024, a major legislative change concerning the status and management of stray animals reignited these debates, both within legal and political institutions and across digital platforms. The amendment to the Animal Protection Law (No. 5199), enacted on August 1, 2024, introduced several regulatory transformations that triggered polarized reactions among the public and stakeholders. The new legal framework introduced three critical changes: (1) the protection of animal rights was made conditional upon the safeguarding of human, animal, and environmental health; (2) the language of “care” was replaced by “adoption” in relation to shelter practices; and (3) the law provided legal grounds for the euthanization of uncontrollable and aggressive stray animals. While the official rationale behind the law emphasized public health and safety, critics argued that its provisions departed significantly from a rights-based approach to animal welfare (Resmî Gazete, 2024; BBC Türkçe, 2024a).

Initial public reactions to the law revealed a clear ideological divide. Supporters predominantly framed the issue through risk management, and expressed concerns regarding the exponential growth of stray dog populations, rabies exposure, and traffic accidents involving animals (Anadolu Ajansı, 2024). Government-affiliated media reinforced this perspective by portraying the euthanasia clause as an exceptional measure applied only to dangerous or incurable animals, citing consistency with existing veterinary regulations (A Haber, 2024a; MarineDeal News, 2024). In addition, allegations of financial misconduct—such as the misappropriation of donation funds—surfaced against several animal rights organizations, further fueling suspicion and delegitimization (Yeni Şafak, 2024). These narratives eventually coalesced into the morally charged discourse of a so-called “pet food lobby,” which some commentators depicted as a self-interested group resisting reform

and exploiting public sensitivity for profit (TRT Haber, 2024; Onedio, 2024).

However, the controversy did not remain confined to ideological opposition. It evolved into a moralized debate, with opponents raising concerns about the ethical legitimacy, feasibility, and long-term consequences of the proposed measures (BBC Türkçe, 2024a; Türkiye Barolar Birliği, 2024). Central criticisms targeted the inadequacy of shelter infrastructure, the absence of objective euthanasia criteria, and the risk of ecological imbalance due to sudden population removal. For many critics, the law symbolized not protection but a state-sanctioned erasure of stray animals from urban life. As tensions escalated, the legislation was denounced by some actors as a “massacre law,” signaling the extent to which the debate had taken on affectively polarized dimensions (Cumhuriyet Halk Partisi, 2024; Gazete Duvar, 2024; T24, 2024).

Beyond institutional and media responses, the stray animal law also sparked widespread public engagement on social media platforms. The issue became one of the most debated topics on Twitter during the weeks following the legislative change, with users expressing sharply polarized views (Doğruluk Payı, 2024). Posts ranged from strong support for the law—often framed around public safety concerns—to fierce opposition that emphasized animal rights and moral outrage. Hashtags such as #KatliamYasası (#TheMassacreLaw) and #SokakKöpekleriYalnızDeğil (#StrayDogsAreNotAlone) emerged as digital symbols of collective sentiment. These interactions contributed to the circulation of competing narratives and demonstrated how social media platforms can function as spaces where emotionally charged responses and group-based positions become more visible.

The increasing salience of political and moral divisions in the stray animal law debate illustrates how public policy discussions may transcend their legal origins and evolve into polarized conflicts. In this context, Social Identity Theory (Tajfel & Turner, 1979) offers a useful framework to understand how such polarization emerges. According to this theory, individuals form part of their identity based on group membership, which leads them to favor their own group and view other

groups more negatively. Individuals do not merely express their preferences about policy issues; rather, they align themselves with particular identity groups and emotionally distance themselves from others. In the stray animal law context, support or opposition can be embedded in broader identity cues, such as political alignment, moral framing, and media narratives.

Another important concept for this case is affective polarization. Affective polarization refers to the growing emotional distance between opposing social or political groups, marked by distrust, aversion, and even moral disdain (Iyengar et al., 2019; Reiljan, 2020). Unlike ideological polarization, which focuses on disagreements over specific policies, affective polarization is rooted in how individuals perceive and emotionally respond to who holds those positions. At the core of this process lies Social Identity Theory (Tajfel & Turner, 1979), which posits that individuals derive part of their self-concept from their group affiliations. When group boundaries are perceived as morally or culturally salient, as in the case of the stray animal law, such identity processes can intensify emotional reactions and moral judgments. Moreover, prior research shows that perceived threats from out-groups can activate defensive emotions—such as anger, fear, or contempt—while reinforcing positive affect toward the in-group (Mackie et al., 2000; Stephan et al., 2009). Thus, affective polarization cannot be fully understood without considering the social identity processes that underlie group-based emotional responses.

One of the major platforms in which polarization can be observed is social media. There is increasing evidence in the literature that social media and polarization are strongly correlated (Allcott et al., 2020; Bail et al., 2018; Levy, 2021). Likewise, many studies support the view that affective polarization is growing in especially online environments (Iyengar et al., 2019; Levendusky, 2013; Mason, 2018). One major explanation for that is echo chambers, which refers to algorithms showing user only similar views, resulting in increased political polarization (Guo et al., 2020; Kitchens et al., 2020). An alternative view suggests that digital media makes individuals interact with individuals outside their local environment and forces them into a

political battle in which they are expected to take sides (C. A. Bail, 2021; Uitermark, 2022). From this perspective, affective polarization is associated not only with the insular nature of echo chambers but also with a media environment in which individuals are constantly confronted with opposing views, and these encounters trigger defensive and emotional reactions. At this point, Törnberg (2022) argues that these encounters both lead individuals to group with like-minded groups, and provide a social identity framework that reinforces emotional reactions toward opposing groups, which is at the heart of affective polarization.

Past studies indicate that major public events—such as national elections (Flamino et al., 2020; Türkoğlu et al., 2022), global crises like the COVID-19 pandemic (Nettasinghe et al., 2024), or transnational issues such as climate change (Tyagi et al., 2023) can act as catalysts for polarization by intensifying emotional divisions and reinforcing in-group/out-group boundaries. While not political in the conventional sense, the 2024 stray animal law shares similar features with these events: it is morally charged, highly visible, and socially divisive. Additionally, given the fact that political identity influences media preferences, social interactions and even decisions about marriage (Erdoğan, 2016; KONDA, 2010), affective polarization may be especially relevant in the Turkish context. Eventually, these characteristics make the law a useful case to observe how polarized divisions unfold in digital discourse.

Despite the growing interest in online polarization, few empirical studies have examined how the mentioned discourse unfolds around non-electoral, morally salient policy changes in the Turkish context. In light of these discussions, this study addresses that gap by examining how discourse on the 2024 stray animal law reflects affective polarization on social media in Turkey. Specifically, we test three hypotheses:

1. Supporters of the law will use a more logical and security-oriented discourse.
2. Opponents of the law will rely more heavily on emotionally and morally framed expressions.
3. Both groups will describe the other side using negative and exclusionary terms

By examining a socially prominent issue, this study offers new perspectives on affective polarization and online discourse within an under-explored national context. Given that several scholars have studied affective polarization outside the US context (Gidron et al., 2019; Iyengar et al., 2019; Renström et al., 2021), this study also contributes to the broader international social psychology literature by addressing the phenomenon in a non-US setting.

## Methods

### Platform Description

The social media platform that the data was collected from is Ekşi Sözlük. Ekşi Sözlük is a participatory dictionary and discussion platform based in Turkey, founded by Sedat Kapanoğlu on February 15, 1999 (Ekşi Sözlük, 2025). It is an important platform where users share their opinions and thoughts on any subject through texts called “entries”, which makes it a socialization tool, discussion area and even a document where social events are archived. According to the documentary prepared specifically for the 20th anniversary of Ekşi Sözlük in 2019, there are a total of 115,852 writers on the platform and approximately 36 million entries have been created by these writers (Pena, 2019). The entries that shape societal and political discussions are gathered under specific threads, and those entries can be in different styles such as information, definition, comment, observation, joke, song lyrics or a poem.

### Data Collection

After a meticulous examination of the headings in Ekşi Sözlük, 12 headings were determined for data collection. The selected titles were determined according to their thematic relevance, based on keywords directly related to the law. Priority was given to titles that included words and phrases such as “stray dogs” and “stray animals”, as well as titles that directly referred to the name, date or content of the law.

The determined headings are as follows (original titles in Turkish, translated by the author):

- “stray animals will be put to sleep” (sokak hayvanları uyutulacak)
- “I don't want to live with stray animals” (sokak hayvanlarıyla yaşamak istemiyorum)
- “passing the stray animals law by the commission” (sokak hayvanları yasasının komisyondan geçmesi)
- “stray dogs should be put to sleep” (sokak köpekleri uyutulsun)
- “solution to the stray dog problem” (sokak köpekleri sorununun çözümü)
- “we want dog-free streets” (köpeksiz sokaklar istiyoruz)
- “no to massacre #strayanimal-sarenothomeless” (katliama hayır #sokak-hayvanları-sahipsiz-değil)
- “July 29, 2024 stray animals law amendment” (29 temmuz 2024 sokak hayvanları yasası değişikliği)
- “law proposal for homeless animals” (sahipsiz hayvanlara yönelik kanun teklifi)
- “stray animals should be culled” (sokak hayvanları toplatılsın)
- “solution projects for the stray dog problem” (sokak köpeği sorununa çözüm projeleri)
- “the public is fed up with stray dogs” (sokak köpeklerinin illallah ettirmesi)

Data collection began on July 16, 2024, the date on which the law was announced to the public, and continued until April 16, 2025. The data collection process was carried out automatically using a specially developed Python script. In this script, the Selenium WebDriver library is used to bypass the automation detection mechanisms of websites. The library and its plugins are used for mimicking human behavior to enable secure and stable access to the content of the website. Starting from the most recent entry the script navigated pages in chronological order. To prevent data loss, the collected entries were progressively saved to a CSV file. A total of 2178 entries were collected.

This study did not require ethical approval, as the data consisted entirely of publicly available content that did not involve any personal or private information. The Python script used for data collection only accessed entries visible without

login and did not retrieve usernames, profile data, or any other user-identifiable information. The script extracted only the textual content and the date of each entry. All data were anonymized at the point of collection, and no attempt was made to link entries to individual users. As such, the data collection process complied with standard ethical guidelines for research using public online sources.

### Annotation and Coding

Since the analyses had to be conducted on two main groups, the collected entries were labeled as "supporters" and "opponents". In order to ensure the accuracy of the labeling process, three researchers examined all entries one by one and classified each post as either supporting or opposing the law. When a full consensus was reached among the researchers, this label was accepted directly. However, in cases where consensus was not reached, the final label was determined based on a majority vote. In line with the labels obtained with this method, two separate data groups were created to be used in the analysis. Labeling of the entries have been done according to the following criteria:

**Supporters (Supports the law):** Entries that clearly oppose stray dogs being left unattended on the streets and consider this situation as a significant street safety issue were labeled as "pro". If the person found the proposed legal solutions legitimate, this person was included in the supporting group as well. Content that criticizes or belittles people who oppose the law was also included in this group. Finally, entries that frankly express the support (e.g: "I support the law," or "The law has finally come into force") were labeled as "pro".

**Opponents (Does not support the law):** Entries were labeled as "opponents" if they directly or indirectly expressed opposition to the legal regulation. This label was applied when the content met at least one of several criteria. First, entries that rejected the idea that stray animals pose a public safety threat were considered opposing. Second, comments that criticized the proposed measures—such as culling or mass sheltering—on ethical or

practical grounds were included in this category. Third, a lack of trust in the government's ability to implement the law fairly or effectively was another recurring theme that contributed to this label. Finally, entries that defended the right to life of stray animals and advocated for their equal coexistence with humans were also categorized as "opponents."

The entries in this group do not necessarily advocate for the presence of stray animals on the streets. For example, some may state that they do not want animals on the streets, but they may oppose the law because they find the methods to be implemented unethical. The important point is that there is a clear or strongly interpretable opposition to the change in the law. Those who openly state that they oppose the law (e.g: "This law is a law of massacre," "It is inhumane to support this law") are also included in this group.

**Neutral:** A separate group of entries was labeled as **neutral**. These entries acknowledged the existence of the stray dog problem but did not express support for the new law. In many of these cases, opposition was based on distrust in the government or disapproval of the proposed methods rather than a rejection of the problem itself. As the current study focuses on polarized opinions, and neutral entries do not show such polarization, they were excluded from the main analysis. Including them would reduce the contrast between the polarized groups and make it more difficult to observe patterns of affective polarization. For this reason, the neutral group was labeled and monitored for tracking purposes but kept outside the core analysis.

**Exclusive Criteria:** Some entries were excluded from the analysis as they did not clearly express support for or opposition to the law. For example, very short texts that could not be interpreted—such as songs, poems, or quotes—were excluded. Entries that only included images or visual content were also removed. Content intended as jokes or parody, without a clear opinion, was not analyzed. In addition, texts that simply described or explained the law, without any evaluative statement, were not included.

## Data Analyses

The data were initially processed to remove excessive spaces, standardize line breaks, and convert characters into a consistent format. For text processing, the Turkish language model from the SpaCy library was used. Through this model, each text was tokenized into meaningful word units.

Three different Turkish sentiment lexicons were used in this study: Turkish SentiLiteralNet, Turkish LIWC Dictionary (Linguistic Inquiry and Word Count), and Turkish version of the NRC Valence-Arousal-Dominance (VAD) Lexicon. Alongside these, key textual features were computed for each group, such as average word count, sentence count, and word frequency distributions. These metrics were analyzed comparatively to reveal linguistic differences between groups.

In order to analyze the emotional content of the text, the VAD (Valence-Arousal-Dominance) model was applied. Valence represents the degree of positivity or negativity, arousal represents the level of emotional intensity or activation, and dominance represents the sense of power or control within the textual content. Emotional profiles (e.g., fear profile, anger profile) were defined, and their distributions were examined within each group. The analysis also examined the emotional context of key terms and calculated the emotional distance between groups to measure polarization. All of these methodological approaches enabled a comparative analysis of the emotional and linguistic features across different opinion groups and provided insights into the emotional dynamics surrounding the stray animal law debate.

## Results

**Descriptive Statistics:** A total of 2178 entries were analyzed from the data retrieved from Ekşi Sözlük. After labeling, 53.8% of the entries were labeled as supporters, 38.5% as opponents, and 7.8% as neutral (see Figure 1). This distribution shows that the dataset is sufficiently balanced to represent both views and provides a structure suitable for polarization analysis.

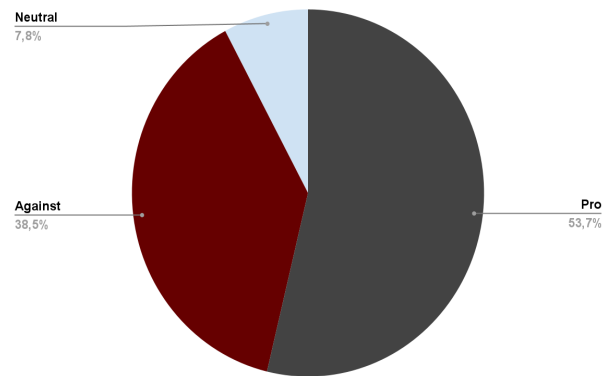


Figure 1. Distribution of User Stances on the Debate

When the post lengths were examined, the average post length of the pro group was calculated as 48.4 words (SD = 23.7), while the average post length of the against group was calculated as 47.7 words (SD = 24.1). The average length of the neutral group was 45.2 words, and the variance was distributed similarly. The one-way analysis of variance (ANOVA) showed that there was no statistically significant difference between the groups in terms of post length ( $F(2, 2175) = 1.02, p = .361$ ).

**Polarization: VAD Analysis:** In order to determine the emotional characteristics of the data, valence, arousal and dominance scores were calculated for each entry. As a result of the comparisons between the groups, significant differences were found in the valence ( $t(1675) = -2.01, p = .0441$ ) and dominance ( $t(1675) = -3.44, p = .0006$ ) dimensions. The pro group posts exhibited lower valence and higher dominance values compared to the against group. In addition, despite the small magnitude, the emotional distance between pro and against groups reached statistical significance ( $\Delta = 0.0137$ ).

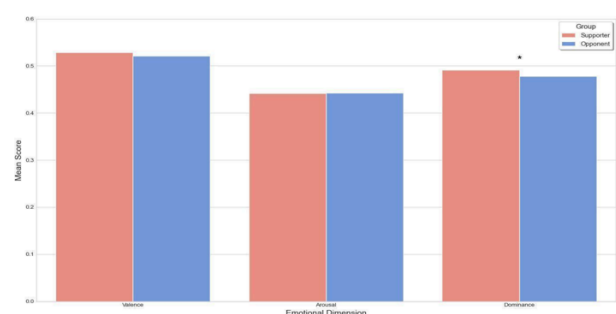


Figure 2. Mean Scores for Emotional Dimensions by Group

The emotional fluctuation of the against group was greater, which indicates that they had a wider emotional response spectrum.

To further illustrate these differences, Figure 3 displays the distribution of dominance scores for both groups. The density and range of the values show a visible shift, consistent with the statistical comparison. Figure 4 presents a two-dimensional density plot based on valence and arousal scores. While the average positions of the groups are closely aligned, the emotional expressions of the opposing group are more widely distributed across the affective space, suggesting greater variation in emotional tone.

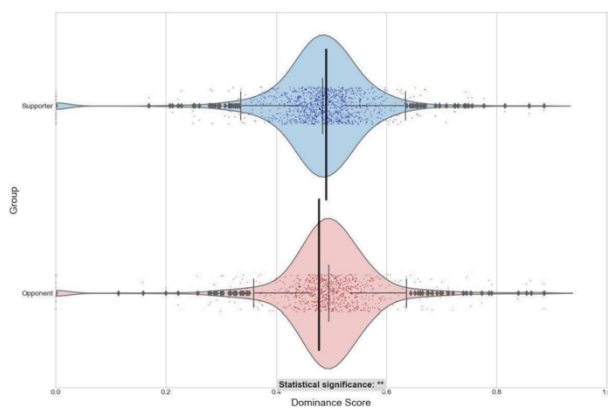


**Figure 3. Distribution of Dominance Scores by Group**

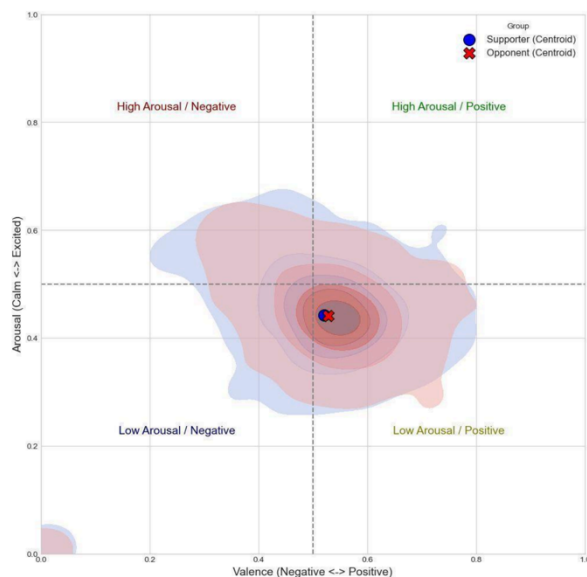


**Figure 4. Two-Dimensional Density Plot of Valence and Arousal Scores by Group**

**Analysis of Rhetorical Strategies:** Rhetorical strategies were classified to analyze the discourse patterns in the entries. Logical discourse (logos) was more prevalent in the pro group (0.70%), while moral and authority-based discourse (ethos) was significantly higher in the opposition group (0.43% vs. 0.16%). Emotional discourse (pathos) was observed at similar rates in both groups (1.21% and 1.24%, respectively) (see Table 2). These findings indicate that the pro group used more rational arguments in favor of the law, while the opposition group based their views more on religious, ethical, and normative appeals.

**Table 1. Distribution of Rhetorical Strategies by Group**

| Strategy | Pro (%) | Against (%) |
|----------|---------|-------------|
| Logos    | 0.70    | 0.16        |
| Ethos    | 0.42    | 0.70        |
| Pathos   | 1.21    | 1.20        |

Note. Percentages reflect the proportion of each rhetorical strategy identified within entries in the pro and against groups.

**Use of Key Concepts and Emotional Context Analysis:** In the discourse analysis, certain words that stand out in both the "Pro" and "Against" groups demonstrated significant differences. The most frequently used words in the Pro group include köpek ("dog") (n=791), sokak ("street") (n=467), yok ("there is not") (n=373), hayvan ("animal") (n=350), and başıboş ("stray") (n=282), while in the Against group, words that are similar but used in different contexts such as köpek ("dog") (n=403), yok ("there is not") (n=354), sokak ("street") (n=313), hayvan ("animal") (n=302), yasa ("law") (n=213), and human ("insan") (n=192) stand out. For instance, the word köpek ("dog") is one of the most frequently used words in both groups, but in the Pro group this word is used in a more negative and threatening context (Valence=0.549), while in the Against group it is used in relatively more neutral or positive contexts (Valence=0.556). However, this difference is not statistically significant (p=0.4254). Similarly, the word sokak "street" is common in both groups; the Pro side associates this word with legal texts or the perception of threat on the street, while the Against group uses it more in the context of social solutions and sensitivity. The emotional differences regarding this word are also not statistically significant (Valence p=0.8816; Arousal p=0.3985).



hand, the opposing group displaying a broader range of emotional fluctuation suggests a more reactive and affectively diverse discourse. This can be interpreted as a reflection of a heightened emotional engagement with the topic, including emotions such as anger, empathy, grief, and moral concern. However, this affective divergence is unlikely to stem solely from individual emotional states; rather, it may reflect a gradual alignment with group-specific narratives. Such a pattern can be observed in early-stage social identity alignment processes, where individuals increasingly interpret issues through group-based lenses—a dynamic associated with increasing affective polarization in previous research (Goodwin et al., 2024).

This pattern of affective divergence is also consistent with research on group-based emotions, which suggests that when a particular social identity becomes salient, individuals tend to appraise by adopting the approach of their group membership (Smith & Mackie, 2015; Kuppens & Yzerbyt, 2014; Goldenberg et al., 2015). These findings are grounded in Intergroup Emotions Theory (Mackie et al., 2016). According to this theory, individuals experience emotions on behalf of the group when they categorize themselves as members of this group, based on appraisals of group-relevant events and concerns (Mackie, et al., 2000; Goldenberg et al., 2018). Eventually, this often leads to systematic emotional responses such as collective anger, fear, or pride (Kuppens & Yzerbyt, 2012). Similarly, Szanto and Krueger (2019) report that these emotional expressions are shaped by shared affective norms and empathic dynamics within the group, which help reinforce group cohesion and a sense of belonging. In the context of the animal rights law, it is plausible that individuals who shared similar emotional reactions initially coalesced into a perceived group, and as identification with that group increased, the expression of these emotions became more intense and cohesive.

Another dimension in which the social identity is evident is the rhetorical strategies utilized by supporting and opposing groups. The distribution of these strategies appears to reflect identity-driven dynamics that are consistent with Social Identity Theory, passing beyond ideological disagreements (Tajfel & Turner, 1979). According to

SIT, individuals derive part of their self-concept from their group memberships, and they tend to adopt communication patterns that affirm and reinforce their group identity. In this context, the supporting group's greater use of logical appeals (logos) may suggest an identity orientation that values rationality, order, and alignment with institutional norms—traits often associated with high-status or system-affirming groups. Conversely, the opposing group's stronger reliance on moral and authority-based discourse (ethos) may point out a group identity anchored in ethical resistance, social justice, or marginalization narratives. This pattern suggests that each group not only advocated for or against the law but also performed their group identity through distinctive rhetorical modes. In line with Social Identity Theory, rhetorical strategies function here as symbolic expressions of group affiliation by allowing members to signal their belonging, differentiate themselves from the outgroup, and reinforce shared norms and values through language.

The concentration of rhetorical strategies within certain frameworks can reduce discursive diversity, pave the way for the homogenization of in-group attitudes and thus the strengthening of polarization. As Gabbay et al. (2018) have shown, when individuals focus on certain rhetorical frames (e.g., security or morality), their perceptions of the debate are reshaped around this frame, which eventually causes like-minded individuals to take more similar positions. This “rhetorical frame-induced redistribution” causes not only individual opinions but also discourse clusters at the group level to become more pointed and differentiated. In this context, the dominance of the logos-heavy frame in the discourses of the supporter group may have led to the weakening of alternative emotional or moral arguments within the group and the unification of a common discursive line. Similarly, the dominance of the ethos-heavy frame in the discourses of the opposing group may have caused moral arguments to cluster around a specific moral stance, thereby limiting the openness to logic-based, logos-oriented reasoning. This rhetorical entrenchment may create echo-chamber-like effects, where group members reinforce each other's convictions while becoming less receptive

to counter-perspectives grounded in alternative argumentative frameworks.

Affective polarization and social identity dynamics are further illuminated through emotional context analysis findings. The analysis reveals that some frequently used words from both groups carry high emotional load and moral evaluation. In the context of the stray animal law, emotional context patterns may suggest that group identities are emotionally and morally defended through language. The supporting group, for instance, frequently used the word "itperestler" (dog worshippers), a term used as an insult that devalues or irrationally portrays the animal rights-protecting rhetoric of the group rejecting the law. Conversely, words like "katliam" (massacre) were prominent in the opposing group. The usage of such words seem to position the out-group within a morally accusatory or condescending framework. Moreover, the discourses of both groups overlap with the concept of affective polarization. As mentioned, affective polarization goes beyond political views and develops intense negative feelings (anger, hatred, disgust, contempt) toward groups that hold these views (Iyengar et al., 2019; Reiljan, 2020). In line with this conceptualization, the Ekşi Sözlük data illustrate how users construct narratives that frame the opposing group in morally inferior and emotionally negative terms. Thus, a discourse has emerged that defines the opposing group not only as an ideological rival but also as a morally problematic and threatening "other."

Emotional context analysis findings can also be interpreted through the lens of Intergroup Threat Theory. According to this theory, individuals perceive out-groups not merely as holders of different opinions, but as potential threats to their own values, identities, or material interests (Stephan & Stephan, 2000). Such threats may be realistic (e.g., related to safety or resources) or symbolic (e.g., related to moral norms or worldviews). In the present case, the discourse appears to emphasize both types of threats. For the supporters of the law, firstly, realistic threats are emphasized more predominantly. For instance, the term "itperest" (dog worshipper) obviously functions as an insult, however, it also frames the opposing group as actors threatening public order. Its usage implies that

these individuals prioritize the lives of stray animals above all others, and thus positions them—discursively—as a threat to public safety. For the opposing group, on the other hand, symbolic threats are more stressed. The repeated use of emotionally loaded terms such as "katliam" ('massacre') suggests that the supporting group is seen as violating deeply held ethical or cultural norms (e.g., compassion toward animals, justice, or the sanctity of life). By emphasizing such language, the opposing group appears to construct the supporting group as symbolically dangerous—morally deviant actors whose stance endangers the in-group's moral identity and shared values. Such perceptions of threat do not remain confined to policy differences but evolve into emotionally charged intergroup tensions that lay the groundwork for affective polarization. This interpretation is also consistent with studies that argue that perceived intergroup threat increases affective polarization (Renström et al., 2021).

How do platform-specific affordances and algorithmic logics contribute to the emergence of affective polarization on social media? In the broader literature on social media and polarization, the echo chamber effect has been one of the most frequently emphasized mechanisms to answer this question. As previously discussed, this effect refers to a phenomenon in which algorithmic filtering exposes users primarily to content that aligns with their pre-existing beliefs, thereby reinforcing their views and contributing to increased polarization (Guo et al., 2020; Kitchens et al., 2020). While there are strong arguments linking echo chambers to online polarization, attributing the observed polarization on Ekşi Sözlük solely to this effect would be problematic. Unlike algorithm-driven platforms such as Twitter or Facebook, Ekşi Sözlük does not rely on personalized content curation. Users actively navigate toward titles they are interested in, thus, they are not structurally confined to a homogeneous informational environment, nor are they selectively exposed to ideologically congruent content. Users can access the full range of supporting and opposing views on an entry without being filtered or influenced by algorithmic curation. Therefore, the affective polarization observed on Ekşi Sözlük may be better explained by the alternative

hypothesis proposed against the echo chamber phenomenon. According to this alternative perspective, social media platforms do not necessarily insulate individuals from opposing views; rather, they force users into frequent encounters with disagreement, which eventually intensifies social identity processes (Bail, 2021; Guess et al., 2018; Törnberg & Uitermark, 2022). When confronted with divergent views, individuals are more likely to affiliate strongly with like-minded others, develop clearer in-group identities, and express heightened emotional hostility toward out-groups (Törnberg, 2022). The structural openness of Ekşi Sözlük to cross-cutting exposure aligns with this view and suggests that the platform may function less as an echo chamber and more as a space where affective polarization is amplified through repeated intergroup confrontation and identity reinforcement.

The findings of this study contribute to the local literature by extending the scope of affective polarization research to include politically defined in-groups and outgroups in the context of a morally salient, non-electoral debate. While prior studies in the Turkish context have primarily focused on culturally or ethnically constructed targets of digital hostility—such as Romani people (Alp, 2016) or Chinese individuals (Tunçer, 2020; Karaca, 2021)—the current study demonstrates that similar discursive and emotional dynamics also emerge around political and ideological divisions. The strategies of symbolic distortion, emotional exaggeration, and moral framing identified in those studies bear a strong resemblance to the emotional tone and rhetorical styles observed among the opposing group in this research. By applying Social Identity Theory to a new domain of conflict—namely, polarized discourse on a controversial policy issue—this study offers a novel perspective on how group-based affective boundaries are constructed and maintained in digital environments.

In addition to its theoretical contribution, this study also introduces a different methodological approach to the analysis of affective polarization. Rather than relying on survey-based measures (e.g., outgroup dislike, social distance scales; Reiljan, 2020) or sentiment/toxicity classifications (e.g., Gruzd & Roy, 2024; Suárez-Estrada et al.,

2022), it employs a multidimensional, dictionary-based VAD analysis using three Turkish emotion lexicons (SentiLiteralNet, LIWC-TR, and NRC-VAD). This approach allows for a nuanced identification of emotional profiles (e.g., anger, fear, happiness) across ideological groups. Thus, it enables both the detection and modeling of polarization in terms of emotional tone, intensity, and thematic structure.

## Limitations

The prominent limitation in the study is derived from the source of the data: Ekşi Sözlük platform. Even though it represents a variety of people's opinion about the subject, its user base's diversity is questionable. There is no clear data on the writers' demographics in the forum. In addition, its user base is also most probably limited to an urban population who uses the internet actively, which also limits diversity of the sample. Another issue is the lack of user interaction among writers. Similar to the isolation of threads, users cannot directly reply to one another. Although entry numbers can be used to reference specific posts, the level of interaction is limited compared to more dynamic platforms like X. Thus, although the study reveals how users construct and frame their own arguments as well as those of the opposing side, it does not capture the dynamics of interaction among users.

Another important limitation concerns the structure of the forum's thread system. Since each thread is entirely separate from others and there is no interaction across threads, researchers may inadvertently introduce bias when selecting which threads to analyze. The naming of a thread can influence user engagement, as some users may choose not to read or contribute to a thread based on its title alone. Consequently, diverse viewpoints may become concentrated in isolated threads that the researcher either overlooks or deems irrelevant. This introduces the risk of selection bias and reduces the representativeness of the analyzed discourse. To mitigate this issue, the study focused on a thread that contained a large number of entries and appeared to adopt a neutral title.

The study is also limited by the time frame selected for data collection. Although the decree has

been enacted, numerous events that have deeply impacted public opinion have taken place since then, and discussions around the issue continue to evolve. Due to the necessity of setting a temporal boundary, the study includes only the period between the announcement of the law and the time the data was collected. However, during this interval, numerous political events took place, and it remains unclear how these developments may have influenced public opinion.

## Conclusion

This study investigated how affective polarization and social identity dynamics are reflected in the emotional and rhetorical patterns of online discourse surrounding Turkey's 2024 stray animal law. The findings suggest that distinct emotional tones and rhetorical strategies perform and reinforce group identities, going beyond expressing positions on the law. These dynamics demonstrate how contentious policy debates in digital environments can amplify social divides even in the absence of algorithmic filtering. By extending existing research on affective polarization beyond ethnic or cultural dimensions toward politically anchored group identities, this study offers a novel perspective on how discourse itself becomes a medium of polarization. These findings may also help policymakers and public communicators recognize how emotional and identity-based responses shape public debates in online environments. Therefore, being aware of these dynamics can be useful when designing and communicating controversial policies. Future research may adopt a cross-platform comparative approach to explore how varying digital architectures shape affective and rhetorical patterns. Incorporating qualitative methods such as interviews could help capture broader demographic and experiential diversity. Additionally, considering the pre- and post-legislative political climate may provide a more comprehensive understanding of how legal controversies interact with identity processes and emotional public discourse.

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