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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 journal's interdisciplinary perspective lays the groundwork for building and sustaining a holistic relationship with other disciplines, concepts, and methods. OPUS JSR enables researchers to adopt an interdisciplinary approach to present different interpretations and alternative viewpoints. The theoretical frameworks underpinning analyses and interpretations are as important as the intersections among disciplines. Such framing can bring greater clarity to multiple—sometimes even contradictory—findings and foster a deeper understanding of social dynamics that may remain invisible when scholars focus on a single theoretical lens.

OPUS JSR reflects more than a decade of journal publishing experience supported by the **ADAMOR Society Research Center** and its partner organization, the **Institute of Urban Studies**. The **OPUS Journal of Society Research** is the direct successor to two previously published journals: *OPUS Turkish Journal of Social Policies and Work Life Studies* and *OPUS International Journal of Society Research* (ISSN 2528-9527; E-ISSN 2528-9535). Since its inception, our journal has been published as a periodical in a Year–Volume–Issue format; **as of 2026, it will adopt a continuous publication model**, whereby accepted manuscripts will be published online as soon as their editorial and production processes are completed.

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RESEARCH ARTICLE

Speculative House Price Bubble Dynamics and Bursting Mechanisms in Türkiye: A Threshold Regression Model Proposal

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Abstract

One of the most current social and socio-economic problems in Türkiye is the speculative bubbles that have formed in the housing markets due to the current economic and financial crisis, making it difficult for households to own a house. This study analyzes the dynamics and bursting mechanisms of speculative price bubbles in the Turkish housing market. The GSADF test was applied using monthly data for 2012-2024 to identify bubble periods in the housing market. In the determined bubble periods, robust regression analysis was performed to determine the main factors affecting these price formations. In addition, the Kalman filtering method was used to examine the dynamic coefficients of housing price bubbles that change over time. The findings show that falling interest rates trigger housing price bubbles in Turkey in an inflationary process; the bursting of the bubbles is associated with increasing domestic and foreign risk premiums, interest rate expectations, and realized interest rate increases. In addition, it investigated how the current housing bubble can burst in a controlled manner through the threshold regression model. The study results reveal that maintaining the interest rate difference between Türkiye and the US within 10% to 17% is critical in preventing financial and economic instabilities regarding housing prices. In addition, it can be argued that the current inflation rate and risk premiums should be managed effectively to ensure stability in housing prices.

Keywords: Housing Market, Speculative Price Bubbles, Threshold Regression.

Öz

Türkiye'nin en güncel toplumsal ve sosyo-ekonomik problemlerinden biri, mevcut ekonomik ve finansal kriz nedeniyle konut piyasalarında oluşan spekülasyon balonlarının hane halkının konut sahibi olmasını zorlaştırmasıdır. Bu çalışma, Türkiye konut piyasasındaki spekülasyon fiyat balonlarının dinamiklerini ve patlama mekanizmalarını analiz etmeyi amaçlamaktadır. Konut piyasasındaki balon dönemlerini tespit etmek için 2012-2024 dönemine ait aylık veriler kullanılarak GSADF testi uygulanmıştır. Belirlenen balon dönemlerinde, bu fiyat oluşumlarını etkileyen temel faktörleri belirlemek amacıyla robust regresyon analizi gerçekleştirilmiştir. Ayrıca, konut fiyat balonlarının zaman içinde değişen dinamik katsayılarını incelemek için Kalman filtreleme yöntemi kullanılmıştır. Bulgular, Türkiye'deki konut fiyat balonlarının enflasyonist bir süreçte düşen faiz oranlarıyla tetiklendiğini; balonların patlamasının ise artan yurtiçi ve yabancı risk primleri, faiz oranı beklentileri ve gerçekleşen faiz artışlarıyla ilişkilendirildiğini göstermektedir. Buna ek olarak, eşik regresyon modeli aracılığıyla mevcut konut balonunun kontrollü bir şekilde nasıl patlatılabileceği araştırılmıştır. Çalışmanın sonuçları, Türkiye ile ABD arasındaki faiz oranı farkının %10 ila %17 aralığında korunmasının konut fiyatları açısından finansal ve ekonomik istikrarsızlıkları önlemek açısından kritik olduğunu ortaya koymaktadır. Bunun yanı sıra, konut fiyatlarında istikrar sağlamak amacıyla mevcut enflasyon oranının ve risk primlerinin etkin bir şekilde yönetilmesi gerektiği ileri sürülebilir.

Anahtar Kelimeler: Konut Piyasası, Spekülasyon Fiyat Balonları, Eşik Regresyon.

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Introduction

One of Türkiye's most critical social and socio-economic issues is the speculative bubbles in property markets, exacerbated by the ongoing economic and financial crisis, which hampers homeownership for people. Increasing property prices, high inflation, and interest rates have reduced house accessibility and caused a housing crisis for low and middle-income demographics. Housing markets bring together buyers and sellers to exchange properties and their values, but prices do not always reflect real value. Especially in housing markets, imbalances in supply and demand or speculative behavior can lead to price bubbles that threaten financial stability.

Pioneering studies like Case and Shiller (2003) show that housing bubbles often emerge when investor expectations and low interest rates push prices beyond real economic fundamentals. In Türkiye, rapid and lasting increases in housing prices can similarly be explained by credit growth, speculative behavior, and herd mentality or group behaviour, rather than just supply and demand (Case & Shiller, 2003; Glaeser et al., 2008; Agnello & Schuknecht, 2011; Engsted et al., 2015).

The housing market is closely tied to the rest of the financial system, primarily through complicated tools like securitized derivatives. This makes it very sensitive to changes in price. When bubbles emerge and then burst, they can cause a lack of liquidity and impact the real economy, slowing growth and lowering business profits.

The 2007–2008 global financial crisis showed the dangers and risks of relatively early rate hikes. Unlike other emerging market economies, Türkiye's post-2013 unorthodox monetary policies, with low interest rates, led to persistent inflation, exchange rate volatility, and rising financial risks. So, there is a constant cycle of high interest rates, high exchange rates, high inflation, rising financial risks, and a current account deficit. In the summer of 2018, US President Donald Trump's trade restrictions and sanctions worsened the problems of the Turkish economy.

The post-2023 interest rate hikes amid rapidly rising house prices in Türkiye have sparked concerns about a potential housing bubble and an im-

pending market correction, making the identification and prediction of such bubbles economically and academically significant.

This study has two problems: identifying the periods of housing price bubbles in Türkiye from 2012 to 2024 and establishing a framework for projecting the bursting timeframe and mechanism of the current bubble for Türkiye.

The GSADF (Generalised Supremum Augmented Dickey-Fuller) test determines the durations of house price bubbles in Türkiye. Next, the Kalman filter has been used to determine what factors impact these intervals by looking at time-varying coefficients. Ultimately, we give a framework for the house price bubble to burst. This framework uses threshold regression and Kalman filter analysis to examine how the Türkiye–U.S. bond rate spread influences risk expectations that may trigger a housing bubble collapse.

Literature Review

Academic studies examine the complex causes and consequences of the formation, persistence, and collapse of housing price bubbles from different perspectives. Kaufman, Malliaris, and Nelson (2018) emphasized that monetary policy plays a critical role in preventing the destructive effects of such bubbles and stated that innovative policies are needed for financial stability. Bansak and Starr (2015) emphasized that bubbles create disproportionate burdens, especially on low-income households, and increase social inequality.

From an econometric perspective, researchers such as Engsted, Hviid, and Pedersen (2015) have empirically proven the existence of explosive bubbles in the housing market, highlighting the value of such models as early warning systems. In contrast, Helbling (2005) emphasized the distinction between structural growth in prices and bubbles, arguing that not every price increase indicates a speculative bubble.

Zainuddin, Jali, and Gan (2012) shed light on the underlying causes of speculative behavior by analyzing the psychological tendencies of market actors. Malkiel (2012) directly linked the 2008 crisis

to housing bubbles. Similarly, Bolt et al. (2014) argued that financial liberalization and macroeconomic fluctuations exacerbated bubbles. Iancu, Croicu, and Rogojan (2023) highlighted the need for strict monitoring and control over the price mechanism by revealing speculative bubbles in both stock and real estate markets. Agnello and Schuknecht (2009) stated that housing bubbles historically have long-term and serious effects, while Xiao (2010) associated this process with excessive borrowing and speculative demand. Englund and Ioannides (1992) similarly stated that inadequate intervention by policymakers paved the way for bubbles. Lind (2009) defined bubbles as serious deviations of market values from fundamental values and noted that these deviations can lead to instability. Kocherlakota (2009) also points out that borrowing constraints increase systemic risks, while Glaeser, Gyourko, and Saiz (2008) argue that supply constraints directly affect the persistence and size of bubbles.

Jordà, Schularick, and Taylor (2015) have historically shown how credit-driven bubbles trigger financial instability. Hanweck (2017) points out that the US housing market has entered a new bubble phase as of 2016. Evanoff, Kaufman, and Malliaris (2011) emphasize the need for new perspectives and policy frameworks in responding to bubbles in the face of changing market conditions.

Wong (2001) states that Thailand's rapid growth led to housing bubbles at the regional level, while Owsinski (1988) examines the systemic effects of housing bubbles at the urban and regional levels. Miao (2014) explains how bubbles form, persist, and eventually collapse using economic theory, while Flood and Hodrick (1990) have developed practical methods to detect speculative pricing. Case and Shiller (2003) have emphasized that housing bubbles are repeated in many markets and require regular monitoring. Carson and Dastrup (2009) have shown that some local housing markets affect national trends. In conclusion, the literature provides a strong theoretical and practical framework for stable housing markets by addressing the causes of housing price bubbles, their economic and social impacts, and early intervention methods in a multidimensional manner.

The literature review section examined the studies conducted for Türkiye in the next stage because comparing the results obtained with the results of the studies undertaken for Türkiye will better emphasize the importance of the research.

Eraslan and Bayraktar (2013) analysed the impact of the low-interest monetary policy enacted in the United States before the global financial crisis, which resulted in a housing market bubble. The low-interest-rate environment from 2001 to 2005 prompted American banks to issue excessive mortgage loans; by 2006, as prices began to decline, these problematic loans were securitized and disseminated globally, precipitating the 2008 catastrophe. This study exemplifies the global ramifications of housing market bubbles on macroeconomic stability.

Numerous empirical data indicating the existence of bubble formations have been obtained from examinations undertaken in Türkiye. Vergili (2023) detected several bubble forms across Türkiye, particularly in the provinces of Istanbul, Ankara, and Izmir, during the 2010–2022 timeframe, utilising SADF and GSADF tests; he demonstrated that these bubbles intensified, especially in the post-2020 period. Based on actual pricing, Ankara exhibits the lowest danger of a bubble, whilst İzmir demonstrates the highest risk. Abioğlu (2020) examined price-rent ratios in 10 provinces around Türkiye from 2007 to 2018, revealing examples of bubble forms in provinces beyond Bursa and İzmir during the post-2010 period. It was established that the bubbles in Istanbul, Adana, and Mersin persisted for almost a year.

Comparable outcomes have been achieved in investigations performed at the regional level. Gökçe and Güler (2020) demonstrated that the volatile home price fluctuations in Ankara from 2010 to 2019 suggested the presence of rational bubble formations, as evidenced by SADF and GSADF tests applied to real pricing data. Kartal (2022) found multiple housing bubbles in Türkiye and the TR71 Region between 2010 and 2021 using GSADF and BSADF tests, noting that

while falling mortgage sales indicate some rational behavior, delayed reactions still leave the economy vulnerable to financial crises.

Akkaya (2024) identified substantial bubble trends in the housing market from June 2019 to June 2022. The initial research identified vertical price bubbles with GSADF tests, while the subsequent examination of home prices per square metre in TL uncovered a bubble structure throughout two distinct periods (2014–2016 and 2020–2022). The VAR model findings demonstrate that housing prices are influenced by supply-demand dynamics and macro-financial factors, including CPI, credit sales, capacity utilisation rate, and credit volume.

Akkuş (2021) asserted that housing bubbles in Türkiye and the TR22 Region from 2010 to 2020 were affected by macroeconomic variables, including credit volume, interest rates, BIST-100, CPI, and industrial production, and underscored the necessity for regulatory institutions to oversee this risk and implement safeguards.

Nonetheless, results suggest that the housing market in certain places does not exhibit bubble risk. Ece (2022) studied the TRA1 Region (Erzurum, Erzincan, Bayburt) over 2013–2020, utilising ARDL tests, demonstrating that no price bubble emerged and that market conditions influenced housing prices.

Tursun (2024) examined the structural aspects of the housing supply chain and showed that, relative to other sectors, the supply time, product attributes, and number of participants in the housing sector display distinct variations. He asserted that these attributes inhibit the bull-whip effect in the housing supply chain, attributing price variations more to external economic situations than internal chaotic dynamics.

Methodology

The research utilized multiple analytical techniques, such as the GSADF test, robust regression, Kalman filtering, and threshold regression. The GSADF test is an effective instrument for detecting phases of price bubbles in real estate values. The robust regression technique computes

the static coefficients of the factors that elucidate these price bubbles. The Kalman filtering method computes time-varying dynamic coefficients with a rigorous test. Threshold regression explicitly designates the interest rate spread variable as a threshold variable, enabling the computation of thresholds that initiate and terminate the bubble.

Threshold regression is a method that delineates the link between the dependent variable and the independent variables using a specified threshold value. This framework characterizes nonlinear dynamics by defining separate regimes below and above a threshold value. Tong (1983) and Hansen (1999) performed a seminal study that laid the foundation for this method, which is widely employed in macroeconomics, finance, and environmental sciences (See Equation 1).

$$y_t = \begin{cases} \beta_1'x_t + \varepsilon_t & \text{if } q_t \leq \gamma \\ \beta_2'x_t + \varepsilon_t & \text{if } q_t > \gamma \end{cases} \quad (1)$$

- y_t : Dependent variable at time t ; Vector of explanatory variables (can include a constant)
- q_t : Threshold variable (can be one of the regressors or another variable)
- γ : Threshold value to be estimated
- β_1, β_2 : Regression coefficients for the regimes below and above the threshold
- ε_t : Error term, typically assumed to be i.i.d. with mean 0

The subsequent phase of the study involves the implementation of the GSADF (Generalised Supremum Augmented Dickey-Fuller) test, which, as formulated by Phillips, Shi, and Yu (2015), improves the conventional ADF test by permitting adaptable time intervals to identify speculative bubbles via stationarity analysis and peak statistics identification.

$$GSADF(r_0) = \sup \{ \hat{\rho}(r_1, r_2) / \hat{s.e.}[\hat{\rho}(r_1, r_2)] \} \quad (2)$$

where $r_2 \in [r_0, 1]$, and $r_1 \in [0, r_2 - r_0]$

- $GSADF(r_0)$: The generalized sup ADF test statistic using minimum window size r_0
- r_0 : The minimum fraction of the total sample used as the rolling window size
- r_1, r_2 : Start and end points of the ADF regression window (subsample)
- $\hat{\rho}(r_1, r_2)$: Estimated autoregressive coefficient from the ADF regression over $[r_1, r_2]$
- $\hat{s.e.}(\hat{\rho}(r_1, r_2))$: Standard error of that coefficient

This study also uses robust regression with M-estimation to find static coefficients that can be used as a base for time-varying Kalman coefficients. Huber's M-estimator minimizes a modified loss function to reduce the effect of outliers. Other robust methods, such as the LAD and Theil-Sen estimators, are also used. (Huber, 1981:109) (See Equation 3).

$$\beta_{\text{hat}} = \operatorname{argmin} \sum [\rho(y_i - X_i \beta)] \quad (3)$$

- *Argmin = Argument of the Minimum.*
- *β_{hat} = Estimated Regression Coefficients*
- *y_i = Observed Value of Dependent Variable*
- *X_i = Independent Variables.*

The fourth test in the study utilizes the Kalman filtering method. The Kalman filter is a recursive technique employed to estimate the state of a dynamic system using a series of noisy data. It is widely employed in signal processing, control systems, econometrics, and navigation (Kalman, 1960). The Kalman filter assumes a linear system founded on two fundamental equations: one that describes state evolution and another that relates to observation (measurement) (See Equations 4 and 5).

State Equation:

$$x_t = A_t \cdot x_{t-1} + B_t \cdot u_t + w_t \quad (4)$$

- *x_t : the hidden (latent) state vector at time t*
- *A_t : state transition matrix*
- *$B_t \cdot u_t$: effect of control variables*
- *w_t : state noise (disturbance), typically $w_t \sim (0, Q_t)$*

Observation Equation:

$$y_t = H_t \cdot x_t + v_t \quad (5)$$

- *y_t : observed data at time t*
- *H_t : observation matrix*
- *v_t : measurement error, typically $v_t \sim N(0, R_t)$*

The key variable in this study is the house price index, which underpins the examination of housing market bubbles. The interest rate spread is a significant variable designated as the dependent variable in the threshold regression analysis. The differential between the 10-year bond yields of Türkiye and the United States determines the spread. The main aim of developing the spread variable is to include domestic interest rate expectations and the overall global interest rate levels in the model framework.

The interest rate differential variable has been chosen by examining the foundational literature on nominal interest rates and interest rate differentials in asset pricing. In this perspective, evaluating nominal local interest rates and the differential between local and US or global interest rates provides a more significant method for calculating home prices in economies with high financial integration. Interest rate differentials are critical factors that directly influence foreign capital flows, lending expenses, and housing demand. Capital flows, particularly in emerging nations with advantageous interest rate differentials, can channel into the property market and pressure prices. Moreover, fluctuations in global interest rates might indirectly influence housing demand by impacting local currency values and financing conditions. This scenario demonstrates that the housing market is responsive to international monetary conditions, rendering local interest rates inadequate. The literature consistently highlights the influence of interest rate differentials on credit expansion, asset prices, and investment behaviour (Obstfeld & Taylor, 2004; Bernanke, Gertler, & Gilchrist, 1999; Kim & Yang, 2011; Borio & Zhu, 2012; Taylor, 2009).

Data are collected weekly, covering January 2012 to November 2024. Additionally, interest rates are provided to analyze the outcomes (See Table 1).

The stationarity of the series is investigated through the implementation of the Phillips-Peron test. In the GSADF test, the absence of a very long period in the data set precludes the existence of a stationarity condition for the series. When applying the test, the analysis is performed with raw data (Phillips & Yu, 2011).

The Eviews 12 program has done the research. The Eviews package does not employ the Variance Inflation Factor (VIF) test for robust regression, as robust regression is inherently less susceptible to multicollinearity (Huber, 1964; Huber, 1973; Huber, 1981; Hampel et al., 1986; Maronna et al., 2006).

Table 1. Data Set

VARIABLES	CODE	Explanation	Source
Housing Price Index	housing_price_index	İndex	TCMB, EVDS
Us Dollar	dollar	Parity	investing.com
Euro	euro	Parity	investing.com
Currency Basket	Currency_Basket	(Dollar*0.5)+(Euro*0.5)	investing.com
Gold	ALTIN	Derivative Parity (XAU/TRY)	investing.com
Türkiye 2-Year Government Bond Interest	tr_two_year_bond	Bond Yields	investing.com
Türkiye 10-Year Government Bond Interest	tr_ten_year_bond	Bond Yields	investing.com
İnflation	cpi	Change as a year %	TCMB, EVDS
Risk Appetite	VIX	İndex	investing.com
Türkiye 5-year CDS	turkiye_cds_5_year	Basis Points	investing.com
U.S. 2-Year Government Bond Interest	us_10_year	Bond Yields	investing.com
U.S. 10-Year Government Bond Interest	us_2_year_yields	Bond Yields	investing.com
Interest Spread	Interest_Spread	Spread Yields (TR 10-Year Bond- US 10-Year Bond)	Investing.com and Calculated by Author
GSADF Test for Bubble Terms as Dummy	Bubble	Test Results for Bubble Terms	Calculated by Author

The modified objective function in robust regression diminishes the influence of excess residual parameter estimations, facilitating the generation of less sensitive estimates. As a result, non-stationary series can be examined using robust regression and Kalman filtering, which is based on robust regression (Huber, 1964; Huber, 1973; Huber, 1981; Hampel et al., 1986; Maronna et al., 2006).

threshold variable, utilizing raw data yields more accurate results. Because threshold regression methods can address specific forms of non-stationarity by permitting distinct regression equations for various regimes, this adaptability ensures that even with unit root variables, the model can yield accurate findings by capturing the diverse implications across various regimes (Hansen, 2000; Enders & Siklos, 2001).

Table 2. Phillips-Perron Unit Root Test Results

UNIT ROOT TEST RESULTS TABLE (PP)						
Null Hypothesis: The variable has a unit root						
Lag Length based AIC						
At Level	With Constant		With Constant & Trend		Without Constant & Trend	
	t-Statistic	Prob.	t-Statistic	Prob.	t-Statistic	Prob.
CPI	-13931,00	0,58	-24897,00	0,33	-0,60	0,45
GOLD	154036,00	1,00	73023,00	1,00	174358,00	1,00
CURRENCY_BASKET	41,404	1,00	0,7818	0,9997	61,234	1,00
BUBBLE_GSADF	-14824,00	0,54	-20166,00	0,59	-12023,00	0,21
HOUSING_PRICE_INDEX	54707,00	1,00	25715,00	1,00	71350,00	1,00
INTEREST_SPREAD	-13603,00	0,60	-31105,00	0,11	0,17	0,73
TURKIYE_CDS_5_YEAR	-21759,00	0,22	-27801,00	0,21	-0,86	0,34
VIX	-54175,00	0,00	-55982,00	0,00	-13453,00	0,16
At First Difference	With Constant		With Constant & Trend		Without Constant & Trend	
	t-Statistic	Prob,	t-Statistic	Prob,	t-Statistic	Prob,
d(CPI)	-66764,00	0,00	-66589,00	0,00	-66775,00	0,00
d(GOLD)	-94942,00	0,00	-103751,00	0,00	-88261,00	0,00
d(CURRENCY_BASKET)	-98,550	0,00	-107,620	0,00	-93,229	0,00
d(BUBBLE_GSADF)	-74802,00	0,00	-74531,00	0,00	-75025,00	0,00
d(HOUSING_PRICE_INDEX)	-32682,00	0,02	-49746,00	0,00	-26576,00	0,01
d(INTEREST_SPREAD)	-130721,00	0,00	-130766,00	0,00	-130695,00	0,00
d(TURKIYE_CDS_5_YEAR)	-123749,00	0,00	-123607,00	0,00	-124239,00	0,00
d(VIX)	-280094,00	0,00	-279540,00	0,00	-281482,00	0,00

The Phillips-Perron stationarity test was utilized within the methodological framework. As threshold regression requires parameter estimates across several regimes influenced by the

Findings

In the initial phase of the research, the GSADF test utilizes the time series of the Turkish house price

index to ascertain the periods during which housing bubbles exist. The test results, denoted by values beyond the crucial threshold of "0," indicate the presence of price bubbles. The graph depicts the onset and culmination phases of residential property price bubbles. The GSADF test results show that the Central Bank of the Republic of Türkiye (CBRT) has controlled housing bubbles by slowly changing interest rates and stepping in to make the market more stable. This has prevented the bubbles from significantly deflating, which may have led to financial instability (see Figure 1).

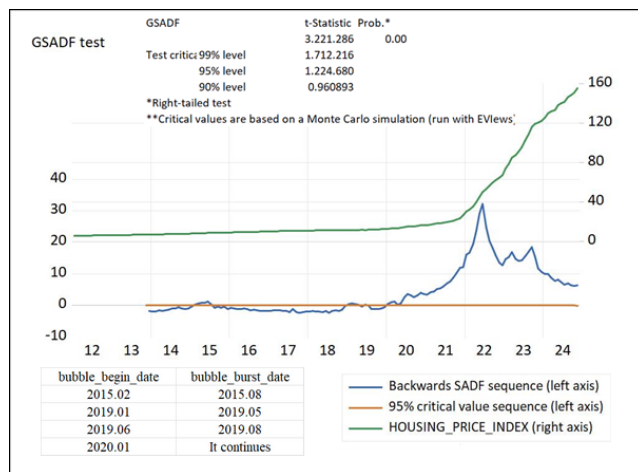


Figure 1. GSADF Test Results

selecting the dependent variable that indicates the presence of housing bubbles is crucial.

The chosen dependent variable is the time series of GSADF test output data. If these test results generate a dummy variable, it will provide a poor model fit. Moreover, utilizing the GSADF as the dependent variable is better suited for assessing bubbles' emergence and expansion rates. The test results indicate that the gold and VIX indices are insignificant at 5% and 10%, while the other variables are at 5%. The results reveal that gold, interest rate spread, housing prices, VIX, and a constant term negatively impact housing bubbles, but inflation, currency basket, and CDS positively impact them (See Equation 6, Table 3).

$$BUBBLE_{GSADF} = \beta_1 \cdot CPI + \beta_2 \cdot CURRENCY_{BASKET} + \beta_3 \cdot GOLD + \beta_4 \cdot HOUSING_{PRICEINDEX} + \beta_5 \cdot INTEREST_{SPREAD} + \beta_6 \cdot TURKIYE_{CDS_{5YEAR}} + \beta_7 \cdot VIX + C \quad (6)$$

In the third step of the study, the time-varying dynamic coefficients of the independent variables explaining the dependent variables of the GSADF test results that detect price bubbles are calculated with the help of the Kalman filtering method. Kalman filtering estimates time-varying dynamic coefficients. To ensure the analysis of these variables

Table 3. Robust Regression Results

Dependent Variable: BUBBLE_GSADF				
Variable	Coefficient	Std. Error	z-Statistic	Prob.
CPI	3,025929	0,209623	14,43512	0.0000
CURRENCY_BASKET	1,507041	0,024005	62,78119	0.0000
GOLD	-0,000262	6,88E-06	-38,09553	0.0000
HOUSING_PRICE_INDEX	-0,097748	0,004428	-22,07647	0.0000
INTEREST_SPREAD	-44,44198	0,712720	-62,35549	0.0000
TURKIYE_CDS_5_YEAR	0,011169	0,000238	46,90489	0.0000
VIX	-0,003766	0,003566	-1,055862	0.2910
C	-3,379869	0,078252	-43,19184	0.0000
Robust Statistics				
R-squared	0,462428	Adjusted R-squared		0,436830
Rw-squared	0,897674	Adjust Rw-squared		0,897674
Akaike info criterion	261,2246	Schwarz criterion		299,4962
Deviance	545,1240	Scale		1,450351
Rn-squared statistic	102461,5	Prob(Rn-squared stat,)		0,000000
Non-robust Statistics				
Mean dependent var	3,264452	S, D, dependent var		7,215951
S.E. of regression	3,482012	Sum squared resid		1782,288

Kalman filtering was used to calculate time-varying coefficients; it is essential to estimate static coefficients first. Consequently, a robust regression model has been developed, and the static coefficients have been computed. In model construction,

was meaningful, we also drew individual graphs of the variables as raw data. To better understand the Kalman filtering results, we should look at the variables' coefficients and raw data values during the bubbles' onset and burst periods (see Figures 2, 3, and Table 4).

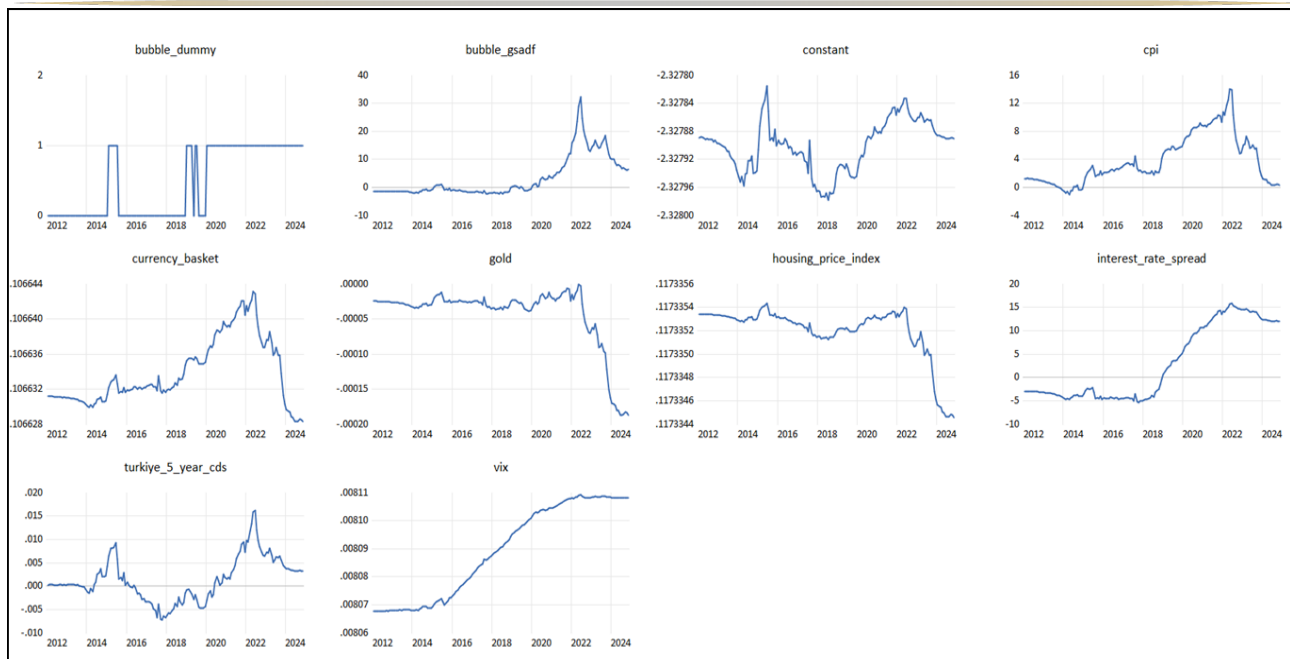


Figure 2. Kalman Filtering Results

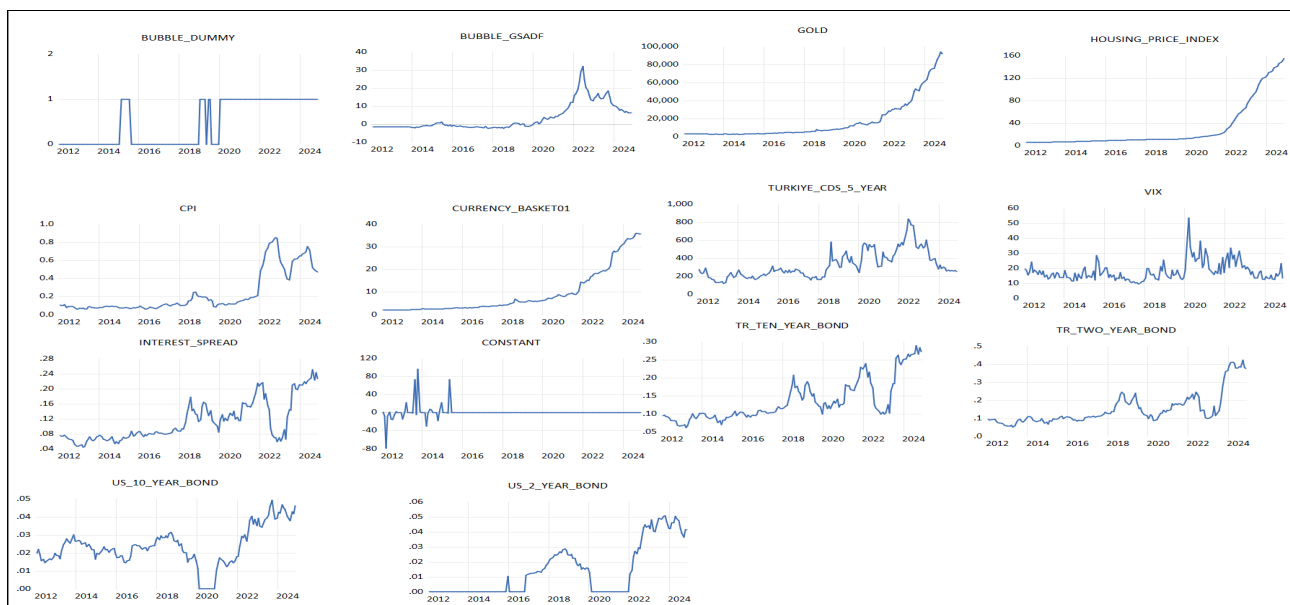


Figure 3. Graphs of The Variables

- 2015.02-The Beginning of the Bubble:** The low interest rate spread and low inflation made it easier to get a loan, and the exchange rate stayed fairly stable. This increased demand for housing led to the bubble.
- 2015.08-The Burst of the Bubble:** The rise in CDS premiums and interest rate spreads made investments more expensive, which lowered demand and caused the housing bubble to burst.
- 2019.01 - The Beginning of the Bubble:** The housing market became more popular because of rising inflation, high exchange rates, and low interest spreads. This made the bubble grow again.
- 2019.05-The Bubble Burst:** The housing market's bubble burst because interest rate spreads went up and financing conditions got stricter.

Table 4. Bubble Begin and Bursting Dates, Raw Data, and Their Time-Varying Coefficients

RAW DATA								
Bubble_Begin_Date	CONSTANT	CPI	CURRENCY_BASKET	GOLD	HOUSING_PRICE_INDEX	INTEREST_SPREAD	TURKIYE_CDS_5_YEAR	VIX
2015.02	0,00123	0,0754	2,66	3041,700	7,78	0,062830	201,52	13,34
2019.01	0,00000	0,2035	5,54	6822,790	11,18	0,117530	299,78	16,57
2019.06	0,00000	0,1572	6,19	8155,750	11,4	0,129030	394,71	15,08
2020.01	0,00000	0,1215	6,31	9509,000	12,61	0,116370	239,82	18,84
Bubble_Burst_Date								
2015.08	0,00000	0,0714	3,09	3304,210	8,32	0,087250	260,67	28,43
2019.05	0,00000	0,1871	6,18	7621,970	11,46	0,141930	480,47	18,71
2019.08	0,00000	0,1500	6,12	8861,960	11,78	0,115320	421,61	18,98
It continues-LAST	0,00000	0,4709	35,69	92054,96	155,37	0,227230	251,12	13,51
KALMAN COEFFICIENTS								
Bubble_Begin_Date	CONSTANT	CPI	CURRENCY_BASKET	GOLD	HOUSING_PRICE_INDEX	INTEREST_SPREAD	TURKIYE_CDS_5_YEAR	VIX
2015.02	-2,327873	1,4059	0,106632	-0,000020	0,117335	-2,846201	0,006498	0,008070
2019.01	-2,327932	4,8729	0,106635	-0,000023	0,117335	0,671441	-0,000830	0,008095
2019.06	-2,327927	5,8849	0,106636	-0,000026	0,117335	3,318923	-0,001893	0,008098
2020.01	-2,327932	6,4184	0,106636	-0,000033	0,117335	5,831440	-0,002988	0,008102
Bubble_Burst_Date								
2015.08	-2,327892	1,6040	0,106632	-0,000025	0,117335	-4,524766	0,001603	0,008070
2019.05	-2,327933	5,3789	0,106635	-0,000028	0,117335	2,539273	-0,002763	0,008097
2019.08	-2,327943	5,4354	0,106635	-0,000035	0,117335	3,498588	-0,004499	0,008099
It continues-LAST	-2,327890	0,2926	0,106628	-0,000187	0,117334	12,018124	0,003242	0,008108

- **2019.06-The Bubble Begins to Grow:** The exchange rate was relatively stable, interest rate spreads fell in the short term, and inflation was high. Thus, a new bubble came out.
- **2019.08-The Burst of the Bubble:** CDS premiums increased. Because investors lost confidence due to interest rate spreads.
- **2020.01: "The Bubble's Rise":** Low interest rate spreads, rising gold prices, strong demand, and high inflation caused a new housing bubble post-2020. Rising CDS premiums signal increasing risk.

Changes in inflation, interest rates, and exchange rates are significant for starting and ending housing bubbles in Türkiye. Bubbles usually happen when inflation and interest rates are low, but they collapse quickly when interest rates and spreads increase sharply. This shows how important the Central Bank is for keeping the market balanced.

Conversely, the mechanisms that led to the bursting of these bubbles were sudden fluctuations in inflation, interest rate spreads, and exchange rate increases. Consequently, the effective management of housing bubbles necessitates a balanced approach to price stability, exchange rate policy, and interest rate spreads.

The threshold regression model has been estimated in the research's final stage. The house price index has been selected as the dependent variable

in the model. The threshold variable is the interest rate spread between Türkiye and the USA, which is the 10-year benchmark interest rate. Therefore, we determine the thresholds using the sequential L + 1 thresholds vs. L method as follows (See Equation 10):

Thresholds Intervals

INTEREST_SPREAD < 0.09433999 -- 83 obs
 0.09433999 <= INTEREST_SPREAD < 0.13143999 -
 - 23 obs
 0.13143999 <= INTEREST_SPREAD < 0.17331999 -
 - 24 obs
 0.17331999 <= INTEREST_SPREAD -- 25 obs

$$\begin{aligned}
 HOUSING_PRICE_INDEX = & (INTEREST_SPREAD < 0.09433999) * (\beta_1 * BUBBLE_GSADF + \beta_2 * CPI + \beta_3 * \\
 & CURRENCY_BASKET + \beta_4 * GOLD + \beta_5 * TURKIYE_CDS_5_YEAR + \beta_6 * VIX + \beta_7) + \\
 & (0.09433999 \leq INTEREST_SPREAD < 0.13143999) * \\
 & (\beta_8 * BUBBLE_GSADF + \beta_9 * CPI + \beta_{10} * CUR- \\
 & RENCY_BASKET + \beta_{11} * GOLD + \beta_{12} * \\
 & TURKIYE_CDS_5_YEAR + \beta_{13} * VIX + \beta_{14}) + \\
 & (0.13143999 \leq INTEREST_SPREAD < 0.17331999) * \\
 & (\beta_{15} * BUBBLE_GSADF + \beta_{16} * CPI + \beta_{17} * CUR- \\
 & RENCY_BASKET + \beta_{18} * GOLD + \beta_{19} * \\
 & TURKIYE_CDS_5_YEAR + \beta_{20} * VIX + \beta_{21}) + \\
 & (0.17331999 \leq INTEREST_SPREAD) * (\beta_{22} * BUB- \\
 & BLE_GSADF + \beta_{23} * CPI + \beta_{24} * CURRENCY_BASKET + \\
 & \beta_{25} * GOLD + \beta_{26} * TURKIYE_CDS_5_YEAR + \beta_{27} * VIX \\
 & + \beta_{28})
 \end{aligned}
 \tag{10}$$

Table 5. Threshold Regression Results

Dependent Variable: HOUSING_PRICE_INDEX Method: Discrete Threshold				
Variable	Coefficient	Std, Error	t-Statistic	Prob,
INTEREST_SPREAD < 0,09433999 -- 83 obs				
BUBBLE_GSADF	0,470351	0,286409	1,642237	0,1030
CPI	-25,63918	5,923982	-4,328032	0,0000
CURRENCY_BASKET01	1,101170	0,887320	1,241006	0,2169
GOLD	0,001738	0,000443	3,919127	0,0001
TURKIYE_CDS_5_YEAR	-0,004524	0,007205	-0,627913	0,5312
VIX	-0,023564	0,096961	-0,243028	0,8084
C	2,930312	2,077578	1,410446	0,1609
0,09433999 <= INTEREST_SPREAD < 0,13143999 -- 23 obs				
BUBBLE_GSADF	-3,236906	0,599372	-5,400498	0,0000
CPI	76,85258	21,71498	3,539150	0,0006
CURRENCY_BASKET01	3,357151	2,959357	1,134419	0,2588
GOLD	0,001798	0,001436	1,251869	0,2129
TURKIYE_CDS_5_YEAR	-0,026067	0,006311	-4,130574	0,0001
VIX	0,069893	0,072928	0,958383	0,3397
C	-26,59767	5,213448	-5,101742	0,0000
0,13143999 <= INTEREST_SPREAD < 0,17331999 -- 24 obs				
BUBBLE_GSADF	-0,931825	0,270860	-3,440249	0,0008
CPI	39,47521	12,55272	3,144754	0,0021
CURRENCY_BASKET01	1,150280	2,006737	0,573209	0,5675
GOLD	0,001526	0,000994	1,535589	0,1271
TURKIYE_CDS_5_YEAR	-0,011780	0,006573	-1,792188	0,0755
VIX	-0,044274	0,172629	-0,256471	0,7980
C	-9,799455	5,354082	-1,830277	0,0696
0,17331999 <= INTEREST_SPREAD -- 25 obs				
BUBBLE_GSADF	1,449695	0,275743	5,257420	0,0000
CPI	1,411950	5,717437	0,246955	0,8053
CURRENCY_BASKET01	3,098317	0,417534	7,420522	0,0000
GOLD	0,000332	0,000130	2,552736	0,0119
TURKIYE_CDS_5_YEAR	-0,149808	0,018226	-8,219347	0,0000
VIX	-0,085873	0,168359	-0,510059	0,6109
C	38,87310	7,861174	4,944949	0,0000
R-squared	0,996729	Mean dependent var		29,53135
Adjusted R-squared	0,996034	S, D, dependent var		40,34637
S, E, of regression	2,540868	Akaike info criterion		4,864941
Sum squared resid	819,9135	Schwarz criterion		5,414721
Log-likelihood	-349,0329	Hannan-Quinn criteria,		5,088249
F-statistic	1433,438	Durbin-Watson stat		1,765694
Prob(F-statistic)	0,000000			

To accurately interpret the results, it is essential to consider the political economy cycles of Türkiye between 2012 and 2024, during which the country diverged from the monetary strategies of advanced and emerging economies following the U.S. Federal Reserve's May 2013 announcement to taper its bond-purchasing program. Because the Turkish economy depends so much on imported goods, the delay in interest rate hikes caused interest rate shocks that drove up exchange rates. This, in turn, made inflationary pressures worse in the economy. Consequently, the sustainability of housing bubbles tends to rise during inflationary periods.

The results suggest that Bubble_GSADF is significantly negative in the mid-range interest spread brackets (0.094 to 0.173), indicating a defla-

tionary tendency of housing bubbles when inflation-adjusted interest rates remain moderate. However, in the highest interest spread bracket (above 0.173), Bubble_GSADF becomes positive and significant, reaffirming the observation that housing bubbles are more likely to emerge in such environments.

Interest rate spreads between 0.094 and 0.173 contributed to the decline of housing bubbles. However, spreads below 0.094 coincide with inflationary pressures, which can foster the formation of new bubbles. When interest rate spreads surpass 0.173, speculative increases in house prices become more evident, requiring proactive macroprudential measures.

The results point out that inflation is central in shaping housing prices when interest rate spreads stay within the 0.094–0.173 range. To provide a stable market, it is essential to fine-tune interest rates,

control inflation, and support financial stability with well-rounded policies.

Comparison of Findings with Literature for Türkiye

This study's results point out that the cycle of low interest rates, high inflation, and risk premiums causes house price bubbles in Türkiye. Rising interest rate spreads, CDS premiums, and exchange rate volatility cause these bubbles to burst. These results parallel the Akkuş (2021) and Akkaya (2024) research. This study uses Kalman filtering and threshold regression models to analyse the impact of interest and credit variables on bubble development, further exploring the bubble phases from 2019 to 2022 as identified by Akkaya using the GSADF test. Building on Kartal's (2022) finding that a drop in mortgage sales, modelled by macro-financial conditions, influences irrational price behaviour in the housing market, this study suggests an interest rate differential threshold of 9.4–17.3%. On the other hand, the timeframes determined by the GSADF test in this study closely match the many bubble forms discovered by Vergili (2023) and Abioğlu (2020) in locations like Istanbul and Izmir. This study aims to methodologically and empirically support and improve the findings already published in the Turkish literature.

Analysis of Findings in Terms of the COVID-19 Pandemic and the February 6 Earthquakes

Türkiye has two notable phases regarding the timeframe of the research undertaken. The eras include the COVID-19 pandemic commencing in 2020 and the earthquakes concentrated in Kahramanmaraş on February 6, 2023. Consequently, the research findings must be analysed considering these timeframes. During these two decades, external factors influencing housing supply and demand and the asset pricing dynamics that dictate home prices have shocked macroeconomic variables.

The low-interest rate policies, ample liquidity, and credit expansion enacted during the COVID-19 epidemic have fostered conditions conducive to

the emergence of speculative bubbles in the Turkish housing sector. The results of Kalman filtering and the GSADF test suggest that a new house price bubble has emerged since early 2020 and continues to persist. Notwithstanding the inflation surge during the pandemic, maintaining low interest rates has augmented investors' appetite for real estate. This circumstance has resulted in speculative escalations in real estate prices. The volatile nature of exchange rates and rising risk premiums have augmented house demand due to its perceived as a safe haven. During the pandemic, the low-interest rate disparity, elevated inflation, and heightened risk premium collectively contributed to the upward fluctuation of house values.

The earthquakes in Kahramanmaraş in 2023 messed up Türkiye's housing market by making people want safer homes, which made prices go up quickly in low-risk areas and made the bubble dynamics even stronger. The rise in public borrowing and CDS premiums has made things even more uncertain, signalling the start of a new and different way for bubbles to burst.

Housing Price Index and Construction Cost Index Relationship

Examining house price dynamics through time-varying Kalman coefficients indicates a variable relationship with the building cost index, responsive to temporal variations. The first graph shows that home prices increased faster than costs at times, even though rising construction costs after 2021 were the main reason for this (See Figure 5).

This example shows that both cost factors and speculative expectations affect house prices. The Kalman coefficients show that building costs greatly affected prices after 2021, peaking in 2022. After 2023, the stabilisation of these coefficients shows that cost-driven pricing has reached a plateau. At the same time, macroeconomic factors like inflation, low interest spreads, and high-risk premiums are increasing bubble dynamics (see Figures 5 and 6). In this context, Kalman filtering results show that the costs of building homes have become a significant factor in home prices. However, their interaction with speculative demand has led to the formation of bubbles. So, to make

sure the housing market stays stable, we need comprehensive policy frameworks that deal with rising costs and macroeconomic factors that affect financial stability and how investors act (See Figure 5, Figure 6).

Residential Land Price Index, and Appendix 7: Türkiye Field, Vineyard, Garden, and Land Price Index graphs are qualitatively aligned with the bubble formations identified in the study utilising the GSADF test and Kalman filtering method. These increases correspond with investors' shift towards

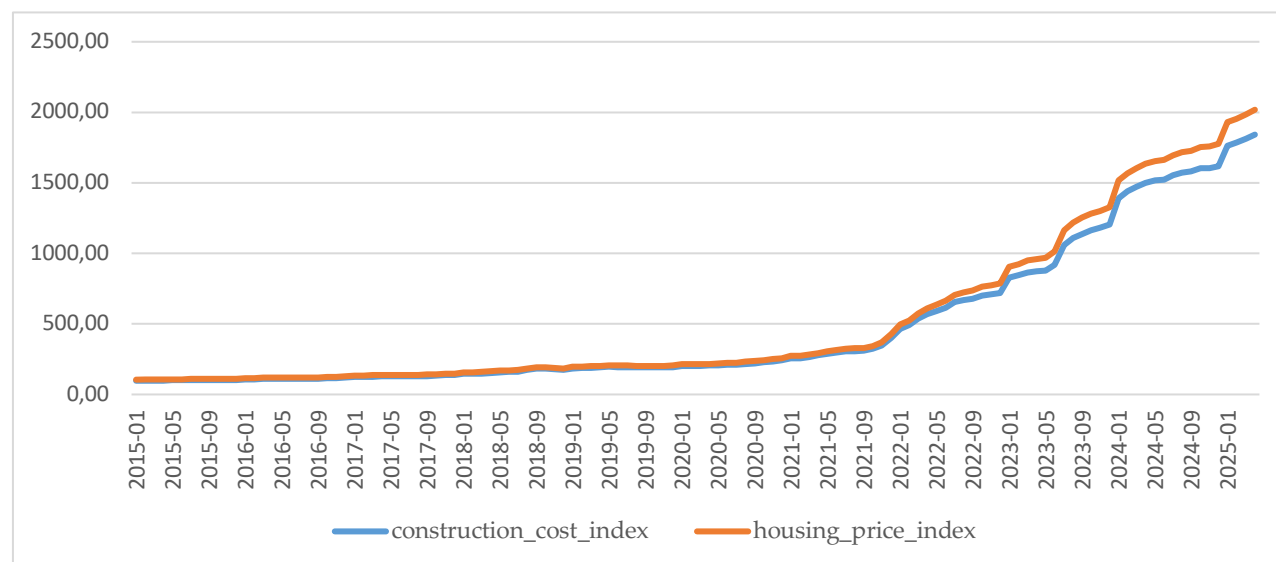


Figure 5. Housing Price Index and Construction Cost Index Relationship (Raw Data)

Source: Housing price endeks Central Bank EVDS Database, Construction Cost index in TÜİK Database

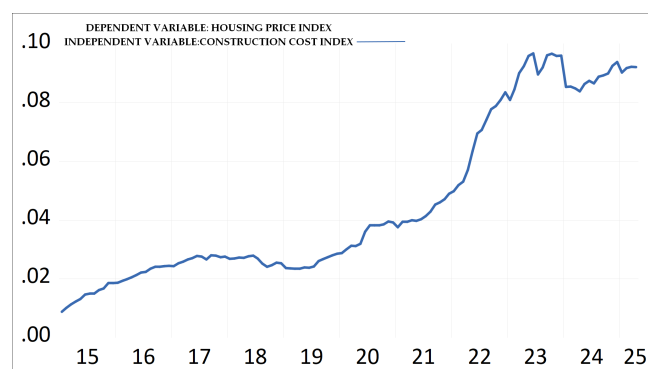


Figure 6. Housing Price Index and Construction Cost Index Relationship, Kalman Filtering Results

Analysis of Findings in Terms of Housing and Land Rent Indexes

The findings presented in the article, when assessed alongside the housing, real estate, and land graphs in the appendices, demonstrate that the theoretical modelling of the emergence and collapse of housing price bubbles is corroborated by empirical evidence. The price surges observed in the post-2020 period in Appendix 5: Türkiye Residential Property Price Index, Appendix 6: Türkiye

home and land investments, perceived as a safe haven amid low-interest rates and increasing inflation. Moreover, the Rent Indices in Appendices 3 and 4 indicate that the escalation in property prices is mirrored in rental costs, resulting in social consequences. This condition reinforces the notion articulated in the research that low and middle-income demographics are being propelled towards a housing crisis.

Real Estate Price and Rent Indices in Appendices 8 and 9 show a more stable trend than the residential market. This supports the idea that speculative bubbles are primarily found in the housing sector because of investment-driven behaviour and unrealistic financial expectations. Also, the Demand and Supply Indicators in Appendices 1 and 2 show that when supply does not change quickly enough to keep up with rising prices, it worsens bubbles. This aligns with the threshold regression results and Kalman filter analyses, which show how economic uncertainty, interest rate policy, and supply-side constraints make Türkiye's housing market less stable.

Policy Recommendations

Based on the research findings, policy recommendations can be formulated for institutions like the

central bank, which is crucial in shaping and executing housing policies within Türkiye's economic bureaucracy. In this context, the central bank can monitor the emergence and collapse dynamics of the housing bubble daily, weekly, and monthly through models utilising dynamic threshold regression algorithms. The results indicate that the influence of model outcomes concerning housing bubbles on the adjustment of the policy interest rate and interest rate corridor in the monetary policy committee's decisions will enhance the overall coherence of monetary policy with other economic policies.

From the viewpoint of the Banking Regulation and Supervision Agency, the dynamic monitoring of housing bubbles daily, weekly, and monthly can significantly enhance the management of risks associated with housing loans. Updating house loan interest rates around the bubble's peak will facilitate improved management of existing bubbles, their regulated deflation, and effective mitigation of their repercussions on the financial system post-burst. Dynamic threshold regression models will serve as a crucial metric for assessing housing supply from the viewpoint of the Housing Development Administration. Optimally assessing housing supply during stagnation, devoid of a housing bubble, and during speculative periods characterised by bubbles will improve the coherence of housing and economic policies and the efficacy of the financial system. Given that an early increase in interest rates precipitated the 2008 global financial crisis in housing markets, analysing the interest rate differential between Türkiye and foreign markets through dynamic threshold regression models will be an early warning system during significant financial crises.

Discussion and Conclusion

One of the most significant socio-economic issues is that housing bubbles and economic unrest have made homeownership more unaffordable, which has increased rents and exacerbated inequality for low-income families in Türkiye. This study provides theoretical and practical insights into the mechanism and burst of housing bubbles in Türkiye by literature review, data analysis, and econometric modeling. It also evaluates the impact of financial and economic shocks on housing prices from the supply and demand standpoint.

To make the research design more effective, the relevant literature is reviewed. The analysis reveals that housing bubbles in Türkiye are predominantly driven by supply-demand imbalances, financing costs, and speculative investor asset pricing behavior influenced by domestic and international risk premiums. It is contended that particularly low interest rates and credit facilities have facilitated speculative investments. It can be posited that the escalation in housing financing costs precipitated the bursting of housing bubbles due to the rise in interest rates. A comprehensive review of the extant literature and the formulation of research objectives and variables enabled the determination of research methods for Türkiye.

The selected variables of study consist of the house price index, consumer inflation, Türkiye's gold prices, Türkiye's 5-year CDS premium, the VIX risk appetite index, the equally weighted basket exchange rate of the dollar and the euro, and the Türkiye-US 10-year bond rate spread. The data set was observed from 2012:01 to 2024:11 at a monthly frequency. The GSADF test was applied to identify housing price bubble periods for Türkiye within the estimation interval. The outcomes of this test indicate the following periods as housing price bubbles in Türkiye: February 2015 to August 2015, January 2019 to August 2019, June 2019 to August 2019, and the present period (2020 to the present). However, Türkiye's current housing price bubble exhibits signs of a controlled bursting. The econometric analysis demonstrates that price bubbles in house prices are driven by supply-side rigidities and cost increases rather than demand shocks.

In Türkiye, housing bubbles usually happen when inflation, foreign exchange, and gold prices go up, interest rates are low, and a lot of money is in the market. As the bubble grows, easy access to credit and investment incentives make house prices rise even faster. However, outside events, like more economic uncertainty, higher CDS premiums, and tighter financial conditions, can cause

the market to lose confidence, which leads to the bursting phase.

Conversely, housing bubbles in Türkiye have a tendency to burst when economic uncertainties escalate, financing conditions become more stringent, and the rise in exchange rates and risk premiums gives rise to a loss of confidence. The threshold regression results indicate that when the current interest rate spread exceeds 17.3%, the housing bubble dynamics will likely escalate due to rising interest rate expectations, which can precipitate exchange rate and inflation shocks.

To provide an optimal housing market adjustment and balancing, the domestic and foreign interest rate spread must remain within an optimal range of 9.4% to 17.3% under current conditions. The study's findings contribute not only significantly to the understanding of housing bubble dynamics but also bring out several critical points.

This study suggested that effectively managing speculative bubbles in Türkiye's housing market needs a critical balance of interest rates, inflation, and exchange rate dynamics, when interest spreads exceed 0.17%. The study's results pay attention to the importance of transparent data and comprehensive macroprudential policies for ensuring long-term stability beyond mere rate adjustments.

Declarations

Funding: No funding was received for conducting this study.

Conflicts of Interest: The author declares no conflict of interest.

Ethical Approval: This article does not involve any studies with human participants or animals performed by the author; therefore, ethical approval was not required.

Informed Consent: Not applicable.

Data Availability: All variables used in the analyses are based on publicly available macro time-series (e.g., the Central Bank of the Republic of Türkiye's EVDS database and Investing.com). The cleaned datasets compiled from these sources and

the derived analysis outputs (e.g., model specifications and result tables) are available from the corresponding author upon reasonable request.

AI Disclosure: No artificial intelligence-based tools or applications were used in the conception, analysis, writing, or figure preparation of this study. All content was produced by the author in accordance with scientific research methods and academic ethical principles.

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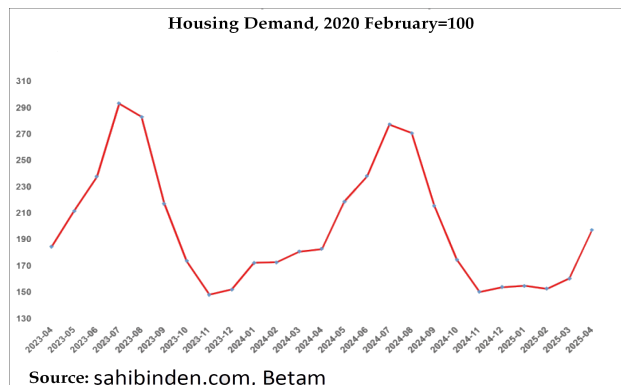
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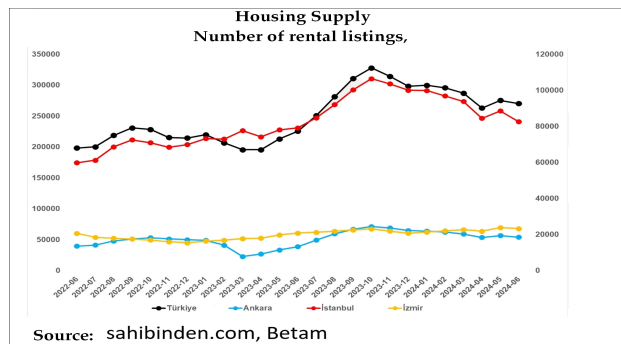
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Appendixes



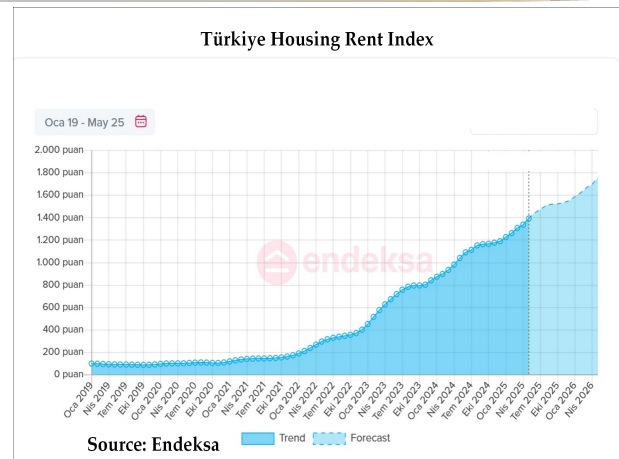
Appendix 1. Housing Demand



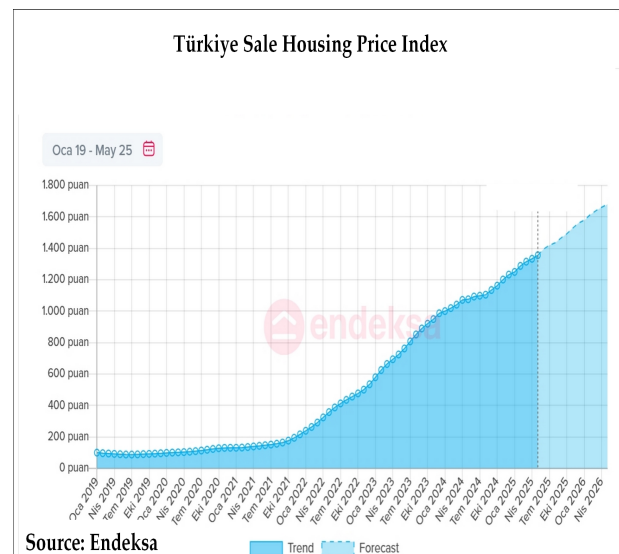
Appendix 2. Housing Supply



Appendix 3. Türkiye Real Rent Index



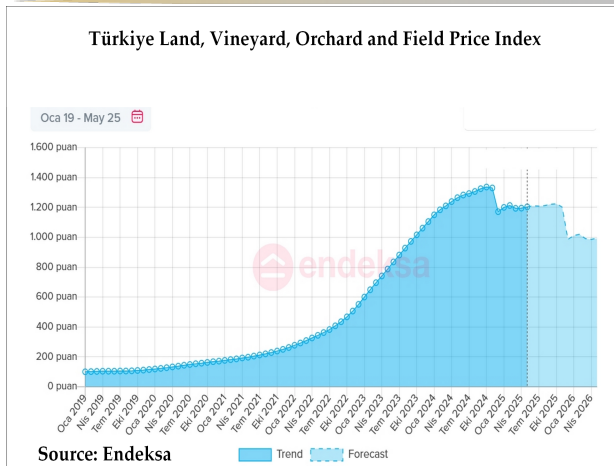
Appendix 4. Türkiye Housing Rent Index



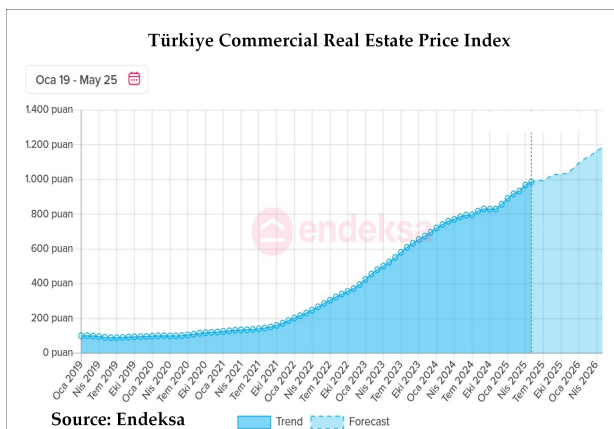
Appendix 5. Türkiye Sale Housing Price Index



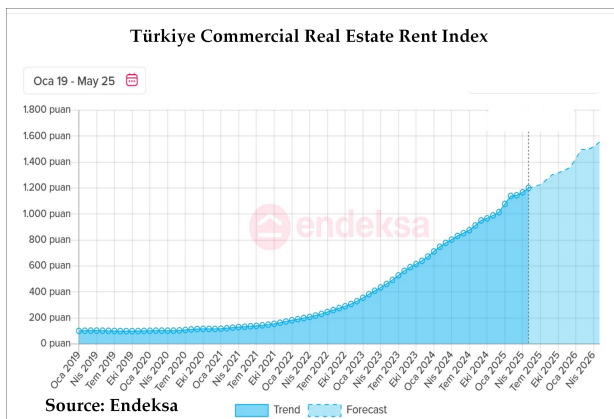
Appendix 6. Türkiye Residential Land Price Index



Appendix 7. Türkiye Land, Vineyard, Orchard, and Field Price Index



Appendix 8. Türkiye Commercial Real Estate Price Index



Appendix 9. Türkiye Commercial Real Estate Rent Index

RESEARCH ARTICLE

Comparative Analysis of the Factors Affecting Green Energy Consumption Behavior

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Abstract

This study investigates the factors affecting individuals' intention to use green energy by comparing two countries: Türkiye and the UK. A total of 728 participants (364 from each country) responded to a structured survey based on the extended UTAUT model. Independent variables include environmental concern, awareness of green energy, perceived benefits, application request, importance of education, country interest, and environmental awareness and investments. In both countries, environmental concern and awareness were found to be strong predictors of intention. However, environmental concern was the most influential factor in Türkiye, while awareness of green energy had the strongest effect in the UK. The study also revealed that demographic variables such as gender, age, and education level significantly affect green energy intentions. Cultural and contextual differences played a role in shaping these outcomes. The findings highlight the need for culturally tailored policy strategies to support the global transition to green energy. While universal drivers exist, local context must be considered for effective energy behavior change.

Keywords: Green energy, environmental concern, cross-cultural comparison, green energy behavior

Öz

Bu çalışma, bireylerin yeşil enerji kullanım niyetlerini etkileyen faktörleri iki ülke olan Türkiye ve Birleşik Krallık'ı karşılaştırarak incelemektedir. Her ülkeden 364 katılımcı olmak üzere toplam 728 katılımcı, genişletilmiş UTAUT modeline dayalı yapılandırılmış bir ankete yanıt vermiştir. Bağımsız değişkenler arasında çevresel kaygı, yeşil enerji farkındalığı, algılanan faydalar, uygulama isteği, eğitimin önemi, ülke çıkarı ve çevresel farkındalık ve yatırımlar yer almaktadır. Her iki ülkede de çevresel kaygı ve farkındalığın yeşil enerji kullanma niyetinin güçlü yordayıcıları olduğu bulunmuştur. Ancak, çevresel kaygı Türkiye'de en etkili faktör iken, yeşil enerji farkındalığı Birleşik Krallık'ta en güçlü etkiye sahiptir. Çalışma ayrıca cinsiyet, yaş ve eğitim düzeyi gibi demografik değişkenlerin, yeşil enerji kullanma niyetlerini önemli ölçüde etkilediğini ortaya koymuştur. Kültürel ve bağlamsal farklılıklar bu sonuçların şekillenmesinde rol oynamıştır. Bulgular, küresel olarak yeşil enerjiye geçişi desteklemek için kültürel olarak uyarlanmış politika stratejilerine olan ihtiyacı vurgulamaktadır. Evrensel itici güçler mevcut olmakla birlikte, etkili enerji davranış değişikliği için yerel bağlamanın dikkate alınması gerekir.

Anahtar Kelimeler: Yeşil enerji, çevresel kaygı, kültürlerarası karşılaştırma, yenilenebilir enerji davranışı

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Introduction

Climate change and environmental destruction have made the global transition to green energy a critical priority. It became a crucial concept because fossil fuels still account for most carbon emissions worldwide (Wall et al., 2021). The enhanced shift towards green energy is not only vital for slowing global warming. Indeed, it helps in improving public health and country's energy security (Owusu et al., 2016). Consequently, understanding the factors behind individuals' adoption of green energy has become increasingly important for both researchers and policymakers.

Recent studies highlighted that socio-psychological and cultural factors significantly shape green energy consumption behavior (Zhao et al., 2025; Arı & Yılmaz, 2021). Indeed, while technological and cost caused economic considerations related to adapting green energy still remains its importance as an influential factor, it is also indicated by several studies that environmental concern, awareness of green energy and perceived benefits are also often guiding the intention to use green energy (Wall et al., 2021; Lu & Liu, 2024). Individuals with greater concern about climate change or higher knowledge of green energy's advantages are generally more inclined to adopt green energy solutions (Arı & Yılmaz, 2021; Wall et al., 2021). However, the extent to which these drivers operate universally, as opposed to being shaped by local cultural context, remains an important question. Cross-cultural research suggests that the determinants of pro-environmental behavior can vary widely between countries and cultures (Goggins et al., 2022; Omar & Hasanujzaman, 2023).

Indeed, comparative studies offer valuable insights by revealing which factors are common and which are culture-specific in sustainability and energy behaviors (Berglund et al., 2020; Chaikumbung, 2025). For instance, cultural values and norms can influence energy decisions. A recent global analysis found that certain cultural traits like high uncertainty avoidance may inhibit green energy adoption, whereas others like strong collective societal support may facilitate it (Omar & Hasanujzaman, 2023). Likewise, one country's effective motivational message or policy incentive

might not translate successfully into another cultural setting (Bilgin & Soner Kara, 2024). This underscores the importance of cross-country comparisons. Türkiye and the UK present a helpful case for such comparison because of their distinct socio-economic contexts and contradictory public attitudes toward green energy. Public awareness and concern about climate change for example, are generally higher in the UK and Western Europe than in Türkiye (Bilgin & Soner Kara, 2024). While the UK has a long-established discourse on sustainability and strong public support for green energy, developing economies like Türkiye have historically faced more economic and informational barriers to green energy adoption (Arı & Yılmaz, 2021; Bilgin & Soner Kara, 2024).

Therefore, understanding the socio-psychological drivers behind green energy consumption in different cultural contexts is both academically and practically significant. This study addresses that need by comparing the factors influencing individuals' intentions to use green energy in Türkiye and the UK. By examining variables such as environmental concern, green energy awareness, perceived benefits, and other key constructs through a unified analytical framework, the research aims to separate which determinants are universal and which are culture-contingent. Comparative insights from these two countries can inform more effective, culturally tailored strategies to accelerate the global transition to green energy.

Theoretical Background

Concept of green energy and green consumption behavior

Green energy is simply defined as energy generated from inexhaustible sources that cause minimal environmental damage (Bilgin & Soner Kara, 2024). This type of energy refers to energy generated from renewable sources such as solar, wind, hydroelectric, and geothermal (Chmielarz et al., 2023). Some of the most well-known applications of this energy type include generating electricity from sunlight using solar panels, converting wind power into electricity using turbines, and generating hydroelectric energy from the power of flowing water (Bilgin & Soner Kara, 2024). A common

characteristic of green energy sources is that, unlike fossil fuels, they are continuously renewable in nature and do not deplete in the long term (Owusu et al., 2016). Therefore, green energy is considered a sustainable, renewable and clean energy solution (Cleveland & Morris, 2006).

Green consumption behavior on the other hand is a concept that refers to consumers making environmentally conscious choices to reduce the environmental impact of their consumption activities (Farooq et al., 2023). "Green" or "sustainable" consumer behavior encompasses voluntary actions aimed at minimizing environmental damage during the purchase, use, and post-consumption of products (Liao, 2023). Habits such as choosing low-energy or green energy devices, choosing public transportation or cycling, purchasing products made from recycled materials, reducing plastic consumption, or recycling waste are some examples of green consumption behaviors (Li, 2020). Through these behaviors, consumers aim to reduce their ecological footprint in their daily lives and contribute to the conservation of natural resources (Gumbo, 2016).

In literature, consciousness and attitudes are prominent in the formation of green consumption behavior (Li, 2020). Individuals' level of awareness of environmental issues and the importance they place on ecological issues influence their purchasing and consumption decisions (Meet et al., 2024). Raukoff and Wu (2013) emphasized consumers' efforts to minimize environmental damage during consumption as the fundamental definition of green consumption behavior. Similarly, Chen et al. (2013) argue that green consumption behavior is driven by awareness of environmental problems and a sense of responsibility, leading to a shift toward sustainable and responsible consumption patterns. Within this framework, the Theory of Planned Behavior (TPB) is frequently used to explain green consumption behavior. It is argued that individuals' attitudes toward the environment, social norms such as societal expectations, and perceived behavioral control factors such as the ability to self-actualize behavior shape green consumption intentions and behaviors (Çam et al., 2025).

Another model, The Unified Theory of Acceptance and Use of Technology, commonly known as UTAUT (Unified Theory of Acceptance and Use of Technology), is a comprehensive model that explains individuals' intentions to accept and use new technology (Venkatesh et al., 2003). The UTAUT model proposes that key determinants shape individuals' behavioral intentions and ultimately technology use behavior (Venkatesh et al., 2003). Among those determinants, the first one is performance expectancy. This includes the benefits to be gained from using the new technology. The second one is effort expectancy. This involves how easy or difficult technology is perceived to be. The third one is social influence. This refers to whether the individual's significant reference groups approve of the technology. And final determinant is facilitating conditions and refers to the availability of infrastructure and resources that support technology use (Agozie et al., 2023). Originally developed in the field of information technologies, this model has subsequently been adapted to explain the adoption of many innovative products and services across various disciplines.

In the green energy field, the UTAUT model has been applied specifically to examine individuals' acceptance behavior toward green energy technologies. Saleh et al. (2014) developed a framework based on the UTAUT model to investigate households' intention to use solar water heaters in Libya. This study aimed to analyze the factors that influence citizens' adoption of solar water heaters, a new green energy technology and provide policy recommendations to the government. The results revealed that elements from the original UTAUT dimensions, such as performance expectation and social impact as well as factors specific to green energy, such as environmental concern and financial motivation, have significant effects on intention to use solar energy technology. These findings suggest that the UTAUT model, with its flexible structure, can be adapted and evaluated in green energy context.

However, the application of the UTAUT model to green energy research has generally been achieved by incorporating additional environmental or attitudinal variables into the model. In some studies, the performance expectancy dimension of

UTAUT has been concretized as “perceived environmental benefit” or “long-term financial savings” in green energy, while the social impact dimension has been measured as “family/friend support” or “societal norms” (Ari & Yilmaz, 2021). Facilitating conditions have been represented by variables such as “presence of government incentives and technical infrastructure”. Furthermore, UTAUT2, an extended version of UTAUT, has added new dimensions to the individual consumer context, such as hedonic motivation, price value, and habit (Neves et al., 2025). These additional dimensions are also important in the adoption of green energy technologies. The price value dimension captures the perception of the cost-benefit balance of green energy systems and is assumed to be a critical variable for many consumers. Habit, on the other hand, refers to the resistance to traditional energy use. In this respect, this element of UTAUT2 helps to explain one of the psychological barriers to the switch to green energy (Neves et al., 2025).

Factors affecting green energy consumption behavior

In literature, factors affecting green energy consumption behavior have been examined across a wide range of factors, from individuals’ psychological characteristics to their socio-demographic characteristics and the social context they live in (Zhao et al., 2025). The most prominent of these factors is the level of concern and sensitivity to environmental problems, which is reported to strongly influence an individual’s willingness to use green energy (Meet et al., 2024). This is referred to as environmental anxiety in the literature. Individuals with high environmental concern are sensitive to issues such as climate change, pollution, and ecosystem destruction, and these concerns lead them to clean energy solutions (Lu & Liu, 2024). Indeed, Ari and Yilmaz (2021) found in their study that environmental concern has a positive effect on attitudes and intentions toward green energy use. Similarly, a study conducted in Thailand showed that consumers with high environmental concern are significantly more likely to turn to green energy (Wall et al., 2021).

Another factor like environmental concern is the level of awareness and knowledge about green energy. Individuals’ knowledge of green energy sources and their environmental and economic benefits can shape their consumption behavior (Lu & Liu, 2024). Individuals with a high awareness of green energy are more likely to grasp the advantages of solar or wind energy, its potential as an alternative to fossil fuels, and the long-term savings it offers. This, in turn, increases their motivation to switch to green energy. Ari and Yilmaz (2021) determined that an increase in green energy awareness significantly increases the intention to use green energy. A similar study conducted on consumers in Thailand found that green energy awareness positively impacted consumers’ intention to adopt green energy (Wall et al., 2021).

The perceived benefits of green energy, such as savings in electricity costs, reliability of energy supply, technology efficiency, or environmental benefits, are highlighted in literature as another factor influencing green energy use behavior. Accordingly, if a consumer believes that installing solar panels will reduce electricity bills in the long run or that using wind energy will protect the environment, their likelihood of adopting these technologies increases. Ari and Yilmaz (2021) reported that environmental concern indirectly increases intention to use green energy, and this effect is mediated by an individual’s perception of the benefits of green energy. Similarly, Wall et al. (2021) showed that beliefs about the benefits of green energy, such as its cleanliness and long-term affordability, significantly and positively contribute to consumers’ intention to adopt this energy.

In literature, consumers’ perception of themselves as competent and effective in using green energy has been cited as a psychological factor significantly influencing green energy use. Based on this, individuals with a high sense of self-efficacy are more willing to use or invest in green energy systems because they believe they can achieve this. The concept of self-efficacy, examined by Wall et al. (2021) in addition to the TPB model, has been identified as a positive and significant determinant of consumers’ decisions to transition to green energy.

The decision to switch to green energy is directly influenced by an individual's economic circumstances. Therefore, consumers with higher incomes are generally able to afford the initial investment cost of green energy systems and are more open to evaluating the long-term savings potential (Frederiks et al., 2015). Research shows that households with higher incomes and economic opportunities are more likely to invest in technologies like solar energy (Omar & Hasanujzaman, 2023). A study in Thailand found that middle-aged and more highly educated individuals are more likely to use green energy, and that the diversity and amount of income sources also influence their willingness to pay for green energy (Wall et al., 2021). Similarly, studies in India found that higher-income and more educated households have significantly higher rates of installing green energy systems (Gaikwad & Shinde, 2022; Dey et al., 2022).

Another factor affecting green energy use is education level. It has been noted that education level is a critical factor influencing green energy behavior in terms of both environmental awareness and technology perception (Wang et al., 2020). Accordingly, more educated individuals tend to be more aware of climate change and energy issues.

Individuals' behaviors toward green energy also depend on the influence of their social environment. The presence of green energy users among family, friends, or neighbors encourages similar behaviors in others (Yang et al., 2022). Installing rooftop solar panels on several homes in a neighborhood increases neighbors' interest in this technology. This phenomenon has been described in literature as the neighborhood effect or peer effect. Similarly, social norms and values are important (Yang et al., 2022). If environmentally friendly behaviors are praised and expected in a society, individuals feel motivated to comply with these norms.

Similarly, government policies have also been shown to be among the determinants affecting green energy consumption behavior at the macro level (Yang et al., 2022). Incentive mechanisms such as tax reductions, direct subsidies, long-term low-interest loans, or net-metering (a method of paying consumers who supply electricity to the grid) make green energy investments attractive to

individuals (Yang et al., 2022). Government incentives for purchasing electric vehicles in some countries have played a significant role in the proliferation of these vehicles (Bilgin & Soner Kara, 2024).

When the factors listed above are evaluated together, it becomes clear that green energy consumption behavior is a multidimensional phenomenon. An individual's intrinsic motivations such as environmental awareness, perceptions, attitudes and extrinsic conditions of the individuals such as economic opportunities, social environment and government policies play a combined role in determining their orientation toward green energy.

Importance of cross-cultural comparative studies

Cultural values and norms profoundly influence individuals' attitudes and behaviors regarding energy. A comprehensive study conducted by Omar and Hasanujzaman (2023) with data from 99 countries examined the impact of national culture on green energy consumption within the framework of Hofstede's cultural dimensions. The results indicate that some cultural characteristics can encourage green energy use while others can inhibit it. Societies with high uncertainty avoidance tendencies may be more hesitant to invest in green energy. This is because new technologies and market fluctuations are perceived as risky in cultures that cannot tolerate uncertainty. Similarly, it has been reported that in cultures with high power distance, which emphasize authority and hierarchy, there may be resistance to innovations that disrupt the established order in the energy sector. Conversely, societies with high levels of hedonism (indulgence), where individuals value living in the moment and making free choices without considering the future, have been found to be more willing to adopt green energy (Omar & Hasanujzaman, 2023).

Another example highlighting the impact of cultural differences is the axis of individualism vs. collectivism. In societies with high individualism, people may be willing to pursue green energy solutions on their own initiative, while in collectivist cultures, social approval and government guidance may be more decisive (Omar & Hasanujzaman, 2023). In countries with high collectivist

tendencies, such as Japan and South Korea, government policies and social campaigns play a significant role in public energy choices. Individuals also receive social recognition when they adopt behaviors that serve the general interest of society. This means that green energy may gain faster acceptance in these cultures when its collective benefits are emphasized. In individualist societies, the transition to green energy is often shaped by individuals' own values and economic calculations. These findings demonstrate that rather than economic and technical factors, cultural norms and values can have significant impacts on energy behavior (Berglund et al., 2020).

The cultural context plays a significant role in the transition to green energy. Cross-cultural studies offer the opportunity to compare results by using data from different countries. This allows policymakers to develop country-specific strategies. In a country where environmental awareness is already high, behavioral interventions such as public service announcements and educational programs can be prioritized over economic incentives. Conversely, in a country where economic concerns predominate, barriers to green energy use can be reduced primarily through financial support and technological infrastructure investments.

Following the review of relevant literature, the next section introduces the methodological framework employed in this study.

Methodology

This research investigates the factors influencing green energy consumption behavior by comparing two countries, the United Kingdom (UK) and Türkiye. Quantitative approach was followed throughout the study and the UTAUT-based measurement tool designed by Arı and Yılmaz (2021) which examines the relationship between green energy usage, environmental concern, awareness of green energy, the perceived benefits of green energy, and the intention to use green energy, was used in this study (GE Scale 1 - Arı & Yılmaz, 2021). In addition to above factors, effects of country interest, importance of education, application request and environmental awareness and investments on the intention to use green energy were also tested in this study (GE Scale 2 - Güneş et al.,

2013). GE Scale 1 (Arı & Yılmaz, 2021) scale consists of 14 items. The scale includes items such as "I am worried about the effects of air pollution on myself and my family." and "Even if the installation cost is high, I will use green energy." Participants are asked to respond on a 5-point Likert scale (1: strongly disagree - 5: strongly agree). GE Scale 2 (Güneş et al., 2013) scale consists of 26 items in total. The scale includes items such as "I pay attention to recycling practices for obtaining green energy from waste" and "I do not think the use of green energy will contribute to the country's economy". Participants are asked to respond on a 5-point Likert scale (1: strongly disagree - 5: strongly agree).

Based on this, the research model of this study is formed as follows:

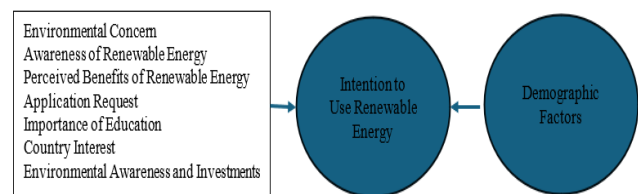


Figure 1. The research model

Based on the above research model (Figure 1) hypothesis are formed as follows:

H₁: Individuals with higher levels of environmental concern are more likely to express stronger intentions to use green energy.

H₂: Increased awareness of green energy is positively associated with the intention to use green energy.

H₃: The greater the perceived benefits of green energy, the higher the intention to adopt green energy technologies.

H₄: A higher willingness to actively seek and apply green energy solutions predicts stronger intentions to use green energy.

H₅: Individuals who place greater importance on education are more likely to report higher intentions to use green energy.

H₆: A stronger belief in national interest and benefit from green energy is positively related to the intention to use green energy.

H₇: Individuals with higher environmental awareness and investment behaviors are more likely to intend to use green energy.

H₈: The intention to use green energy is different depending on demographic factors such as gender, age, education level, and employment status.

The population of this study is all energy consumers live in Türkiye and the UK. In 2024, the population of the UK was 69,23 million. Whereas the population of Türkiye was 85,52 million in the year of 2024. Energy consumers should be aged 18 and over. Based on this, estimated number of energy consumers in the UK was 55 million and 64 million in Türkiye. Based on a 99% confidence level and a 5% margin of error the sample size was determined as 364. Consequently, 364 participants from each country, resulting in a total of 728 respondents, participated in this study. However, due to practical and logistical limitations, it was not possible to reach a probabilistic and nationally representative sample. Therefore, the study relied on convenience sampling to recruit participants who had access to the online survey and voluntarily agreed to participate. The survey link was distributed via e-mail groups, university networks, and social media platforms between March and May 2025. This approach enabled the collection of responses from individuals with diverse demographic backgrounds, but it also introduced limitations in terms of representativeness.

The collected data were analyzed using SPSS 27. Descriptive statistics were first employed to profile the demographic characteristics of the respondents. Normality tests were conducted, followed by reliability and factor analyses to confirm the validity of the measurement scales. Multiple regression analyses were then performed separately for Türkiye and the UK to test the hypothesized relationships. Additionally, t-tests and ANOVA analyses were used to examine whether green energy intentions differed across demographic groups such as gender, age, education, and employment status.

Having outlined the methodological framework of the study, the following section presents the analysis of the collected data in order to address the research objectives.

Analysis

Table 1. Demographic characteristics

		Percentage (%)	
		Türkiye	UK
Gender	Male	48	46
	Female	52	54
Age	18-25	30	25
	26-35	38	35
	36-45	22	28
	46+	10	12
Marital status	Married	64	55
	Single	36	45
Education level	High school degree	18	15
	University degree	67	73
	Master/PhD degree	15	12
Employment status	Full-time employed	60	65
	Part-time employed	24	18
	Unemployed	16	17

The study, which was conducted with equal numbers of participants from Türkiye and the UK (364 people from each country). In both countries, the sample consisted mainly of young adults, university graduates and full-time employees. The gender distribution was balanced and the participant profile was suitable for comparative analysis in terms of socio-economic aspects.

Because the number of observations exceeded 30, the Kolmogorov-Smirnov test was applied for normality testing (Büyüköztürk, 2021). The normality test revealed that the participants' scores on the GE Scale 1 (Arı & Yılmaz, 2021) ($p=.217$) and GE Scale 2 (Güneş et al., 2013) ($p=.192$) were normally distributed ($p>.05$). Accordingly, the data were suitable for parametric testing. Reliability coefficients for the scales and values indicated the suitability of the data structure for factor analysis are presented in Table 2.

Table 2. Reliability of the scales

Scales	Cronbach Alpha (α)	KMO	Bartlett's p	Total Variance Explained (%)
GE Scale 1	,860	,913	,000	58,354
GE Scale 2	,913	,834	,000	59,355

Cronbach's Alpha (α), which indicates the internal consistency of the scales, was above ,80 for all scales. These values indicated that the scales are highly reliable. The KMO (Kaiser-Meyer-Olkin) values, which indicate the adequacy of the sample, were also above 0,80, indicated a very good level

of sample adequacy. The Bartlett test was also found to be significant for all scales ($p < ,001$), confirmed their suitability for factor analysis. All these results indicated that the scales used are statistically strong, valid, and reliable measurement tools. According to the factor analysis results, the GE 1 scale consisted of four subscales (environmental concern, awareness of green energy, perceived benefits of green energy and intention to use green energy) and the GE 2 scale consists of four subscales (application request, importance of education, country interest and environmental awareness and investments). The mean values and reliability coefficients of the subscales of the scales are shown in Table 3.

from the UK was 3,75, while among the participants from Türkiye, it was 3.62. In the “Importance of Education” subscale, participants from the UK ($X = 3,91$) also had a higher average than participants from Türkiye ($X = 3,79$). In the “Country Interest” subscale, the averages were 3,83 for participants from Türkiye and 3,89 for participants from the UK. Finally, a similar difference was observed in the “Environmental Awareness and Investments” subscale; the average for participants from Türkiye was 3,70, while the average for participants from the UK was 3,86.

Table 3. Descriptive statistics and reliability analysis of the scales

Scales	Sub-dimensions	Türkiye			UK		
		Mean (X)	Std. Dev.	Alpha (α)	Mean (X)	Std. Dev.	Alpha (α)
GE Scale 1	Environmental Concern	3,71	,456	,832	3,89	,543	,835
	Awareness of Green energy	3,68	,432	,898	3,85	,356	,834
	Perceived Benefits of Green energy	3,74	,334	,829	3,88	,543	,853
	Intention to Use Green energy	3,76	,345	,883	3,84	,353	,892
GE Scale 2	Application Request	3,62	,453	,902	3,75	,353	,924
	Importance of Education	3,79	,575	,899	3,91	,532	,902
	Country Interest	3,83	,345	,923	3,89	,432	,934
	Environmental Awareness and Investments	3,70	,443	,928	3,86	,654	,932

An examination of the GE Scale 1 and GE Scale 2 subscales, which measure participants' attitudes and perceptions toward green energy, revealed that the average scores of participants from the UK are systematically higher than those from Türkiye. Within the GE Scale 1 dimension, participants from the UK ($X = 3,89$) exhibited a higher mean score than participants from Türkiye ($X = 3,71$) on the “Environmental Concern” dimension. Similarly, the mean score for “Green energy Awareness” was 3,85 among the participants from the UK and 3,68 among the participants from Türkiye. For the “Perceived Benefits of Green energy” dimension, the means were 3,88 (among the participants from UK) and 3,74 (among the participants from Türkiye), respectively. Among the participants from the UK ($X = 3,84$) led the way in terms of “Green energy Use Intention,” while the mean score for participants from Türkiye was 3,76.

A similar trend was observed within the GE Scale 2 dimension. In the “Application Request” subscale, the average value among the participants

These findings indicated that participants from the UK had higher levels of awareness regarding environmental sustainability, green energy, and the environment compared to those from Türkiye. This may be related to variables such as cultural factors, environmental education policies and public awareness campaigns.

Regression analysis

Within the scope of the research, variables predicting the intention of participants from Türkiye and from the UK to use green energy were tested with multiple linear regression analysis. The analysis was carried out separately for participants from both countries and the explanatory power of the model, significance levels and the effects of the predictor variables were examined comparatively.

Table 4. Regression analysis results / Türkiye

	β	t	Sig (p)
Environmental Concern → Intention to Use Green energy	,378	4,59	,000**
Awareness of Green energy → Intention to Use Green energy	,266	3,01	,003**
Perceived Benefits of Green energy → Intention to Use Green energy	,213	2,10	,036*
Application Request → Intention to Use Green energy	,244	2,82	,005**
Importance of Education → Intention to Use Green energy	,157	1,04	,297
Country Interest → Intention to Use Green energy	,149	0,96	,186
Environmental Awareness and Investments → Intention to Use Green energy	,231	2,49	,013*

Dependent variable: Intention to Use Green energy; * $p < ,05$, ** $p < ,01$

According to the regression analysis results for the Turkish sample, the model was found to be significant ($F(7, 356) = 36,87$, $p < ,001$) and the independent variables together explained 46.8% of the intention to use green energy ($R^2 = ,468$).

Environmental concern stood out as the strongest predictor variable among the participants from Türkiye ($\beta = ,378$, $p < ,001$) (Table 4). This finding showed that environmental concern perception was a determinant in participants' green energy preferences. Similarly, green energy awareness ($\beta = ,266$, $p = ,003 < ,05$) and perceived benefits ($\beta = ,213$, $p = ,036 < ,05$) also showed significant and positive effects on intention to use. This situation revealed that participants' knowledge levels on the subject and their perceptions of personal gain are effective on behavioral intention.

The application request variable was also a significant predictor ($\beta = ,244$, $p = ,005 < ,05$). The participants' motivation to use technology voluntarily supports their tendency to switch to green energy. The environmental awareness and investments variable also significantly affects the usage intention ($\beta = ,231$, $p = ,013 < ,05$). This situation showed that participants' investment and awareness levels towards environmental responsibility affect their energy preferences. On the other hand, the effect of the importance of education ($p = ,297 > ,05$) and country interests ($p = ,186 > ,05$) variables were not found to be statistically significant. This indicated that participants act more with personal and environmental concerns in their green energy preferences and the perception of national interests or

education level is less effective in this decision process.

Table 5. Regression analysis results / UK

	β	t	Sig (p)
Environmental Concern → Intention to Use Green energy	,315	3,91	,000**
Awareness of Green energy → Intention to Use Green energy	,329	4,14	,000**
Perceived Benefits of Green energy → Intention to Use Green energy	,186	1,68	,094
Application Request → Intention to Use Green energy	,286	3,49	,001**
Importance of Education → Intention to Use Green energy	,213	2,11	,036*
Country Interest → Intention to Use Green energy	,191	1,94	,089
Environmental Awareness and Investments → Intention to Use Green energy	,267	3,06	,002**

Dependent variable: Intention to Use Green energy; * $p < ,05$, ** $p < ,01$

In the UK sample, the explanatory power of the model was higher ($R^2 = ,546$) and the analysis was significant ($F(7, 356) = 41,23$, $p < ,001$).

In the UK sample, the strongest predictor variable was awareness of green energy ($\beta = ,329$, $p < ,001$) (Table 5). Participants' knowledge and high awareness levels on the subject significantly increase their intention to use. The environmental concern variable also had a significant and positive effect ($\beta = ,315$, $p < ,001$), supporting the fact that the sense of individual responsibility is decisive in decision-making processes.

The variables of application request ($\beta = ,286$, $p = ,001$) and environmental awareness and investments ($\beta = ,267$, $p = ,002 < ,01$) also significantly affect intention to use. These findings indicated that both voluntary technology acceptance and individual contributions based on environmental values are strongly associated with behavioral intention among the participants. The importance of education variable was a statistically significant predictor among the participants from the UK ($\beta = ,213$, $p = ,036 < ,05$). This indicated that the level of education and the perceived value of education are more decisive in energy choices and reflects the tendency for information-based decision making among the participants. On the other hand, the effects of the variables of country interests ($p = ,089 > ,05$) and perceived benefits ($p = ,094 > ,05$) were not statistically significant.

Differentiation analysis

This section examines whether there are significant differences in participants' intention to use green energy based on their demographic characteristics (gender, age, marital status, education and employment status). Analyses used independent samples t-tests and one-way analysis of variance (ANOVA).

intention scores tend to increase with age: $X = 3,52$ for the 18-25 age group, $X = 3,77$ for the 26-35 age group, $X = 3,91$ for the 36-45 age group and $X = 3,95$ for the 46+ age group. According to these results, it was determined that participants in the 18-25 age group had lower intentions to use green energy compared to individuals over the age of 36.

A significant difference was also observed in terms of education level ($p = ,021 < ,05$). The mean intention score for high school graduates was $X =$

Table 6. Differentiation in intention to use green energy according to demographic characteristics / Türkiye

Characteristics		N	Mean (X)	Std. Deviation (SD)	t	df	p-value (Sig.)
Gender	Male	48	3,61	0,82	2,98	362	,003**
	Female	52	3,89	0,77			
Marital Status	Married	64	3,74	0,53	0,64	362	,522
	Divorced	36	3,79	0,55			
		N	Mean (X)	F		df	p-value (Sig.)
Age	18-25	30	3,52	4,12		3	,007**
	26-35	28	3,77				
	36-45	22	3,91				
	46+	10	3,95				
Education Level	High school degree	18	3,56	3,89		2	,021*
	University degree	67	3,78				
	Master/PhD degree	15	3,97				
Employment Status	Full-time employed	60	3,83	2,17		2	,116
	Part-time employed	24	3,79				
	Unemployed	16	3,62				

Analyses of the Turkish sample revealed significant differences in the "Intention to Use Green energy" subscale based on some demographic variables. An independent samples t-test by gender revealed that female participants ($X = 3,89$) had significantly higher intentions to use green energy than male participants ($X = 3,61$; $p = ,003 < ,01$).

3,56, while for university graduates it was $X = 3,78$ and for master's/doctoral graduates it was $X = 3,97$.

In contrast, no significant difference was found in the analysis conducted by marital status ($p = ,522 > ,05$). In other words, being married or single does not have a significant effect on participants' intentions to use green energy. Similarly, no significant difference was observed in the ANOVA results for employment status ($p = ,116 > ,05$).

Table 7. Differentiation in intention to use green energy according to demographic characteristics / UK

Characteristics		N	Mean (X)	Std. Deviation (SD)	t	df	p-value (Sig.)
Gender	Male	46	3,74	0,76	2,31	362	,021*
	Female	54	3,92	0,71			
Marital Status	Married	55	3,85	0,50	0,48	362	,630
	Divorced	45	3,81	0,56			
		N	Mean (X)	F		df	p-value (Sig.)
Age	18-25	25	3,63	3,54		3	,015*
	26-35	35	3,77				
	36-45	28	3,86				
	46+	12	3,93				
Education Level	High school degree	15	3,68	4,93		2	,008**
	University degree	73	3,84				
	Master/PhD degree	12	4,01				
Employment Status	Full-time employed	65	3,88	3,71		2	,025*
	Part-time employed	18	3,79				
	Unemployed	17	3,62				

The results of a one-way analysis of variance (ANOVA) conducted for the age variable also revealed a significant difference ($p = ,007 < ,01$). Mean

These findings indicated that gender, age and education level are important demographic determinants affecting intention to use green energy in

the Turkish sample. However, marital status and employment status do not create a significant difference in this regard.

Analyses of the UK sample revealed significant differences in the "Intention to Use Green energy" subscale based on some demographic variables. An independent samples t-test by gender revealed that female participants ($X=3,92$) had significantly higher intentions to use green energy than male participants ($X=3,74$; $p=.021 < .05$).

A one-way analysis of variance (ANOVA) for age also revealed a significant difference ($p=.015 < .05$). Mean intention scores across age groups were found to be $X=3,63$ for the 18-25 age group, $X=3,77$ for the 26-35 age group, $X=3,86$ for the 36-45 age group and $X=3,93$ for the 46+ age group. According to results, the intention to use of individuals in the 18-25 age group was lower than those over 36.

A significant difference was also found in terms of education level ($p=.008 < .01$). The mean score for high school graduates was $X=3,68$, while for university graduates it was $X=3,84$, and for master's and doctoral graduates it was $X=4,01$. It is seen that individuals who have received a master's/doctorate level of education have a higher intention to use green energy compared to other groups.

A significant difference was also found in terms of employment status; ($p=.025 < .05$). The mean score for individuals working full-time was $X=3,88$, for those working part-time $X=3,79$, and for those unemployed $X=3,62$. According to the results, unemployed participants have lower intentions of using green energy. However, no significant difference was found by marital status ($p=.630 > .05$).

Overall, in the UK sample, gender, age, education, and employment status variables had significant effects on intentions to use green energy. These findings supported the determining role of demographic factors on environmental attitudes.

Hypothesis testing

H₁: Individuals with higher levels of environmental concern are more likely to express stronger

intentions to use green energy – *Accepted in both countries*

H₂: Increased awareness of green energy is positively associated with the intention to use green energy – *Accepted in both countries*

H₃: The greater the perceived benefits of green energy, the higher the intention to adopt green energy technologies – *Accepted only in Türkiye*

H₄: A higher willingness to actively seek and apply green energy solutions predicts stronger intentions to use green energy – *Accepted in both countries*

H₅: Individuals who place greater importance on education are more likely to report higher intentions to use green energy – *Accepted only in the UK*

H₆: A stronger belief in national interest and benefit from green energy is positively related to the intention to use green energy – *Rejected in both countries*

H₇: Individuals with higher environmental awareness and investment behaviors are more likely to intend to use green energy – *Accepted in both countries*

H₈: The intention to use green energy is different depending on demographic factors such as gender, age, education level and employment status – *Partially accepted in both countries*

Based on the results obtained from the analysis, the following section provides a discussion of the findings and draws conclusions in light of the research objectives.

Discussion and Conclusion

This research investigated the factors influencing green energy consumption behavior by comparing participants from two countries, the UK and Türkiye. The comparative analysis of participants from Türkiye and the UK revealed that both intrinsic environmental motivations and awareness factors played pivotal roles in driving green energy consumption behavior. However, it is found in this study that their relative importance differs by culture. In both country samples, environmental concern and green energy awareness emerged as significant positive predictors of the intention to adopt green energy technologies. This suggested

that regardless of context, individuals who are more worried about environmental issues and more knowledgeable about green energy tend to be more inclined toward using renewable sources. However, the strongest predictor in each country's regression model diverged significantly. Environmental concern was the most potent motivator among the participants from Türkiye, whereas knowledge and understanding of green energy was the leading factor among the participants from the UK. In other words, Turkish participants appeared more driven by a sense of environmental threat and urgency, while their British counterparts were more influenced by cognitive awareness and information. This finding aligns with the cultural context of each country. Türkiye's respondents may act out of concern for environmental degradation they perceive, whereas British respondents, operating in a society with higher baseline environmental knowledge, respond more to how informed they are about green energy's benefits (Bilgin & Soner Kara, 2024). Notably, the results showed that both factors are important among the participants from each country, which indicated that any successful policy mix must maintain both informational campaigns. The application of an extended UTAUT framework supports these results. In this manner the key psychosocial constructs analogous to performance expectancy and facilitating conditions were influential, but their salience varied between the two nations' contexts. Some cross-country contrasts were evident in the significance of other UTAUT-related variables. The importance of education factor was found to be a significant predictor of green energy intentions in the UK sample but not in the sample from Türkiye. This result suggested that participants from the UK placed higher value on education and a stronger integration of sustainability in the educational system translated into greater willingness to embrace green energy at the individual level. British participants who are more educated or who consider education important may have higher environmental literacy and confidence in new technologies. In this manner, they showed stronger green energy intentions. In contrast, the Turkish sample did not show a unique effect of the education variable on intentions. This could imply that formal education does

not yet play as direct a role in shaping pro-environmental energy behaviors among the participants from Türkiye. Cultural and systemic differences such as how environmental topics are covered in school curricula or the public discourse might explain this disparity. Additionally, some constructs that one might expect to motivate behavior, such as perceived benefits of green energy and perceived country-level benefits had only limited effects in both countries' models. The weak influence of these extrinsic benefit considerations indicates that people's green energy decisions were driven more by personal values and ecological awareness than by calculations of economic or national gain. Even in Türkiye, where economic concerns and practical questions like "Can I afford it?" or "Will this technology work for me?" are often prominent (Ari & Yılmaz, 2021), this study's findings suggested that intrinsic motivations outweighed pure utilitarian benefits in reported intentions. However, it should be noted that this does not mean that personal gain is irrelevant. It implies that without a baseline environmental concern or awareness even potential cost savings alone may not encourage action.

Except for the attitudinal and knowledge-based determinants, the study also examined demographic patterns in green energy intention, uncovering both universal trends and context-specific distinctions. Several demographic effects proved consistent across the Turkish and UK samples. Gender differences were observed in both samples, with women reporting higher intentions to use green energy than men which is a pattern often attributed to women's greater environmental concern in the literature. Age was another common factor. In this manner, older individuals tended to express stronger intentions to adopt green energy than younger adults among the participants. This could reflect life-stage effects or greater exposure to environmental issues over time. Likewise, education level showed a positive association with green energy intention in both samples. Participants holding a university degree or higher were more inclined toward green energy than those with lower education levels. This indicated that education enhances environmental awareness and openness to new technologies (Wall et al., 2021). These parallel findings in two different sample

suggest there are universal dimensions to pro-environmental behavior. In this manner it can be said that being female, older or more educated generally correlates with greater willingness to engage in green energy consumption. However, this indication is limited to sample of this study. Nevertheless, such commonalities indicated that certain socio-psychological tendencies, for example, environmental sensitivity and knowledge-based confidence may transcend cultural boundaries. On the other hand, one demographic factor which is employment status displayed a country-specific difference. Among sample from the UK, employed individuals particularly those working full-time exhibited significantly higher green energy intentions than the unemployed, whereas in Türkiye's sample the effect of employment status was not statistically significant. This divergence may be due to structural or economic differences between the countries. It is possible that in the UK, stable employment enables individuals to consider investing in or adopting renewable solutions, aligning with research that higher economic security facilitates pro-environmental investments (Omar & Hasanujzaman, 2023). In Türkiye, where renewable options might be perceived as less affordable or where subsidies and support are still developing, employment per se did not differentiate intentions. This may mean that factors other than job status are more critical for adoption in that context. Overall, the demographic comparisons reinforce that while some drivers of green energy behavior are universally relevant, the weight of their effects can be shaped by each country's socio-economic landscape. These findings have important practical implications for promoting green energy behaviors in different cultural settings. The fact that environmental concern and awareness are key drivers in both sample indicates that any policy aimed at increasing green energy adoption should include components that boost public knowledge about green energy and underscore the urgency of environmental issues. However, the differing emphases between Türkiye and the UK suggest that policy strategies must be culturally tailored. Tailoring strategies to the socio-psychological drivers prominent in each society will enable policymakers and stakeholders to foster a more rapid and enduring

shift toward green energy, thereby contributing to both national energy goals and the broader fight against climate change.

However, it is important to emphasize that the findings of this study are limited to the sample included in the research. Because the data were collected using non-probability sampling, the results cannot be generalized to the entire populations of Türkiye or the UK. Instead, the study provides valuable insights into the relationships among psychosocial and demographic factors within the participant group. To prove the results of this study further cultural comparisons can be made by using other countries as an investigation area. China-Türkiye comparison, UK-India comparison can be important to be studied by the future research. Future research should employ probability-based and nationally representative samples to enhance the external validity of the findings.

Declarations

Funding: No funding was received for conducting this study.

Conflicts of Interest: The author declares no conflict of interest.

Ethical Approval: Ethical approval for this research was granted by the Istanbul Kent University Social and Human Sciences Research Ethics Committee, decision dated 30.05.2025, meeting number 2025/05.

Informed Consent: Electronic informed consent was obtained from all participants before they began the questionnaire; participation was voluntary, and anonymity and confidentiality were ensured.

Data Availability: Due to privacy and confidentiality considerations, raw survey data are not publicly available. De-identified datasets and analysis materials (e.g., codebooks and regression outputs) are available from the corresponding author upon reasonable request.

AI Disclosure: No artificial intelligence-based tools or applications were used in the conception, analysis, writing, or figure preparation of this study. All content was produced by the author in accordance with scientific research methods and academic ethical principles.

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RESEARCH ARTICLE

The Effects of Visual Design on Users in Mobile Games*

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Abstract

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The staggering growth of the mobile gaming industry in recent years has made visual design elements more critical than ever for developers aiming to stand out in this competitive market. In digital stores filled with millions of applications, capturing a player's attention within seconds and retaining them for the long term largely depends on a successful visual strategy. This article provides a detailed examination of the profound effects that fundamental design principles, such as color theory, intuitive user interface (UI) design, fluid animations, and holistic visual consistency, have on the user's gaming experience and level of engagement. These elements are more than mere aesthetic choices; they are psychological tools that create the game's atmosphere, facilitate playability, and enhance player motivation. The proper and conscious use of visual design enables players to form a strong emotional connection with the game world. For instance, while color theory can be used to trigger specific emotions (excitement with red, calmness with blue), a minimalist and functional user interface allows the player to enjoy the game directly rather than struggling with complex menus. Fluid animations, in turn, provide satisfying feedback to every touch and action, making the game feel more alive and responsive. When all these components are presented with visual consistency, it reinforces the game's unique identity and creates an immersive world. Consequently, this meticulous design approach leads users to demonstrate a deeper and more long-term engagement with the game. This study concludes that aesthetically pleasing and simultaneously functional designs not only increase user satisfaction but also enrich in-game interaction, thereby directly impacting the project's overall success. To ground the discussion, this analysis delves into two distinct case studies, supporting its key assertions with empirical evidence.

Keywords: Interaction Design, Interface Design, Mobile Game Design, Experience Design, User Engagement.

Öz

Mobil oyun sektörünün son yıllardaki hızlı büyümesi, bu rekabetçi pazarda öne çıkmayı hedefleyen geliştiriciler için görsel tasarım unsurlarını her zamankinden daha kritik hale getirmiştir. Milyonlarca uygulamanın bulunduğu dijital mağazalarda, bir oyuncunun dikkatini saniyeler içinde çekmek ve onu uzun vadede elde tutmak, büyük ölçüde başarılı bir görsel stratejiye bağlıdır. Bu makale, renk teorisi, sezgisel kullanıcı arayüzü (UI) tasarımı, akıcı animasyonlar ve bütünsel görsel tutarlılık gibi temel tasarım ilkelerinin, kullanıcının oyun deneyimi ve etkileşim seviyesi üzerindeki derin etkilerini detaylı bir şekilde incelemektedir. Bu unsurlar, salt estetik tercihler olmanın ötesindedir; bunlar oyunun atmosferini yaratan, oynanabilirliği kolaylaştıran ve oyuncu motivasyonunu artıran psikolojik araçlardır. Görsel tasarımın doğru ve bilinçli kullanımı, oyuncuların oyun dünyasıyla güçlü bir duygusal bağ kurmasını sağlar. Örneğin, renk teorisi belirli duyguları (kırmızı ile heyecan, mavi ile dinginlik) tetiklemek için kullanılabilirken, minimalist ve işlevsel bir kullanıcı arayüzü, oyuncunun karmaşık menülerle boğuşmak yerine doğrudan oyunun tadını çıkarmasına olanak tanır. Akıcı animasyonlar ise her dokunuşa ve eyleme tatmin edici geri bildirimler sunarak oyunun daha canlı ve tepkisel hissettirmesini sağlar. Tüm bu bileşenler görsel bir tutarlılıkla sunulduğunda, bu durum oyunun özgün kimliğini pekiştirir ve sürükleyici bir dünya yaratır. Sonuç olarak, bu titiz tasarım yaklaşımı, kullanıcıların oyunla daha derin ve uzun vadeli bir etkileşim sergilemesine yol açar. Bu çalışma, estetik olarak hoş ve aynı zamanda işlevsel tasarımların, yalnızca kullanıcı memnuniyetini artırmakla kalmayıp aynı zamanda oyun içi etkileşimi de zenginleştirdiği ve böylece projenin genel başarısını doğrudan etkilediği sonucuna varmaktadır. Tartışmayı sağlam bir zemine oturtmak için bu analiz, temel iddialarını ampirik kanıtlarla destekleyerek iki ayrı vaka incelemesini derinlemesine ele almaktadır.

Anahtar Kelimeler: Etkileşim Tasarımı, Arayüz Tasarımı, Mobil Oyun Tasarımı, Deneyim Tasarımı, Kullanıcı Angajmanı.

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Introduction

In recent years, the mobile gaming sector has undergone an unprecedented transformation, becoming one of the most lucrative and dynamic sectors of the global entertainment market. This growth has been fueled by technological advancements, increasing smartphone adoption, and the changing habits of a digitally native generation. However, as the market expands, so does the competition. With thousands of new games released on app stores each month, attracting and retaining users has become a monumental challenge for developers. Within this landscape, visual design has emerged not merely as a decorative element, but as a central force in shaping player perceptions, expectations, and behaviors. The visual layer of a mobile game forms the basis of the first impression and often determines whether a user will choose to engage further or abandon the experience altogether. This split-second decision, driven by subconscious aesthetic evaluation, places a significant imperative on visual coherence and aesthetic appeal.

Mobile games stand out not only as a form of entertainment but also as interactive structures capable of actively holding users' attention for extended periods. However, studies on the elements that enable this high level of engagement have predominantly focused on in-game mechanics, gameplay strategies, and economic models. Visual design, on the other hand, is a decisive factor that often remains in the background but establishes the initial contact with the user and directly influences the nature of the connection formed with the game. Numerous visual elements in mobile games such as color palettes, iconography, user interface (UI) structure, typography choices, character designs, and animation transitions have a direct impact on how users experience and perceive the game, and whether they will continue that experience. Therefore, the research problem is to detail the contribution of visual design to user interaction with mobile games, to classify the types of this contribution, and to analyze it through existing examples. Furthermore, it is necessary to question not only whether visual structures are aesthetically pleasing but also their adherence to design principles that support user guidance, facilitate decision-

making processes, and encourage emotional connection. In this context, the fundamental problem is to understand the impact of visual design on the user and to reveal which design decisions are associated with these effects by conducting a comparative assessment between good and bad design examples.

The primary aim of this research is to analyze the effects of visual design elements on user experience and engagement in mobile games. The research aims to demonstrate that visual design is not merely an aesthetic element but a strategic tool that guides user behavior and supports sustained interaction. In this context, the central question of the research is how the visual language, which constitutes the user's first point of contact, shapes the emotional and functional bond they form with the game. The study will comparatively reveal how different visual approaches affect the user by examining examples of mobile games. The analysis of these examples will be based on criteria such as the intuitiveness of the user interface, visual hierarchy, the fluidity of animations, usage of color and the readability of typography. The objective is to uncover the invisible effects of visual design on user behavior, thereby encouraging a more conscious and strategic use of these elements in mobile game design. Furthermore, this study aims to show game developers, graphic designers, and interface specialist's methodological ways to develop a user-centric visual language. This study, to be conducted by examining existing game examples, will reveal the contribution of visual design to the user experience in its conceptual, functional, and emotional dimensions.

Methodology

This study employs a qualitative research method based on a comparative analysis of case studies. The investigation was conducted by descriptively analyzing examples selected from the mobile gaming industry to illustrate the theoretical concepts presented. The analysis was structured around a specific framework of design principles to evaluate the visual elements of the selected games.

The primary criterion for evaluation includes:

1. Visual hierarchy

2. Adherence to color theory
3. User interface (UI) intuitiveness
4. Aesthetic integrity and consistency
5. Typography and readability
6. Visual feedback systems

The effects of these visual components on player behavior and user experience were interpreted in the context of established principles of interaction design, emotional design, and usability.

Sample

The sample for this study was selected using a purposive sampling method, choosing cases that exemplify clear instances of "successful" and "unsuccessful" visual design within the mobile gaming market. This approach allows for a direct comparison of effective design strategies against common design flaws.

The sample for this study consists of two mobile games selected to represent opposite ends of market positioning and user perception. For the successful case study example, Candy Crush Saga was chosen, a global phenomenon that has become a benchmark in the casual gaming industry (Figure 1). It has achieved over five billion downloads and has generated more than \$20 billion in lifetime revenue from in-app purchases (IAP), cementing its status as a commercial powerhouse (Sandle, 2023).

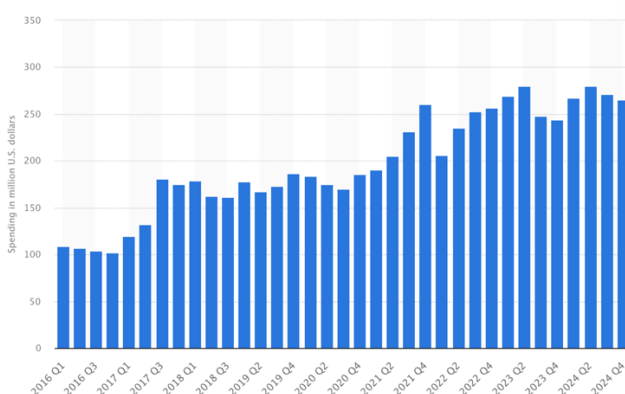


Figure 1. App revenue generated by Candy Crush Saga worldwide from 1st quarter 2016 to 4th quarter 2024 (Source: <https://www.statista.com/statistics/1405447/candy-crush-saga-global-app-revenue/>)

Representing the contrasting case, the game Talking Horse was selected. This game was chosen not for its market failure, but because its design

readily exemplifies many of the common visual design flaws this paper seeks to analyze, such as a lack of visual hierarchy and pronounced aesthetic inconsistency. This sharp dichotomy provides an ideal foundation for analyzing how specific visual design decisions demonstrated in the case studies correlate with critical reputation and established design principles.

Findings

When users first encounter a mobile game, they encounter its visual language before acquiring any information about the gameplay. This first impression largely determines whether the player will form a bond with the game. An aesthetically weak or inconsistent entry screen can lead the user to abandon the game before even starting. According to Don Norman's (2004) model of emotional design, users' initial reactions occur at the visceral level, which is based on visual, auditory, and aesthetic stimuli (Norman, 2004, p. 65). In other words, the user decides based solely on how the game looks before they have a chance to play it.

Colors and graphic elements directly shape the player's decision to continue by influencing their emotional state. For example, the bright and pastel colors in Candy Crush Saga are a strategic choice used to establish a lighthearted and welcoming visual atmosphere, whereas complex or overly dark palettes often signal a different gameplay tone, such as one associated with more serious or complex themes. In visual design, color is a critical functional tool used to build hierarchy, guide player focus, and define the game's overall identity (Malamed, 2015, p. 146). Furthermore, the facial expressions, body language, and drawing style of characters are effective in creating empathy between the user and the game.

Among the most effective visual design elements are color contrast, visual hierarchy, readable typography, clear icons, and dynamic feedback (e.g., an animated response when a button is pressed). Ware (2008) states that users' attention is primarily drawn to moving and high-contrast areas. These elements, which provide guidance within the game, support player retention by

clearly showing the user "what to do" (Ware, 2008, p. 103).

High-contrast colors enhance readability, especially considering the use of small screens on mobile devices. Simplicity in the interface and consistent placement of recurring icons present a learnable structure to the user. Lidwell, Holden, and Butler (2003, p. 124) emphasize that elements such as the alignment, proximity, and consistency of typographic elements in the interface are perceived unconsciously by the user and play a significant role in the interaction. Sans-serif fonts offer better readability for mobile games.

Successful mobile games generally adhere to the following visual design principles (Lidwell, Holden, & Butler, 2003; Norman, 2004; Nielsen, 2011):

- Consistency: The same icon language and similar color transitions on every screen.
- Visual Hierarchy: The most important actions (e.g., the "Play" button) are positioned in the most visually prominent places.
- Intuitiveness: The user interface should be usable even without any explanation.
- Feedback: Every action should have visual or auditory feedback.

A good game interface must be not only aesthetic but also functional in guiding the user.

By adhering to these principles, games like Candy Crush have supported their color-focused game mechanics with strong feedback and visual reward systems. Pokémon GO created a blend of the real world and the visual game world through augmented reality (AR), which also drew the user into the game physically. Both games established both an emotional and a functional bond with symbolic colors, iconic character design, and a clean interface. Tufte (2001) states that presenting information simply yet effectively increases the user's capacity for understanding. Both games are successful in presenting information in a visually comprehensible format.

Visual errors frequently encountered in unsuccessful games include the use of oversaturated colors, which causes eye strain in users; navigation buttons that are not sufficiently prominent; inconsistency in iconography by using different symbols for the same function; complex layouts that lead to

confusion, especially on small-screened devices; and inadequate feedback issues, such as a button not providing any response when pressed.

Such problems make it difficult for users to learn the game and decrease their motivation. A user interface should be behaviorally supportive and that there should be no conflict between the interface's appearance and its behavior:

"A product's look and behavior should reflect how it is used, rather than the personal tastes of designers, developers, or stakeholders. From a posture perspective, look and feel is not just a brand preference or an aesthetic choice; it is also a behavioral choice. Your application's posture is part of its behavioral foundation, and all the aesthetic choices you make must be in harmony with that posture (Reimann et al., 2018, p. 207)."

As Reimann et al. (2018) imply, when such design principles are ignored, these negative decisions lead to several critical problems for the user:

- Create a sense of uncertainty and lack of control in the player,
- Weaken the action-result relationship in the interface by making the user unable to predict the outcome of their actions
- Create ambiguity in the interaction, prevent the formation of an emotional bond
- Disrupt the in-game learning curve, increasing early abandonment rates.

The primary goal of behavioral design is to properly support the user's intuitive behaviors; non-intuitive designs, by contrast, disrupt this natural behavior (Norman, 2004, p.22).

An emotional bond is triggered through aesthetic sensations (Tractinsky et al., 2000). Visually appealing characters allow the player to represent themselves in the game. Visuals that are consistent with the story reinforce belief in the narrative. Aesthetic design elements enable the player to express themselves and feel a sense of belonging to the game.

When users customize their characters, they transform the game into a personal narrative. This personalization creates a sense of ownership in the user. For example, The Sims Mobile or Genshin Impact allow the user to contribute to the content through character creation and environmental design. This contribution process positions the player

not just as a consumer but also as a creator. This situation transforms the bond from merely emotional to a creative commitment (Li & Joo, 2023).

It has been observed that the initial contact with the game occurs entirely through visual elements and that this contact plays a critical role in the user's decision to continue playing or not. Specifically, the aesthetic composition, color selection, typographic arrangement, and consistency of animated transitions on the game's opening screen create a sense of trust and professionalism in the user, which convinces them to continue with the game. Visual organization principles create clarity and a sense of trust in user perception, and therefore the designer is creating not just a visual but a cognitive interface (Malamed, 2015, p.146).

Furthermore, visual feedback systems that are not sufficiently functional or are aesthetically lacking can lead to diminished user engagement, as players cannot predict what kind of response they will receive for a given action. For example, in some unsuccessful game examples, the lack of any animation, color transition, or sound response when buttons are pressed creates a sense of inaction in the user, which gives the impression that the game is "unresponsive" or "non-reactive." This observation aligns with the emphasis that micro-animations and transition effects in interactive systems are 'fun phenomena' that guide the user (Tidwell, 2011, p.128).

Another significant finding is that users show high sensitivity to in-game aesthetic integrity. Situations such as the icon style used in one part of the game changing to a different style in another part, or inconsistencies in typographic weight across page transitions, create a feeling of an "unfinished" experience for users. This, in turn, leads to a negative perception of the game's quality.

"Consistency is one of the most powerful usability principles: when things always behave the same, users don't have to worry about what will happen. They already know what will happen based on earlier experience" (Nielsen, 2011).

In this context, it is concluded that aesthetic consistency is a prerequisite for both functional and emotional engagement.

The use of colors plays a decisive role, especially in player guidance and focus control. High-

contrast color combinations facilitate users' rapid decision-making processes and enhance the game's fluidity. Conversely, the uncontrolled use of high-saturation, closely related colors in the interface leads to distraction and visual fatigue, especially in older players. Chisholm (2017) emphasizes that color contrast in digital media is not only an aesthetic issue but also a matter of accessibility (p.57). In this context, as the user base diversifies according to criteria such as age and visual ability, the necessity of responsive design practices for visual accessibility becomes apparent.

Case Study Example: Candy Crush Saga

Figure 1, which shows an active in-game level from the game Candy Crush Saga, concretely demonstrates how a user-centered approach can be successfully implemented in mobile game design. The visual is a very strong example in terms of fundamental design principles such as hierarchy, use of color, intuitive guidance, and aesthetic integrity. Firstly, the visual hierarchy has a multi-layered and guiding structure. The player's gaze is first drawn to the game area in the center of the screen because the game elements (candies, locked boxes, keys) are placed in the center with their contrasting colors and orderly grid layout. The score/move bar and objective indicator at the top are positioned as an upper layer, with a smaller yet sufficiently noticeable size and placement. At the very bottom, the supporting tools (boosters) offered to the player are again placed symmetrically and aligned, enabling multiple interactions across the entire screen without any loss of focus.

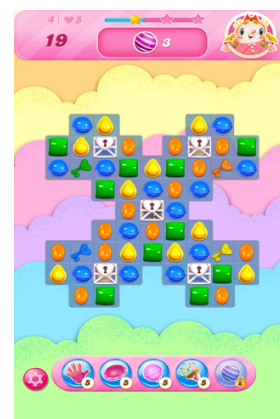


Figure 2. Screenshot of Candy Crush Saga gameplay (Source: <https://chrome-stats.com/d/com.king.candycrushsaga>)

The game's reliance on fundamental Gestalt principles, particularly in its strategic use of color and contrast, plays a central role in Candy Crush's success (Lidwell, Holden, & Butler, 2003). In Figure 2, a strong contrast is created between the pastel background (a cloudy, soft-gradient ground) and the vibrant, bright colors of the candies. This contrast both draws the player's attention to the game area and offers a clear visual cue as to which elements are interactive. For example, while basic colors like orange, blue, green, yellow, and purple make it easy to distinguish between different types of candies, areas with special rules are clearly defined with locked chests and key icons. The colors function not only aesthetically but also as carriers of information.

From the perspective of user interface intuitiveness, this visual is highly successful. Each element (candy, lock, key, booster) is easily distinguishable and meets the expectations for mobile interactions like tapping or swiping. The number indicators just below the boosters (for instance, "5") directly convey that these items have limited use, while a locked booster is presented in a visually distinct style (with a lock symbol on it) to clearly communicate its inaccessibility. This intuitive structure makes it possible to prevent any uncertainty in the player's mind.

Aesthetic integrity is one of the cornerstones of the Candy Crush brand, and this consistency is strongly felt on this screen. The character illustration, icon styles, candy design, and background texture are all products of a single visual language. The clouds in the background, with their pastel color gradients, create a sense of softness appropriate for the game's target audience, while the shiny, rounded, and appetizing appearance of the candies provides an energetic atmosphere without breaking the confectionery-themed integrity of the game's universe. None of the visual elements are stylistically separate or inconsistent, which creates a sense of professionalism that inspires trust in the user.

In terms of typography and readability, the screen layout is quite successful. The number indicators at the top (move count, objectives, level) are written in a sufficiently large and clear font. The contrast is high, the texts are simple and supported

by icons. Text density is kept low; information is presented more through iconography. This makes it easier to quickly acquire information without losing focus, especially on mobile screens.

Figure 3 presents the splash screen, level map, and in-game store interface from the Candy Crush Saga, cohesively showcasing the fundamental components of mobile game design. In terms of visual hierarchy, which refers to the principle of arranging elements to show their order of importance and guide the user's focus (Malamed, 2015), each screen exhibits a consistent structure within itself. On the splash screen, the large and centrally positioned game logo is the first element to greet the user, while the "Play!" button located just below it becomes the second focal point with its vibrant pink color. On the map screen, the winding path representing the player's progress, along with the colorful level buttons guiding the user's gaze. The icons on the right are grouped by functionality in a secondary layer. In the store interface, the package deals at the very top are highlighted with large visuals and price information, while smaller options are positioned in the lower sections. This layout is also an indicator of a strategy to guide users towards higher-priced items.

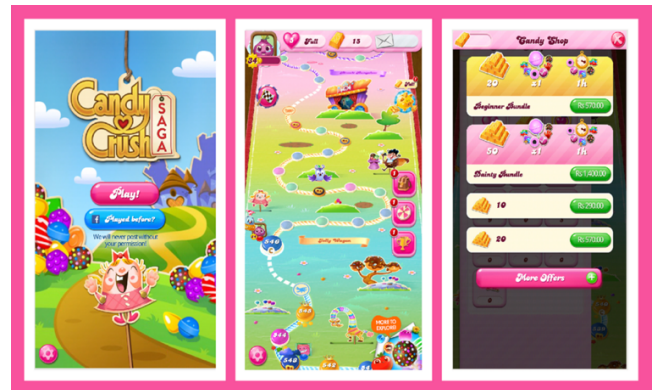


Figure 3. Three different screenshots from the game Candy Crush Saga, presented together, which include the splash screen, the level map, and the in-game store interface (Source: <https://www.appverticals.com/blog/wp-content/uploads/2019/08/Collage-01.jpg>)

From the perspective of color theory, all screens are adorned with bright and saturated colors, presenting a candy-themed world atmosphere. On the opening screen, the blue sky and lush green path are balanced with a warm pink button, creating vibrancy. On the map screen, pastel tones of green,

pink, and blue are combined to create a visual space that feels both relaxing and playful. In the store section, striking colors such as gold and purple placed on a white and pink background strengthen user-focused guidance during the shopping process.

The intuitiveness of the user interface is particularly supported by the shape language of icons and buttons. The large, central position of the "Play!" button directly invites the player into the game, while the circular buttons lined up along the path on the map screen instinctively show the direction toward the next level. The icons on the right side are supported by universal symbols (such as a bag, gift box, and trophy); thus, their functions are immediately understandable at first glance. In the store interface, each card has a structure that gives a sense of clickability, which serves as a successful example for mobile user experience.

In terms of aesthetic consistency, a core usability principle noted by Nielsen (2011) stating that a system's visual language should remain uniform to be learnable and trustworthy, all three screen layouts maintain the same graphic language: character designs, iconography, typography, and color palette are consistently built around the candy theme, creating a holistic sense of the game universe for the player.

From a typography standpoint, all screens employ highly legible, rounded, cheerful fonts; text sizes are scaled according to content density. Critical elements such as "Play!", "Beginner Bundle," or price information are emphasized with large typefaces, while supportive texts are placed in smaller sizes but with sufficient contrast.

Finally, even though we cannot directly perceive animation or sound in these visuals, such interfaces in gameplay are supported with auditory and visual feedback. Candy-bursting sounds when pressing buttons, animation effects during level transitions, or transitions during store interactions all reinforce the sense that user actions are confirmed. Such feedback not only enriches the moments of interaction but also strengthens the entertainment value of the game.

This cohesive interface design is both visually satisfying and strategically structured to guide

user behavior, representing a model example in mobile game design.

Flawed Implementation: Talking Horse

The splash screen for the game "Talking Horse" (Figure 4), while aiming to create a cheerful atmosphere at first glance, suffers from significant user interface design flaws. When evaluated in terms of visual hierarchy, the horse character in the center is presented in an overly large and dominant fashion; this pushes the user into the role of a passive observer rather than guiding them toward an action. Although the game's title, "Talking Horse," is written in colorful and bright letters, its readability is diminished by the crookedly placed wooden structure behind it, causing it to fail in its function as the primary perceived element. Moreover, the absence of any buttons, directional cues, or interactive elements to greet the user makes the screen feel like a mere promotional image, failing to create the expectation of an interactive experience.



Figure 4. The splash screen for the game Talking Horse (Source: <https://m.media-amazon.com/images/I/81Oogn-KA2w.png>)

In terms of its color strategy, the screen fails to establish a clear hierarchy. Instead of using saturation differences to create contrast (as Gestalt principles like Figure/Ground would require), nearly all elements in the composition compete using high-saturation colors. The vibrant tones of the title, the bright cyan sky, and the saturated green ground are too similar in their intensity, creating the jarring effect of a poorly made 'collage' rather than a cohesive whole. This lack of differentiation,

which leads to visual competition between elements, disrupts the visual balance. Furthermore, because there is insufficient contrast between the character's brown tones and the ground, the main figure is positioned in a cluttered way, not quite lost in the background but failing to stand out.

From the perspective of user interface intuitiveness, the screen has serious deficiencies. At the most basic level, it offers no guidance to the user; there is no trace of fundamental buttons like "start," "settings," or "help." This causes the screen to function merely as a visual showcase, failing to lead the user to the next step. Considering mobile user habits, it is crucial for interaction points to be intuitive and visible; this shortcoming results in a weak first contact with the user experience.

When evaluated in the context of aesthetic integrity, significant inconsistencies between the different design languages in the visual are striking. For example, there is a stylistic chasm between the bubble-like letters in the title and the horse figure, which is modeled with near-realism. Other animal figures in the same scene, such as the pig, chicken, and chick, are created with more illustrative and simplified lines. This is perceived not as visual diversity but as aesthetic clutter; instead of building trust, it leaves the user with the impression that it was "hastily put together."

There are also issues with typography and readability. The brightness and inner-shadow effect of the letters used in the title reduce readability; specifically, the contrast between the light tones in the word "Talking" and the white clouds and blue sky is insufficient. Since there is no textual information or guidance on the lower part of the screen, all written communication is loaded onto the title, which is inadequate.

This visual shows a flawed and problematic structure in terms of fundamental user interface and game aesthetic principles. Because core design tenets like visual hierarchy, aesthetic integrity, and intuitive guidance have not been properly applied, the user experience is set on a weak foundation from the very beginning. In today's context, where mobile users are impatient and accustomed to quick interactions, such deficiencies can cause a game to be lost right at the start.

In the screenshots from the game presented side-by-side in Figure 5, the screens exhibit an inconsistent structure in terms of visual hierarchy. In the first screenshot, the horse character is once again centered with all interaction icons placed randomly around it. The icons lined up horizontally at the bottom of the screen are shown as if they are equal in function, yet some are locked while others are active. However, since the locked ones are presented in the same size and color, the hierarchical distinction is weakened. In the second and third screenshots, the "Free Coins" and "Mini Games" titles at the top grab attention with large fonts, but the ratio between the typography and the content is incongruous. The content cards (watch video–earn reward or the list of mini-games), with their repetitive structure, weaken the screen's visual dynamic and fail to adequately fulfill their function of guiding the user.



Figure 5. Screenshots from the game Talking Horse (Source: <https://www.amazon.com/Popular-Ringtones-Studio-Talking-Horse/dp/B01EX822WI>)

In terms of color theory, a structure that combines oversaturated and low-contrast colors is noticeable across all screens. Warm colors like green, orange, yellow, and red are used intensely in both the interface and the content cards, which can lead to visual fatigue for the user. Specifically, on the second and third screens, the bright yellow and green backgrounds of the cards are covered in white glows that reduce readability. The preference for single-tone blocks over gradients results in a weak sense of depth between surfaces. The blurred and darkened backgrounds create a contradictory effect with the content that is meant to be highlighted; while the farm scene in these back-

grounds is connected to the game's overall atmosphere, it is not shown clearly, causing a contextual disconnect for the user.

From the perspective of user interface intuitiveness, the screens need to be rethought. The first screen offers almost no information about what the user can do by clicking on any given icon. The icons are far from universal, and it is difficult to establish a functional connection between them. For example, the "game controller" icon on the treadmill screen remains an irrelevant visual element in a "sports-themed" scene. On the second screen, the interface for earning rewards by watching videos confronts the user with a repetitive and monotonous chain of tasks due to the way the cards are stacked. The third screen aims to introduce mini-games, but because the preview images on the visual cards are small and low-resolution, they fail to give an idea of what each game looks like or how it is played.

Aesthetic integrity is noticeably fragmented across these three visuals. The illustrative farm scenes in the background and the high-gloss interface cards in the foreground belong to different aesthetic sensibilities. Moreover, each game card has a different graphic style: some appear 3D, some are vector-based, and others are raster (pixel-based). This indicates weak overall art direction and a failure to present the user with a singular, unified universe.

Significant problems are also apparent in terms of typography and readability. Although the title text is presented in a large font size, the font choices lean towards being decorative rather than readable, which can cause difficulty in reading, especially on mobile screens. The phrase "Watch video and get some coins!" is written in small letters and risks being overlooked because it lacks sufficient contrast with the background. The same issue applies to the "Mini Games" title; the text, presented within a spiral metal frame at the top, is both out of context and aesthetically inconsistent with the overall interface.

In conclusion, this trio of interfaces exhibits a structure that fails to strike a balance between visual saturation and intuitive interaction and is far from being guiding. The breakdowns in visual hierarchy, the inconsistencies between icons and

text, and the erratic use of color all weaken the user experience both aesthetically and functionally. In-game screens must be more than just content containers; they need to be transformed into a cohesive system that guides, entices, and builds a connection with the user.

Discussion

The comparative analysis reveals that the successful mobile game, Candy Crush Saga, effectively implements fundamental design principles such as consistency, an intuitive user interface, and satisfying feedback systems. In contrast, the flawed example, Talking Horse, exhibits significant design flaws, including a lack of visual hierarchy, aesthetic inconsistency, and inadequate user guidance. This section will interpret these findings, connect them to established design theories and real-world outcomes, and discuss their broader implications for the mobile gaming industry.

The visual chaos and weak feedback mechanisms in Talking Horse, as identified in the analysis, are clear examples of flawed design that result in a poor aesthetic perception and a lack of visual appeal. As highlighted by Norman (2004), a poor first impression at the visceral level which is driven by aesthetics, destroys a user's motivation to engage further with an experience. The game's flawed design fails to guide the user, leading to a sense of helplessness and ultimately causing players to abandon the game.

Conversely, the multi-billion-dollar revenue of Candy Crush Saga is not accidental but is directly attributable to a masterfully executed UI design that translates player engagement into monetization. The foundation of this success lies in the gratifying visual feedback (such as exploding candies and vibrant animations) which applies Norman's (2004) principles of behavioral design to create a highly addictive and rewarding core loop, keeping players invested. However, the UI's true commercial genius is revealed in how it strategically manages moments of player frustration to drive in-app purchases (IAP).

This is most evident when a player runs out of moves just short of completing a level. The interface does not simply present a static failure screen;

it immediately displays a visually appealing pop-up that offers a low-friction solution, such as purchasing five extra moves for a nominal fee. This intervention is perfectly timed to intercept the peak of player frustration and convert a moment of potential abandonment into a revenue opportunity. This strategy is replicated in the design of its booster system, where powerful items are presented via clear, attractive icons as essential tools before a difficult level begins, with a seamless one-click path to the in-game store if the player's inventory is empty. The store itself utilizes UI principles of urgency and perceived value, featuring "limited-time bundles" and brightly colored "sale" banners that encourage larger purchases. Therefore, the UI of Candy Crush Saga functions as a sophisticated system for emotional and behavioral management, creating a cycle of challenge, near-success, and paid resolution that effectively drives its staggering IAP revenue. This study demonstrates that in the highly saturated mobile gaming market, visual design is no longer a mere decorative layer but a critical strategic investment that can determine a game's commercial fate. The findings suggest that developers must prioritize elements such as UI intuitiveness and the satisfying nature of visual feedback systems with the same rigor they apply to core game mechanics. The case of Talking Horse serves as tangible proof that even a technically functional game can fail entirely due to a poor user experience rooted in flawed visual design.

Future research could build upon these findings by conducting similar analyses on a larger and more diverse sample of games from various genres (e.g., strategy, RPG) to test the broader applicability of these conclusions. Additionally, experimental studies using quantitative methods, such as A/B testing to measure the precise impact of specific visual elements (e.g., button color or animation speed) on key performance indicators like player retention and monetization, would provide invaluable data for the field.

Conclusion

In conclusion, the analysis of the case studies indicate that visual design can function as a multi-layered

and foundational component of the game's interactive framework, rather than being merely an aesthetic surface or a decorative element. Visual design is a communication tool that comes into play at the very first moment of contact, serving as a direct determinant in shaping perceptions, guiding decisions, and forging emotional connections with the game. From color choices and typographic preferences to icon placement and animated feedback, all visual components are factors that influence the player's ability to navigate, their learning curve, and their retention time.

This process is not limited to creating visual pleasure; it also serves cognitive objectives, such as supporting intuitive navigation within the interface, and creating a sense of consistency in the game world. When aesthetic elements are integrated with a functional structure, the player's trust in the game increases, the experience becomes more fluid and satisfying, and the tendency to replay is strengthened. Maintaining a consistent visual language throughout the game fosters a perception of professionalism and meticulous design, leaving a positive impression of the game's overall quality.

Visual design also establishes a relationship on an emotional level. The ability for users to empathize with characters, develop a sense of belonging to the game world, and be drawn emotionally into the narrative depends heavily on the success of the visual storytelling. Elements such as creating atmosphere with color palettes, offering opportunities for personal representation through character design, and making the player feel valued through feedback systems elevate the user from being a mere external consumer of the game to an active and emotional participant in the experience.

In this context, it is crucial that visual design decisions are not based solely on criteria of visual appeal but are instead approached within a conscious and strategic framework that evaluates the user experience from a multi-dimensional perspective. Games where visual aesthetics merge with functionality, where intuitiveness is integrated with the narrative, and where user needs are reflected in the visual design language not only reach broad audiences in the short term but also build loyal and en-

gaged user communities in the long term. Therefore, in the mobile game design process, visual design is not a mere aesthetic ornament; it is the cornerstone of the game experience; the very architecture of the bridge between the player and the game.

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RESEARCH ARTICLE

Gender (In)Equality in Social Media Ads: Effects on University Students' Attitudes, Purchase Intentions, and nWoM

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Abstract

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This study examines the effects of gender equality and inequality representations in social media advertising visuals on university students' responses. Emphasizing the critical role of gender representation in digital marketing, the research investigates its impact on social perceptions and brand-related outcomes. Using an quantitative, experimental, survey-based design, 272 university students from a public university in Türkiye were exposed to fictional food processor advertisements designed to reflect either gender equality or inequality. The findings reveal that the advertisement visual portraying gender inequality significantly decreased attitudes toward the ad and weakened purchase intentions, while increasing negative word-of-mouth (nWoM) intentions compared to the equality-based visual. Moreover, attitude toward the advertisement was found to fully mediate the relationship between advertisement type and both purchase intention and nWoM. These results provide empirical evidence that gender-equal portrayals can generate more favorable consumer responses, while stereotypical representations may pose substantial reputational and commercial risks. The study underscores the importance for marketers of adopting equality-oriented messaging strategies and demonstrates that such approaches can enhance consumer attitudes and key business outcomes within the university student demographic.

Keywords: Gender Equality, Stereotypes, social media, Advertising, Consumer Behavior

Öz

Bu çalışma, sosyal medya reklam görsellerinde toplumsal cinsiyet eşitliği ve eşitsizliği temsillerinin üniversite öğrencilerinin tepkileri üzerindeki etkilerini araştırmaktadır. Araştırma, dijital pazarlamada toplumsal cinsiyet temsillerinin kritik rolünü vurgulayarak, bunun sosyal algılar ve marka sonuçları üzerindeki etkisini incelemektedir. Bu amaçla nicel bir araştırma yürütülmüştür. Anket temelli- deneysel bir araştırma deseni aracılığıyla, Türkiye'deki bir devlet üniversitesinden 272 üniversite öğrencisine, toplumsal cinsiyet eşitliği veya eşitsizliğini yansıtacak şekilde tasarlanmış kurgusal bir mutfak robotu reklam görseli gösterilmiştir. Bulgular, toplumsal cinsiyet eşitsizliği içeren reklam görselinin, reklama yönelik tutumları önemli ölçüde düşürdüğünü ve satın alma niyetlerini zayıflatıldığını, aynı zamanda cinsiyet eşitliği içeren görsele kıyasla olumsuz ağızdan ağıza iletişim (nWoM) niyetlerini artırdığını ortaya koymaktadır. Ayrıca, reklama yönelik tutumun, reklam görseli türü ile hem satın alma niyeti hem de nWoM niyetleri üzerindeki etkileri arasındaki ilişkiye tamamen aracılık ettiği bulunmuştur. Bu sonuçlar, toplumsal cinsiyet eşitliğine dayalı temsillerin daha olumlu tüketici tepkileri oluşturabileceğine dair ampirik kanıtlar sunarken, kalıpyargısal temsillerin önemli itibar ve ticari riskler oluşturabileceğini göstermektedir. Çalışma, pazarlamacılar için eşitlik odaklı mesajlaşmayı benimsemenin önemini vurgulamakta ve bu tür stratejilerin üniversite öğrencisi demografisi içinde tüketici tutumlarını ve temel iş metriklerini iyileştirebileceğini göstermektedir.

Anahtar Kelimeler: Toplumsal Cinsiyet Eşitliği, Kalıp Yargılar, Sosyal Medya, Reklamcılık, Tüketici Davranışı

Introduction

Advertising not only significantly influences audience lifestyles, values, attitudes, and behaviors (Lima & Casais, 2021), but also continues to profoundly shape our perceptions and ideas about the role of girls and women in society (IMS, 2020). As a key component of this influence, gender portrayal in advertising has received significant attention for many years (Middleton et al., 2020). Since firms frequently use traditional gender roles to promote their products and brands in advertisements (Eisend, 2019), portrayal of gender roles in advertising has led to the crystallization of female identity over the years (Lima & Casais, 2021). Especially, these advertisements use gender-stereotypical portrayals of females as merely housewives, mothers, sexual and decorative object (Negm, 2024). However, participation of women in the labour force and education level has increased during the last decades and gender roles have significantly changed professionally and socially (Knoll et al., 2011; Ahmadli, 2023). Thus, the roles of men and women in the traditional family structure have changed, giving way to gender roles based more on sharing (Savaş, 2018). Avoiding stereotypes and ensuring equal opportunities for all genders across various aspects of life is a key focus of gender policies and a fundamental social goal in many societies (Åkestam et al., 2017). Today, harmful gender-stereotypical portrayals of females in advertising can be seen as a form of inequality treatment (Eisend, 2010; McKenzie et al., 2018; Lucka et al., 2021; Slak Valek and Picherit-Duthle, 2021). Indeed, in recent years, the potentially negative effects of using stereotypes in advertising have been highlighted in literature and practice (Åkestam et al., 2021). The use of female stereotypes in advertising is damaging to women and society (Middleton et al., 2020) and also have led to public outcries, consumer boycotts, and immense costs due to lawsuit claim (Lucka et al., 2021).

Although growing awareness of gender inequality and increasing demands for authentic representation have driven a shift toward more progressive advertising strategies such as femvertising (Drake, 2017), gender stereotypes depicted in advertisements have remained unchanged (Lima

& Casais, 2021; Negm, 2024). Women are still frequently portrayed in stereotypical and sexualised roles in advertising (IMS, 2020). Santoniccolo et al. (2023) also stated that, media representations, especially those that stereotype, sexualize or objectify women, are still prevalent. This situation also holds true for advertisements shown in Türkiye. For example, a study by Alabay (2023) found that more than half of the advertising texts contained expressions related to gender inequality. However, according to UNDP Türkiye - CEID (Association for Monitoring Gender Equality) Turkey's Gender Equality Performance from 2000 to 2019 report shows that the Gender Equality Index (GII) values decreased from 0.554 to 0.306, demonstrating that gender gaps are narrowing rather quickly (UNDP, 2022). Although overall gender equality has improved, this progress is not yet fully mirrored in media and advertising representations. In parallel, social media has become an integral part of daily life for internet users, prompting more firms to leverage these platforms. This progress in gender equality may stem from well-educated young generation. Younger generations are more likely to engage with and purchase from brands that actively challenge gender stereotypes and portray women authentically in their advertising; moreover, gender equality in advertising can result in up to a 10x increase in sales (Circana, 2024). Therefore, it is crucial to examine the reactions to advertisements that contain stereotypical gender roles, which can be characterized as gender inequality especially with the growing influence of the younger generation in Türkiye.

On the other hand, social media has become an integral part of daily life for internet users, prompting more firms to leverage these platforms to advertise their products and brands (Geng et al., 2021). With the rise of social media, advertising has become even more pervasive and influential in shaping consumer attitudes and behaviors (Kumar et al., 2016). Social media platforms provide a constant stream of images and messages that can reinforce or challenge traditional gender norms. However, there is a limited study on the effect of gender inequality in the context of social media advertising (Eisend, 2019). Roth-Cohen et al. (2023) state that while traditional media advertising frequently

depicts gender roles, research on gender portrayal in online platforms remains rare. Grau & Zotos (2016) also recommend investigating gender inequality on online platforms. Given that university students in Türkiye represent a socially aware and digitally active demographic, understanding their reactions to gender portrayals in advertising is particularly important. Previous studies have primarily focused on consumers' attitudes and purchase intentions (Eisend, 2019; Åkestam et al., 2017), but few have explored the effect of gender equality in social media advertising on word-of-mouth (WOM) — a key behavioral outcome that reflects consumers' willingness to share or criticize brand messages (Hennig-Thurau et al., 2004). By integrating negative WOM as a dependent variable alongside ad attitude and purchase intention, this study contributes to filling this research gap.

Moreover, the social media context introduces additional complexity. Each platform — for example, Instagram's visual culture, TikTok's entertainment-based format, and Facebook's traditional user demographics — creates distinct advertising environments (Ji et al., 2022; Kumar et al., 2016). In this study, the advertising visuals were adapted from Instagram, one of the most visually oriented and engagement-driven platforms among young adults. This choice is supported by prior research demonstrating that Instagram is widely used for brand interactions and advertising engagement among university-aged users globally (Djafarova & Rushworth, 2017; Casaló et al., 2020; Alalwan, 2018). The platform's visual dominance and high user involvement make it a relevant and ecologically valid medium for examining the effects of gender portrayals in advertising.

Shortly, while there has been an increase in advertising that promotes gender equality and challenges stereotypes, there remains an insufficient knowledge in understanding consumer reactions to social media advertising that explicitly depicts gender inequality. This study focuses on reactions of Turkish university students to gender inequality (vs. gender equality) social media advertising. Specifically, the primary objective of this study is to investigate the impact of gender inequality (vs. equality) in social media advertising on consumers' attitudes toward the advertisement, purchase

intentions, and negative word-of-mouth (WoM). Additionally, the study aims to examine the mediating role of consumers' ad attitude in the relationship between gender inequality (vs. equality) in social media advertising and its influence on purchase intentions and negative WoM.

Conceptual Framework and Hypotheses

Gender Inequality in Advertising

Advertising serves as a significant cultural platform where gender inequality manifests in contemporary society. As influential media tools, advertisements not only reflect existing social norms but actively shape and reinforce gender stereotypes (Grau & Zotos, 2016). The historical trajectory of gender representation in advertising reveals persistent patterns that have contributed to broader societal inequalities.

Since Goffman's (1979) seminal analysis, research has consistently documented how advertising portrays women and men in fundamentally different ways. Women have traditionally been depicted in domestic settings, as caregivers, or as decorative objects, while men appear as authority figures and professionals (Knoll et al., 2011). These representations normalize restrictive gender roles and maintain power imbalances between genders.

Research suggests that women, particularly younger demographics and individuals with heightened awareness of gender equality issues, exhibit increased sensitivity toward the representation of gender roles in advertising. These groups tend to favor brands that adopt more egalitarian portrayals rather than reinforcing traditional stereotypes (Drake, 2017). This critical awareness is significant considering women's tremendous economic influence—they control the dominant share of global consumer expenditure (Carter, 2024) and are expected to control 75% of discretionary spending by 2028 (NielsenIQ, 2024). However, recent large-scale content analyses demonstrate that stereotypical gender portrayals in advertising remain persistent despite increasing awareness and policy efforts (Åkestam et al., 2021; Santoniccolo et al., 2023; CreativeX, 2025). These studies collectively indicate that while brands increasingly embrace

equality-focused campaigns, many continue to rely on traditional representations of women, especially in digital and social media advertising contexts.

Recent systematic reviews have further illuminated the multifaceted psychological impact of advertising on women's self-perception. Dai (2025) documents how both traditional and digital advertising formats contribute to negative self-image among women, with particularly pronounced effects on adolescents and young adults. This research highlights the persistent gap between women's growing economic influence and their continued stereotypical representation in advertising media.

Gender inequality in advertising operates through three primary mechanisms. First, stereotypical gender role portrayals confine individuals to traditional expectations, with women shown in domestic environments and men in professional or leadership contexts (Middleton et al., 2020). Second, sexual objectification reduces individuals—predominantly women—to their physical attributes, disregarding their agency and other personal qualities (Tuncay Zayer & Coleman, 2015). Third, unrealistic beauty standards promote unattainable ideals that contribute to body dissatisfaction and low self-esteem, particularly among women (Janssen & Paas, 2014). It is worth noting that gender inequality in advertising affects men as well, albeit differently. Men are often portrayed as emotionally restrained and physically powerful, creating restrictive expectations that limit the expression of vulnerability and nurturing behaviors (Huhmann & Limbu, 2016). These representations reinforce harmful notions of masculinity that contribute to broader gender inequalities.

The digital transformation of advertising has introduced new dimensions to gender representation. While traditional stereotypes persist in digital environments, social media platforms have also created opportunities for more diverse portrayals and enabled consumers to critique problematic representations (Roth-Cohen et al., 2023; Herrando & Martín-De Hoyos, 2022). However, the nature and extent of gender stereotyping varies significantly across different advertising formats and

platforms. Research on original digital video advertising suggests that while central figures are more likely to be men than women, both genders are increasingly portrayed in non-stereotypical activities and roles compared to traditional media (Aramendia-Muneta et al., 2020). Importantly, large-scale research has shown that visual content amplifies gender bias more powerfully than text, with images exerting stronger psychological impact on viewers (Guilbeault et al., 2024), suggesting that the medium through which advertising is delivered plays a critical role in how gender stereotypes are perpetuated. Nevertheless, platform-specific differences remain significant. Recent research by Yin & Abdullah (2024) reveals that social media platforms like TikTok have become new venues for gender bias, where female users frequently encounter various forms of discrimination despite the platforms' seemingly progressive nature. Similarly, gender representation patterns differ across platforms such as Instagram, Facebook, and YouTube, with each platform's unique content formats and algorithmic mechanisms influencing how gender stereotypes are perpetuated or challenged (Campos-Pellanda et al., 2022). UNESCO's 2024 report warns that social media often amplifies rather than diminishes gender stereotypes, with documented negative effects on girls' well-being, learning outcomes, and career aspirations.

The societal impact of these representations is significant. Research demonstrates that stereotypical gender portrayals influence individuals' perceptions of appropriate roles from an early age, shaping career aspirations and personal relationships (Rubie-Davies et al., 2013). Economically, the association of genders with specific product categories reinforces traditional divisions of labor and responsibility, limiting women's roles as consumers and decision-makers (Gu, 2022).

In response to growing awareness and criticism, some positive changes have emerged. The "femvertising" movement represents advertising that empowers women and challenges stereotypes (Sylvendhal, 2017). However, critics argue that these approaches often engage in "woke-washing"—superficial activism that fails to address underlying structural inequalities (Middleton & Turnbull, 2021). Recent scholarship has further

complicated this picture, with Elyamany (2024) arguing that femvertising often manufactures consent for a neoliberal version of feminism that commodifies rather than truly advances gender equality. Regulatory initiatives have also been implemented to address gender inequality in advertising. Many countries have established legal regulations and self-regulatory mechanisms to limit sexist advertising (Slak Valek & Picherit-Duthler, 2021), such as the UK's Advertising Standards Authority rules prohibiting harmful gender stereotypes (McKenzie et al., 2018).

In conclusion, gender inequality in advertising represents a complex phenomenon that both reflects and reinforces broader societal inequalities. The disconnect between women's economic power and their stereotypical representation in advertising highlights a significant gap in marketing practices. While increasing awareness and industry changes are gradually shifting practices toward more equitable representations, addressing gender inequality in advertising requires continued collaborative efforts from researchers, industry professionals, regulatory bodies, and consumers to create media environments that promote equality and respect for all individuals regardless of gender.

The Effect of Gender Inequality (vs. Equality) in Social Media Ads On Consumers' Responses

Gender stereotyping reinforces rigid and often inaccurate beliefs about femininity and masculinity. These stereotypes perpetuate gender inequality, hindering equal opportunities and fueling discrimination in various aspects of life (Sun, 2024). Especially the stereotypical view of women shows women restricted to certain social roles and undermines gender equality (Rubie-Davies et al., 2013). Female role stereotypes such as homemakers in traditional roles and decorative women roles as sexual object in advertising are considered as a treatment of gender inequality (Grau & Zotos, 2016; Bermúdez-González et al., 2022). And the role and portrayal of women in advertising can influence responses of consumers (Urlage, 2021). For instance, portrayal of women in sexist advertising leads to negative consumer attitudes towards a

company and advertising (Andersson & Schytt, 2017; Tokmak, 2017). Stereotyped portrayals of gender can lead to lower levels of ad attitudes, brand attitudes, and in some cases purchase intentions for both men and women when compared to non-stereotyped portrayals (Åkestam et al., 2021). Studies also examining the effects of stereotypical advertisements, particularly from the perspective of women, show that stereotyped portrayals in ads lead to lower levels of ad and brand attitude and purchase intention (Ford et al., 1991; Antioco et al., 2012; Janssen & Paas, 2014).

Conversely when advertisements positively portray women, there is an increased likelihood of a positive impact on long-term brand relationship as well as short-term behavior change (Urlage, 2021). For instance, ads promote gender equality (such as femadvertising) leads to positive ad attitudes and purchase intention than traditional advertising (Åkestam et al., 2017; Drake et al., 2017). Teng et al. (2021) stated that egalitarian portrayals of women, showing a working woman and her husband sharing chores, were more effective in promoting a food product than traditional depictions of women as housewives. From perspective of gender, Abdallah et al. (2018) stated that men also respond positively toward a brand they perceived as truly supporting gender equality. Teng et al. (2021) also state that women are more likely to favor advertisements that portray women in a more equal way. In this context, the following hypotheses are proposed:

H1. Gender inequality (vs. equality) in social media advertising generates lower (higher) levels of attitudes towards the social media advertising.

H2. Gender inequality (vs. equality) in social media advertising generates higher (lower) levels of negative WoM.

H3. Gender inequality (vs. equality) in social media advertising generates lower (higher) levels of purchase intention

Direct and Mediator Role of Attitude toward the Ad on Purchase Intention and Negative WoM.

Ad attitude refer to the tendency to react favorable or unfavorable responses to a specific advertise-

ment during a given exposure (Lutz, 1985). Advertisements that are sensitive to gender equality, consumers tend to elicit more positive responses (Koc et al., 2024). Thus, brands positively portray women in their ads, ad attitudes begin to become more positive (Urlage, 2021). Unlike advertisements that promote gender equality, advertisements depicting gender inequality lead consumers to have less favorable ad attitudes (Huhmann & Limbu, 2016). According to the theory of reasoned action, higher attitude results in higher desired behaviour (Ajzen & Fishbein, 1980). Based on this theory, literature shows that there is a positive relationship between ad attitude and purchase intention toward the product promoted in the ad (Sallam & Algamash, 2016; Lee et al., 2017; Herrando & Martín-De Hoyos, 2022).

On the other hand, advertising portrayals of women and men have a presumed negative influence on others and it negatively impacts brand-related affect (Åkestam et al., 2021). Lower ad attitudes can lead to negative behavior toward the brand (Slak Valek & Picherit-Duthle, 2021). For instance, gender inequality in ads leads to harm to people's attitudes towards ad may resulting in boycotts and negative WoM (Grougiou et al., 2020; Lucka et al., 2021 Middleton and Turnbull, 2021). On the contrary, gender equality depicted in advertisements 80% more likely to be liked, shared, or commented on social media among young women (Sylvendhal 2017; Pillay, 2020). For example, Dove's Campaign for Real Beauty which challenges (female) gender stereotypes and empowers woman (Åkestam et al., 2017) generating a great deal of positive eWoM (Lim & Zhang, 2021). In this case, it can be argued that there is a negative relationship between ad attitude and negative WoM.

When it comes to comparison of gender inequality and gender equality situations in the relationship between ad attitude and purchase intention and negative WoM, equity theory can be a guide in explaining the reactions of consumers. According to equity theory, when individuals perceive inequality they feel a strong motivation to achieve equity or reduce inequity (Adams, 1965). In terms of advertising, when consumers perceive gender inequality in ads, they may show strong motivation to react compared to gender equality.

Offensive ads that humiliate women lead to serious and powerful reactions. For instance, an advertisement by Dolce & Gabbana received massive protests in Europe (Chan et al., 2007). Lucka et al. (2021) also stated that gender inequality in advertising have led to public outcries and consumer boycotts. Thus, gender inequality in ads due to increased awareness may trigger strong reactions (Tuncay Zayer & Coleman, 2015) and may strengthen the effect of consumers' attitudes on purchase intention and negative WoM.

In the light of all these explanations, we propose that ad attitude will positively influence purchase intention; negatively influence negative WoM and the effect of ad attitude on both purchase intention and negative WoM will be stronger in gender inequality condition compared to gender equality condition.

H4. The positive effect of attitude towards the social media advertisement on purchase intention will be stronger when consumers exposed to a gender inequality in social media ad compared to gender equality.

H5. The negative effect of attitude towards the social media advertisement on negative WoM will be stronger when consumers exposed to a gender inequality social media ad compared to gender equality.

In addition to all this, this study propose that attitude towards the advertising should be considered as a mediator in the relationship between gender inequality (vs. equality) on purchase intention and negative WoM. The main reason for this, ad attitude play a crucial role in shaping the consumer's ad attitude the brand and their purchase intention, either through direct or indirect pathways (Sallam & Wahid, 2012). Thus, attitude towards the advertising is considered a causal mediating variable in the process through which advertising influences consumer reactions (MacKenzie et al., 1986). A consumer's preference to choose, consume, recommend, and endorse a product/service to others is profoundly impacted by his/her attitude (Pillai et al., 2022). In this direction, consumers' reactions to gender inequality and gender equality in social media ad may occur through their attitudes toward these ads. Thus we propose that social media ad content related to gender (e.g.,

inequality vs. equality) may effect negative WoM and purchase intention through ad attitude.

H6. Ad attitude mediates the relationship gender inequality (gender equality) in social media advertising on a) purchase intention and b) negative WoM.

Methodology

Research Design and Variables

This study adopted a quantitative, experiment-based survey design to test the proposed hypotheses. Specifically, a single-factor experimental design was employed in which participants were exposed to one of two advertising conditions and then completed a structured questionnaire. The independent variable was gender ad type (inequality vs. equality), and the dependent variables were ad attitude, purchase intention, and negative word-of-mouth (nWoM).

The experimental procedure was structured in several sequential stages to ensure methodological transparency: the development of advertising stimuli, pilot testing, data collection, and data analysis. Each phase is detailed below.

Stimulus Development

Two static advertising visuals were specifically developed as experimental stimuli for a hypothetical food processor brand named *BOX*. Both visuals were designed to simulate Instagram-style advertising posts, combining a single image with a brief caption to replicate the aesthetic and format of real social media advertisements. This approach ensured ecological validity while allowing strict experimental control over the visual elements. Each condition used identical layouts, color schemes, and typography to isolate gender representation as the sole manipulated factor.

Stimulus 1 (Gender Inequality Condition): The first advertisement portrayed a young professional woman who has just returned home from work and is preparing food alone in a modern kitchen. She stands at the counter, wearing a white blouse and a black-and-white striped apron, focused on

operating a blender filled with vegetables. In the background, a man dressed in business attire is leaning against the doorframe, absorbed in his phone and not participating in the cooking process. A wall clock indicates the early evening hours. The overall atmosphere suggests post-work fatigue and an unequal distribution of household responsibilities. The tagline under the image — “*With BOX, cooking after work is now much easier*” — positioned the product as a time-saving convenience tool that alleviates the woman’s domestic workload.

Stimulus 2 (Gender Equality Condition): The second advertisement presented a working couple who have both returned from work and are preparing a meal together in a similarly modern home kitchen. The man is operating the same blender on the countertop while the woman, dressed in business-casual attire, slices vegetables beside him. They are positioned side by side, smiling and engaged with each other, emphasizing collaboration, balance, and mutual respect. The kitchen background is neatly arranged, reinforcing an everyday domestic scene. The same tagline — “*With BOX, cooking after work is now much easier*” — appeared below, but in this case, the message reinforced shared convenience and equality rather than burden reduction.

Both visuals were kept static (without any motion, music, or narration) to maintain experimental precision and prevent potential confounding effects related to sound, movement, or dynamic storytelling. Consequently, this study specifically focuses on visual advertising content rather than video-based formats. The manipulation between conditions thus effectively represented *gender inequality* versus *gender equality* portrayals in social media advertising.

The product category — a food processor — was selected because household appliances are often used in advertising to reinforce gender stereotypes (Gu, 2022), and women are frequently depicted as homemakers in such contexts (Eisend, 2010). Focusing on a single, gender-neutral product type ensured consistency across stimuli and enhanced internal validity, as the study’s hypotheses

and design did not aim to compare different product categories.

Pilot Test and Manipulation Check

A pilot test was conducted with 30 participants to ensure that the manipulations of gender inequality and equality were perceived as intended. Participants were asked to evaluate whether the depicted scenes represented equal or unequal gender roles in household settings. The pilot confirmed that participants accurately distinguished between the two conditions, validating the effectiveness of the manipulation.

Participants and Data Collection

The main study was conducted with 272 undergraduate students from a public university in Türkiye, recruited through convenience sampling. Participants ranged in age from 18 to 25 years ($M = 21.1$, $SD = 1.7$), with 57.4% identifying as female and 42.6% as male.

Data were collected using a structured, self-administered questionnaire, distributed immediately after exposure to the experimental stimuli. The survey included validated scales measuring ad attitude, purchase intention, and negative word-of-mouth, all adapted from prior studies. The survey method allowed the systematic collection of participants' attitudinal responses within a controlled environment following the experimental manipulation.

Participation was voluntary and anonymous, and ethical approval for the study was obtained from the university's Research Ethics Committee. The research sessions were conducted in a controlled classroom environment to ensure that all participants viewed the advertisements under identical conditions and that extraneous influences were minimized.

Measures

Dependent variables were ad attitude, purchase intention, and negative word-of-mouth (nWoM). Ad attitude was assessed using five items adapted

from Sternadori and Abitbol (2019); purchase intention was measured with four items adapted from Alalwan (2018); and negative word-of-mouth was assessed using three items adapted from Bougie, Pieters, and Zeelenberg (2003).

All items were rated on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). The reliability coefficients (Cronbach's α) for all scales exceeded the commonly accepted threshold of 0.70, as recommended by Hair et al. (2010). (See Table 1 for all items and their reliability coefficients).

Data Analysis

Data were analyzed using IBM SPSS Statistics software. Descriptive statistics and reliability analyses were first conducted to evaluate the measurement scales. Subsequently, independent-sample t-tests were performed to compare mean differences between the experimental conditions.

To test the mediating role of ad attitude between gender ad type, purchase intention, and negative word-of-mouth, the study employed Hayes' PROCESS Macro (Model 4) with 5,000 bootstrap samples, following the recommendations of Hair et al. (2010). All reliability coefficients (Cronbach's α) exceeded the threshold of 0.70, indicating acceptable internal consistency for the measurement scales.

Results

Manipulation Check

As a check of gender ad type manipulation, a 5-point scale was used with one item: This brand's social media advertisement does not include an unequal approach between men and women. As expected, participants' perceptions of equality differed significantly across groups. The score about perceived equality in the gender equality advertisement condition was greater than the score in the gender inequality condition ($t = 13.911$, $p = 0.000$; $Meanequality = 4.01$; $Meaninequality = 2.01$). Thus, results show that advertisements showing gender equality and inequality achieved their purpose and the manipulation was successful.

Reliability and Validity

Before testing the hypotheses, the measurement model was tested for reliability and validity. This study used scales (ad attitude, purchase intention and negative WoM) that were already proven to be valid and reliable in previous research. Thus confirmatory factor analysis implemented to check factor structure. Firstly, it is checked various goodness of fit statistics in order to see whether the factor structure has been verified. The results demonstrate fit validity (χ^2/df : 3.62; GFI: 0.90; NFI: 0.924; CFI: 0.96; NFI: 0.95; RMSEA: 0.09). Results of CFA also show that all factor loadings are significantly above 0.70 (Hair et al., 2010). Cronbach's alpha coefficient was calculated to determine the reliability of the scales. Since the Cronbach's alpha coefficient exceeded 0.70, it was concluded that the scales were reliable. (Hair et al., 2010). AVEs of the variables were between 0.75 and 0.83 greater than 0.5 threshold, indicating that good convergent validity (Hair et al., 2017). Table 1 shows the factor loadings of the scales, Cronbach's alpha coefficient and AVE results of measurement items.

Table 1. Measurement items

Variables	Items	Factor Loadings	Cronbach's Alfa	AVE
Ad attitude	Tut1	0.89	0.95	0.75
	Tut2	0.92		
	Tut3	0.92		
	Tut4	0.89		
	Tut5	0.72		
Negative WoM	Nwm1	0.93	0.94	0.83
	Nwm2	0.88		
	Nwm3	0.93		
Purchase intention	Sn1	0.91	0.95	0.80
	Sn2	0.90		
	Sn3	0.87		
	Sn4	0.91		

Table 2. Fornell–Larcker Criterion for Discriminant Validity

	Attitude toward the Ad	Negative WoM	Purchase Intention
Ad attitude	0.866	-0.553	0.785
Negative WoM	-0.553	0.911	-0.441
Purchase Intention	0.785	-0.441	0.894

Note: Diagonal elements are the square root of AVE; of-diagonal elements are the correlations among constructs.

Test of Hypotheses

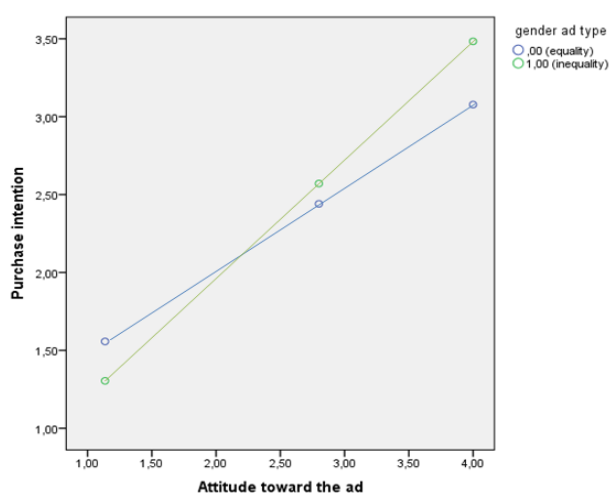
The independent sample t-tests were conducted to test the H1, H2 and H3 hypotheses. The results of these hypotheses shown in Table 3. The results of H1 show that participants who were exposed to the gender inequality treatment in the social media ad exhibited lower levels of ad attitude (Mequality = 3.63; Minequality = 1.91; $t = 16.173$; $p < .05$). The results of H2 show that participants who were exposed to the gender inequality treatment in the social media ad exhibited higher levels of negative WoM (Mequality = 1.81; Minequality = 3.25; $t = -10.940$; $p < .05$). The results of H3 show that participants who were exposed to the gender inequality treatment in the social media ad exhibited lower levels of purchase intention (Mequality = 2.88; Minequality = 1.90; $t = 9.096$; $p < .05$).

Process analysis was used to test the other hypotheses of the study. Process is frequently used in experimental studies where the independent variable is manipulated in the marketing literature (Bozkurt, 2023). Hayes (2018)' PROCESS Model 1, employing 5,000 bootstrap samples and 95% confidence intervals, was used to reveal moderation effect of gender ad type on the relationship between ad attitude and purchase intention and negative WoM for fourth and fifth hypotheses.

H4 proposes that the positive effect of ad attitude on purchase intention will be stronger when consumer exposed to a gender inequality in social media ad. The findings showed that gender ad type significant moderation effects on the relationship between ad attitude and purchase intention (β : 0.23; CI: {0.043, 0.416}; $p = 0.015$). Figure 1 shows the graphical representation of the effects of the interaction term (gender ad type x attitude towards the ad). Specifically, the effect of ad attitude on purchase intention stronger for individuals who exposed to gender inequality in ad (β : 0.76; CI: {0.390, 0.671}; $p = 0.01$) compared to gender equality in ad (β : 0.23; CI: {0.043, 0.416}; $p = 0.000$). Therefore, H4 was supported.

Table 3. Independent Sample t-Tests Results

Variable	Treatment	N	Mean	Std. Deviation	Equality of variances	t	df	p
Ad attitude	Gender equality	127	3.63	0.83	0.752	16.173	270	0.000
	Gender inequality	145	1.91	0.90				
Negative WoM	Gender equality	127	1.81	0.93	0.000	-	265.87	0.000
	Gender inequality	145	3.25	1.22				
Purchase In-tention	Gender equality	127	2.88	0.87	0.912	9.096	270	0.000
	Gender inequality	145	1.90	0.89				

**Figure 1: The Moderating Role of Gender Ad Type on The Relationship Between Ad Attitude and Purchase Intention.**

H5 proposes that the negative effect of ad attitude on negative WoM will be stronger when consumer exposed to a gender inequality in social media ad. The findings showed that interaction term (gender ad type x attitude toward the ad) was not significant on the relationship between ad attitude and negative WoM (β : -0.13; CI: {-0.43, 0.15}; $p=0.359$). Thus, H5 was not supported.

This study also explore the mediating role of ad attitude on the relationship between gender ad type condition (0 = equality, 1= inequality) on purchase intention (H6a) and negative WoM (H6b). Model 4 of the PROCESS, employing 5,000 bootstrap samples and 95% confidence intervals, was used to analyse this mediation effects (Hayes, 2018). As shown in the test of H1, gender ad type (independent variable) significantly affects ad attitude (mediator), such that participants who were exposed to the gender inequality treatment in the social media ad exhibited lower levels of ad attitude (β : - 1.71; CI: {-1.921, -1.504 } $t= 16.173$; $p= 0.000$).

Second, ad attitude significantly affect on the purchase intention (dependent variable) (β : 0.66; CI: {0.569, 0.755} $t= 14.010$; $p= 0.000$). But, direct effect of gender ad type on purchase intention was not significant (β : 0.15; CI: {-0.075, 0.379} $t= 1.318$; $p= 0.18$). Importantly, the indirect effect of gender ad type on purchase intention through ad attitude was significant (β : -1.13; CI: -1.361, -0.927). Since confidence interval did not include 0 (Hayes, 2018), ad attitude mediated the relationship between gender ad type and purchase intention. Therefore, H6a was supported. These results show that through their ad attitudes, participants who were exposed to gender inequality ad (compared to those exposed to gender equality ad) exhibited lower purchase intention.

On the other hand, ad attitude significantly affect on the negative WoM (β : -0.28; CI: {-0.436, -0.142} $t= -3.881$; $p= 0.001$). Direct effect of gender ad type on negative WoM is significant (β : 0.93; CI: {0.576, 1.294} $t= 5.134$; $p= 0.000$). Importantly, the indirect effect of gender ad type on negative WoM through ad attitude is significant (β : 0.49; CI: 0.196, 0.844). Since confidence interval did not include 0 (Hayes, 2018), ad attitude mediated the relationship between gender ad type negative WoM. H6b was supported. These results show that through their ad attitudes, participants who were exposed to gender inequality ad (compared to those exposed to gender equality ad) exhibited higher negative WoM.

Conclusion and Discussion

In all societies from past to present, traditional gender roles have been imposed on men and women. The construction of these gender roles has given men superiority and placed women in a secondary position (Vargel Pehlivan, 2017). Studies conducted in recent years have revealed the negative

consequences of these gender stereotypes (Åkestam et al., 2017; Lucka et al., 2021). Today, gender-stereotypical portrayals of females in advertising seen as a gender inequality treatment. However, female stereotypes still have been used in advertising. RVD's 2018 report (as cited in Eczacıbaşı, 2020) that traditional gender roles have dominated 10 years of television advertising content and only 35 percent of the main character in these advertisements were women and most were depicted in household care or childcare related roles. However, new study also show that the visibility level of female main characters was %48 in 2024 in Turkey (RVD, 2025). In parallel with this progress, it is important to reveal the attitudes and behavioral intentions of young people in Türkiye towards advertisements depicted gender inequality in this study.

Our results show that participants who were exposed to gender inequality in advertisements indicated significantly lower levels of ad attitude, lower levels of purchase intention and higher level of negative WoM compared to participants who were exposed to gender equality in advertisements. These results are consistent with previous studies in the literature. For instance, Abdallah et al. (2018) found that men respond positively toward a brand they perceived as truly supporting gender equality. Teng et al. (2021) also stated that egalitarian portrayals of women were more effective in promoting a food product than traditional depictions.

This study also revealed that ad attitude on purchase intention was significantly positive and this effect was stronger for participants who were exposed to a gender inequality in social media ad. This result show that ad attitude is an important predictor of purchase intention among young Turkish consumers, especially in gender inequality situations. The main reason for this may be that ads that contain inequality elicit stronger reactions from audiences. Indeed, Lucka et al. (2021) also stated that gender inequality in advertising have led to public outcries and consumer boycotts. On the other hand, ad attitude on negative WoM was significantly negative. However this effect did not differ significantly between participants exposed to gender inequality in social media ad and those

who were not. In other words, whether the ad was inequality-themed or not, the relationship between ad attitudes and negative WoM remained similar.

Besides direct and moderation effects, this study also explore the mediating role of ad attitude in the relationship between gender ad type and purchase intention and negative WoM. The results showed that indirect effect of gender ad type on purchase intention through ad attitude was significant and the indirect effect of gender ad type on negative WoM through ad attitude is significant. Specifically, gender ad type (inequality vs. equality) affect how participants evaluate the ad. When this evaluation (ad attitude) is positive, participants tend to purchase the product; when it is negative, they are more likely to say negative things about the ad or brand to others. These results highlight the central

Specifically, ad content related to gender (e.g., inequality vs. equality) shapes how favorable or unfavorable student consumers feel about the ad, which in turn influences their behavioral responses. When attitudes are more favorable, consumers are more likely to report higher purchase intentions and less likely to engage in negative word of mouth. These findings highlight the ad attitude is a critical mediator in linking gender ad type and student consumers' responses.

This research has several significant implications for businesses, advertising agencies and managers. Advertising decision makers about a product or a brand should be aware that gender inequality depicted in ads, lead to lower attitudes, purchase intentions and higher negative word of mouth especially if the target market consists of young consumers. Young consumers show more favorable attitudes and responses regarding equality in ads. Thus, including gender equality in advertisements can increase the likelihood of purchase by encouraging consumers to develop more positive attitudes toward those advertisements. At the same time, this approach can prevent damage to a brand's reputation by reducing negative WoM. Given that gender inequality plays a stronger role in the effect of attitudes on purchase intention, one should be very careful about advertising that includes inequality (e.g., women predominantly cooking and doing housework).

On the other hand, this study found that ad attitude plays a mediating role between gender ad type and both negative word-of-mouth (nWoM) and purchase intention. This finding contributes to the theoretical literature by demonstrating that consumers' cognitive and affective evaluations of advertisements serve as a key psychological mechanism linking gender portrayals to behavioral outcomes. In other words, rather than gender representation directly shaping consumer behavior, its influence operates through the formation of ad attitude, offering a more nuanced understanding of how gender equality messages affect persuasion.

From a managerial perspective, this study highlights the importance of developing advertising strategies that go beyond product promotion and instead focus on shaping positive consumer attitudes. Managers and practitioners should avoid themes that may be perceived as gender inequality and design communication strategies that emphasize egalitarian, inclusive, and respectful representations. Such messages not only contribute to social progress but also strengthen brand image and foster positive consumer engagement.

Limitations and Future Research

While this study provides valuable insights, several methodological limitations should be acknowledged to contextualize the findings and guide future research.

First, the sample consisted exclusively of undergraduate students from a single public university in Türkiye. Although this group represents an important segment of the young consumer population, it may not fully reflect the attitudes and behaviors of individuals from other age or demographic groups. Therefore, the findings should be interpreted with caution and not generalized to non-student or older consumers. Future research should replicate this study with more diverse samples from various universities, regions, and age cohorts to enhance external validity.

Second, the study employed an experimental design using static advertisement visuals to manipulate gender portrayals. While this approach ensured greater experimental control, it did not capture the dynamic and multisensory nature of

video advertisements, which incorporate elements such as sound, motion, narrative, and non-verbal cues that can influence consumer responses. Future studies could compare the effects of static and video-based advertisements, examining how different media formats shape perceptions of gender roles on platforms like Instagram, TikTok, or Facebook.

Third, the advertisement stimuli used in this research simulated an Instagram post depicting a scenario of gender inequality in a domestic context — a woman preparing dinner after returning from work. Although this design effectively reflected everyday gender representations, alternative forms of inequality in professional, educational, or public domains may evoke different consumer reactions. Future research could extend this framework by testing similar manipulations across varied social contexts.

Fourth, the study focused on a single, gender-neutral product category (a food processor) to maintain internal validity and stimulus consistency. However, consumer reactions to gender portrayals may differ across product types — particularly between traditionally male- and female-oriented categories. Future studies could examine whether the observed effects remain consistent across a broader range of product classes.

Finally, while this research identified ad attitude as a mediating mechanism between gender portrayals and behavioral outcomes such as purchase intention and negative word-of-mouth, future studies could explore additional psychological and brand-related variables (e.g., brand image, loyalty, or perceived authenticity). Moreover, employing qualitative methodologies such as in-depth interviews or focus groups could yield richer insights into the cognitive and emotional mechanisms underlying consumer responses to gender portrayals in advertising.

Declarations

Funding: No funding was received for conducting this study.

Conflicts of Interest: The authors declare no conflict of interest.

Ethical Approval: Ethical approval was granted by Bolu Abant İzzet Baysal University Social Sciences Human Research Ethics Committee (Protocol 2025/53; Meeting 2025/01; 20 Jan 2025).

Informed Consent: Participation was voluntary and anonymous. Informed consent was obtained from all participants before exposure to the advertising stimuli and completion of the questionnaire; sessions were administered in a controlled classroom setting.

Data Availability: Due to privacy and confidentiality considerations, raw survey data are not publicly available. De-identified datasets and analysis materials (e.g., codebooks and PROCESS outputs) are available from the corresponding author upon reasonable request.

AI Disclosure: No artificial intelligence-based tools or applications were used in the conception, analysis, writing, or figure preparation of this study. All content was produced by the authors in accordance with scientific research methods and academic ethical principles.

Authors' Contributions: Both authors contributed to study conception and design, stimulus development, data collection, data analysis, and manuscript writing; both authors reviewed and approved the final version.

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RESEARCH ARTICLE

Metaphorical Perceptions of University Students Regarding the Concept of "Academic"

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Abstract

This study aims to reveal university students' perceptions of the concept of "academician" through the metaphors they produce. The study was conducted with 270 undergraduate students studying at a state university. Employing a phenomenological design within qualitative research methods, this study integrates content analysis with thematic network analysis to analyze students' metaphorical perceptions of academicians, ensuring alignment between methodology and analytical techniques. The findings indicate that academicians are perceived as sources of knowledge and guides, but also as authoritarian, biased, and sometimes oppressive figures. The metaphorical analysis categorized academicians into seven groups: sources of knowledge and guides, disciplined and hardworking, enabling development and change, emotional and social, injustice and ego, negative perceptions, and ambiguity and contradiction. Gender differences show that females focus more on fairness and guidance, while males emphasize authority and oppression. By class, first- and second-year students view academicians as knowledge sources, whereas third- and fourth-year students perceive more injustice and stress. Overall, negative metaphors predominate (55%), indicating academicians are seen as significant sources of stress.

Keywords: Academician, Metaphor, University students, Academic perception

Öz

Bu çalışma, üniversite öğrencilerinin "akademisyen" kavramına ilişkin algılarını, ürettikleri metaforlar aracılığıyla ortaya çıkarmayı amaçlamaktadır. Araştırma, bir devlet üniversitesinde öğrenim gören 270 lisans öğrencisi ile gerçekleştirilmiştir. Nitel araştırma desenlerinden olgubilim (fenomenoloji) yaklaşımı benimsenmiş; öğrencilerin akademisyenlere yönelik metaforik algılarının incelenmesinde içerik analizi ile tematik ağ analizi birlikte kullanılarak araştırma deseni ile veri analiz teknikleri arasında uyum sağlanmıştır. Bulgular, akademisyenlerin çoğunlukla bilgi kaynağı ve rehber olarak algılandığını; ancak aynı zamanda otoriter, taraflı ve kimi zaman baskıcı figürler olarak da değerlendirildiğini göstermektedir. Metafor analizleri sonucunda akademisyenler yedi kategori altında toplanmıştır: (1) bilgi kaynağı ve rehber, (2) disiplinli ve çalışkan, (3) gelişim ve değişimi sağlayan, (4) duygusal ve sosyal, (5) adaletsizlik ve ego, (6) olumsuz algılar ve (7) belirsizlik ve çelişki. Cinsiyete göre farklılıklar gözlenmiştir: Kadın öğrenciler daha çok adalet ve rehberlik vurgusu yaparken, erkek öğrenciler otorite ve baskı temalarını öne çıkarmıştır. Sınıf düzeyine göre ise birinci ve ikinci sınıf öğrencileri akademisyenleri bilgi kaynağı olarak görürken, üçüncü ve dördüncü sınıf öğrencileri daha çok adaletsizlik ve stres ile ilişkilendirmiştir. Genel olarak, metaforların çoğunluğu (%55) olumsuz içeriklidir ve akademisyenlerin önemli bir stres kaynağı olarak algılandığını göstermektedir.

Anahtar Kelimeler: Akademisyen, Metafor, Üniversite öğrencileri, Akademik algı

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Introduction

Metaphors contain a symbolic language that "forms the basis of the intellectual processes that people use to determine reality, truths, and meanings" (Ortony, 1975). Balcı (2016, p.142) defined metaphor as the metaphorical reflection of social reality. Lakoff and Johnson (1980) stated that metaphors are the primary linguistic tools discovered by human beings in order to understand, explain, construct, and organize the world. For this reason, they emphasized that metaphors will help in understanding how people construct their own reality and how they perceive the world.

Metaphors (analogies, metaphors, similes, and similes) are one of the most powerful mental tools that structure, direct, and control our thoughts about the formation and functioning of events (Saban, 2004). Metaphors, which are the link builders between what we have and what others, develop rich perspectives by producing new ways of seeing and adding new dimensions (Koro-Ljungberg, 2001). The essence of metaphors is to understand and experience something through something else. Metaphors, which constitute an important field of study not only in our daily lives but also in terms of academic research, also provide people with the opportunity to understand, interpret, and make sense of their surroundings and their lives (Tohidian & Rahimian, 2019). Again, metaphors act as a powerful cognitive model for understanding educational phenomena based on the previous experiences of educators and students (Botha, 2009)

Relevant debates in the literature on metaphorical perceptions of academicians highlight their roles in education. Internationally, studies like Al-Ibrahim and Al-Hussein (2024) on EFL students' metaphors for learning experiences position educators as guides, while Kaya et al. (2024) explore nursing students' perceptions of professors during the COVID-19 pandemic, revealing themes of support and stress. Additional international research, such as Kurniati et al. (2022) on pre-service teachers' metaphorical perceptions of inclusive education in diverse cultural contexts, and Alshammari (2023) on EFL teachers' roles through metaphor analysis in Saudi Arabia, further illustrate global variations in perceptions of authority, guidance,

and stress. These international perspectives emphasize the global relevance of metaphorical analysis in uncovering subjective experiences, such as stress and guidance in academic settings (e.g., Weaver, 2015; Itkin & Nagy, 2014). These align with Turkish literature, such as Tortop (2013) on teacher candidates' metaphors for university instructors as knowledge transmitters and Polat et al. (2013) on class teacher candidates' views of academicians as sources of information. Such research underscores metaphors' value in uncovering subjective meaning-making in academic contexts, extending beyond Turkey to global educational settings.

Morgan (2006) claims that all organization and management theories are based on metaphor and has developed many organization metaphors such as machine brain and organism. Stirner used the metaphor of 'wheel in the head' as an activism that limits liberation (Spring, 1997, as cited in Yıldırım, 2013). Freire (1988) also used the metaphor of banking education to explain that traditional education commodifies individuals and restricts free thought forms. In her work 'No to Compulsory Education', Catherine Baker (2000) likened the school to an institution that keeps children under surveillance and acts as a guard while their parents work, and again used various metaphors.

Since metaphors shape beliefs, values, and attitudes, they have begun to be used as a data collection tool in many different disciplines to understand the nature of organizational life (Çelikten, 2006). It is emphasized that metaphors are the most accurate tools to reveal people's perspectives and to obtain information about their past experiences, thoughts and ideas about the present, and hopes for the future (Levine, 2005). In both national and international literature, it is seen that there has been an increase in the number of metaphorical studies on organizational issues such as organization, organizational culture, and organizational change (Ada & Gürcan, 2021; Itkin & Nagy, 2014; Weaver, 2015; Yılmaz & Polat, 2012).

Since metaphors reflect new and different views on how to better understand the world, using these mental tools is important in developing perception and understanding about organizations and similar complex structures. Metaphorical

language and thought play an important role in understanding organizations. In this respect, metaphors offer new perspectives and ways in understanding and managing organizations.

This study aims to reveal university students' perceptions of the concept of "academic" through the metaphors they produce. In line with this basic purpose, the research questions sought to be answered are as follows:

1. How do students express academics through metaphors?
2. Under which conceptual categories do the metaphors produced by students fall?
3. What are the differences in students' metaphorical perceptions of the concept of academic in terms of gender, department and class variables?

Method

This section includes the titles "Research Model", "Study Group", "Data Collection", and "Data Analysis".

Model of the Research

In the study, the phenomenology design, which is one of the qualitative research designs, was used because the meanings attributed to the concept of academic were examined in depth in line with the opinions of university students. In qualitative studies, the subject under study is investigated in depth in its natural environment and the meanings brought to the phenomenon are tried to be understood and interpreted (Denzin and Lincoln, 2008). Phenomenology studies, which are used to understand human experiences in certain situations and to try to convey these meanings in an empathetic and clear way (Neergaard and Uhløi, 2007: 76), begin with the assumption that multiple realities are based on the perspectives of individuals. For this reason, an experience has a different meaning for each individual. The researcher investigates the thoughts and feelings of individuals (Ary, Jacobs, Sorensen, and Razavieh, 2010). Phenomenology researchers collect the opinions of the participants and try to determine what all the participants have in common while experiencing this phenomenon

based on this. (Creswell, Iwamoto, and Caldwell, 2007).

The phenomenological approach emphasizes grasping the structural meaning of the subject's experience with the phenomenon and the researcher's awareness of their own perspectives, suitable for studying effective, emotional, and intense human experiences (Merriam, 2013). Using metaphors to determine thoughts of individuals in education can be effective (Tok, 2013). Considering university students' intense experiences with academics, the phenomenological design provides a descriptive and interpretative perspective for understanding perceptions. To address the gap between the methodological approach and analytical adequacy, the study integrates thematic network analysis (Attride-Stirling, 2001) with content analysis. Thematic network analysis organizes themes into basic, organizing, and global levels, preserving actors' reflective engagements and meanings in experiential context, unlike frequency-oriented extraction that may abstract meanings. To further illustrate, the analysis process involved iterative coding where student justifications for metaphors (e.g., "book" as "educational and adding new things") were mapped to networks, preventing decontextualization and aligning with phenomenological emphasis on lifeworld reflections. For instance, basic themes (e.g., individual metaphors like "book") are linked to organizing themes (e.g., "source of information") and a global theme (e.g., "dual perceptions of guidance and stress"), ensuring meanings remain contextualized rather than reduced to frequencies. This justifies how the techniques serve phenomenological goals (Sundler et al., 2019; Vagle, 2018), strengthening the manuscript without reframing the research questions.

Study Group

The study group consisted of 270 undergraduate students enrolled in the first, second, third, and fourth years of a state university during the 2024–2025 academic year. Including students from all academic years aimed to capture potential changes in perceptions of academics over time. The study group was determined using criterion sampling, a purposive sampling method in which participants

are selected based on their relevance to and knowledge of the research topic (Yıldırım & Şimşek, 2013).

Table 1. Demographic characteristics of the students participating in the study

	n	%
Gender		
Male	120	45
Female	150	55
Department		
Social Sciences		
Psychology, Philosophy, Sociology, Literature, History, Geography	82	30,4
Arts and Communication		
Radio-TV-Cinema, Music, Painting	52	19,2
Sports Sciences		
Recreation, Coaching, Sports Management	62	23
Health Sciences		
Nursing, Child Development	74	27,4
Year of Study		
1st Year	65	24,1
2nd Year	70	25,9
3rd Year	70	25,9
4th Year	65	24,1

Table 1 indicates that of the 270 participants, 150 (55%) were female and 120 (45%) male. By department, 82 (30.4%) from social sciences, 52 (19.2%) from arts and communication, 62 (23%) from sports sciences, and 74 (27.4%) from health sciences. By grade level, 65 (24.1%) first-year, 70 (25.9%) second-year, 70 (25.9%) third-year, and 65 (24.1%) fourth-year participants.

Data Collection Tool

In order to reveal the metaphorical perceptions of the students participating in the study regarding the concept of 'academician', they were first given information about the metaphor. Then, the participants were asked to complete the sentence in the expression "Academician is like... because..." on the form, which also included their descriptive characteristics. The participants' descriptive information, the metaphors produced and their justifications constituted the main data source for the study.

Data Analysis

The data were analyzed using content analysis, a systematic technique where messages are objectively recognized and summarized into categories

(Büyüköztürk et al., 2009, p. 269). To ensure analytical adequacy for phenomenological goals, thematic network analysis was incorporated to organize themes into networks, linking basic themes (metaphors) to organizing themes (categories) and a global theme (overall perceptions), preserving experiential context (Attride-Stirling, 2001). The analysis was conducted in four stages (Saban, 2008).

Coding and elimination stage: Data that could not explain "academician" as a metaphor or had no relation between metaphor and justification were eliminated from 320 metaphors ($f=50$). Thus, valid metaphors from 270 participants ($f=160$) were tabulated alphabetically from most repeated (Table 2).

Category development phase: The meaning of metaphors in terms of theme-subject-reason and relationship was determined, forming seven categories: (1) source of information and guidance, (2) disciplined and hardworking, (3) providing development and change, (4) emotional and social, (5) injustice and ego, (6) negative perceptions, (7) ambiguity and contradiction. Each metaphor was categorized by its final message (e.g., "bee" under negative perceptions for stinging). This was enhanced with thematic network analysis to maintain contextual integrity.

Validity and reliability stage: In the validity and reliability stage, the research process (research model, study group, data collection tool, analysis and interpretation of data) was reported in detail and clearly to increase the transferability of the research. In order to increase the consistency of the research, the originality of the data was given directly. At this stage, while the metaphors produced by the participants were analyzed, attention was paid to the creation of meaningful integrity of the categories. Opinions were obtained from two field experts in order to check whether the conceptual categories represented the obtained metaphors. The lists of conceptual categories and the obtained metaphors were given separately and they were asked to match. In order to ensure the reliability of the research, the matches made by the researchers and experts were compared and an attempt was

made to determine consensus and disagreements. In the calculation made using the agreement percentage formula of Miles and Huberman (1994, 64) [reliability = (consensus/consensus + disagreement) x 100], the agreement between the researchers and the expert was found to be .90. This value shows that the findings obtained in the research are reliable in terms of consistency.

Frequency and interpretation stage: Frequencies and word cloud were found with MAXQDA 24 and interpreted with literature data.

Findings

This section presents the word cloud of metaphors produced by participants regarding the "academician" concept, frequency table, categorization of produced metaphors, and metaphorical perceptions in terms of different variables (gender, class, and department), integrated into relevant sub-headings for improved flow and readability.

The word cloud of the metaphors produced by the participants is presented in Figure 1.



Figure 1. Word cloud of metaphors related to the concept of academic

Figure 1 shows that metaphors such as book, tree, ego, guide, information, slide are produced more (the size of the text shows that the metaphor is produced more) of the metaphors produced, all the metaphors produced by the participants are given in alphabetical order according to their frequencies in Table 2.

Table 2. Metaphors produced by participants regarding the concept of academics

SN	Metaphor	f	SN	Metaphor	f	SN	Metaphor	f	SN	Metaphor	f
1	book	16	41	bee	1	81	factory	1	121	homework	1
2	ego	12	42	arlan	1	82	mosque	1	122	leader	1
3	tree	11	43	lion	1	83	feverish	1	123	organization	1
4	guide	14	44	moon	1	84	philosopher	1	124	paradox	1
5	information	8	45	babacan	1	85	future	1	125	puzzle	1
6	slide	7	46	gardener	1	86	entrepreneur	1	126	diamond	1
7	unfair	6	47	bank	1	87	thunder	1	127	pizza	1
8	search engine	5	48	gasoline	1	88	sky	1	128	prestige	1
9			49	white dove	1	89	shadow	1	129	Unstable	1
10	light	5	50	information	1	90	rose	1	130	compass	1
11	robot	5	51	science	1	91	dream	1	131	ronaldo	1
12	encyclopedia	4	52	building	1	92	helicopter	1	132	artist	1
13	computer	4	53	empty glass	1	93	hailer	1	133	ivy	1
14	stress	4	54	chameleon	1	94	rooster	1	134	eraser	1
15	water	4	55	nose in the air	1	95	knowledge	1	135	suicidal	1
16	ant	3	56	refrigerator	1	96	light tower	1	136	question angle	1
17	adfish	3	57	monster	1	97	gate	1	137	irresponsibility	1
18	child	2	58	teapot	1	98	cats	1	138	dictionary	1
19	wall	2	59	shepherd	1	99	pen	1	139	superman	1
20	lantern	2	60	know-it-all	1	100	mould	1	140	chief	1
21	rainbow	2	61	mountain	1	101	oil lamp	1	141	city	1
22			62	precious stone	1	102	closed door	1	142	painting	1
23	watermelon	2	63	iron	1	103	turtle	1	143	dessert	1
24	netopist	2	64	sea	1	104	cake	1	144	technology	1
25	cat	2	65	warehouse	1	105	slave	1	145	tyrant	1
26	lamp	2	66	sea	1	106	bridge	1	146	seed	1
27	leader	2	67	thorny rose	1	107	impasse	1	147	torpedo	1
28	machine	2	68	dictator	1	108	krates	1	148	traffic sign	1
29	politician	2	69	bottomless pit	1	109	rule	1	149	plane	1
30	comfort	2	70	dogma	1	110	wolf	1	150	careless	1
31	snake	2	71	dollar	1	111	bird	1	151	upper floor	1
32	star	2	72	emotionless	1	112	library	1	152	ironed shirt	1
33	hot pepper	1	73	world	1	113	machine	1	153	body	1
34	man	1	74	enemy	1	114	mine	1	154	rain	1
35	octopus	1	75	parent	1	115	fruit	1	155	enlight	1
36	shopping	1	76	electricity	1	116	deputy	1	156	artificial intelligence	1
37	gold miner	1	77	diamond	1	117	pat	1	157	assistant	1
38	light bulb	1	78	veteran	1	118	river	1	158	food	1
39	coach	1	79	lacking empathy	1	119	crab	1	159	crab	1
40	research	1	80	universe	1	120	midfield	1	160	road	1

Table 2 reveals that the frequency ranges of the produced metaphors vary between 16 and 1. The most frequently repeated metaphors are book (f=16), ego (f=12), tree (f=11), guide (f=11), information (f=8), slide (f=7), unfair (f=6), search engine (f=5), sun (f=5), light (f=5), robot (f=5), encyclopedia (f=4), computer (f=4), stress (f=4), water (f=4), ant (f=3). Other metaphors were repeated once or twice.

To visually reinforce the analytical connection between this raw data (Basic Themes/Metaphors) and the study's central conclusion, and in adherence to the requirements of the thematic network analysis (TNA) technique, the structure of the findings is presented in Figure 2.

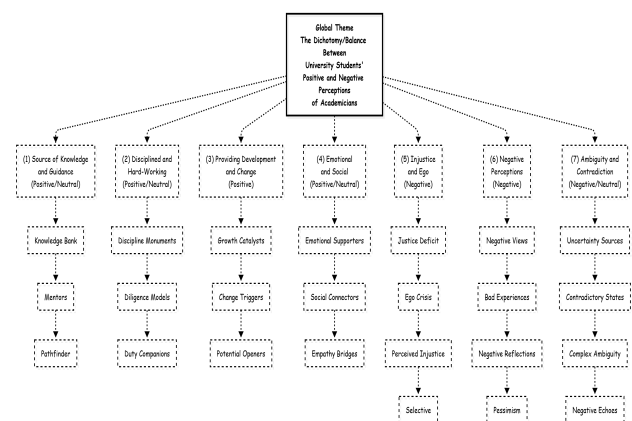


Figure 2. Thematic Network Scheme Regarding the Concept of "Academician"

Figure 2, in line with the principles of phenomenological research and the requirements of the thematic network analysis (TNA) technique, visu-

ally illustrates the relationship between the metaphorical perceptions (Basic Themes) and the overarching research finding (Global Theme). This scheme depicts the hierarchical structure of the data, which was categorized into seven Organizing Themes (categories) based on the inherent relationships among the 160 Basic Themes (metaphors). The Basic Themes—such as 'Knowledge Bank,' 'Source of Dread,' and 'Ego Crisis'—were grouped according to their shared core meanings. These seven Organizing Themes subsequently converge to form the Global Theme: The Dichotomy/Balance Between University Students' Positive and Negative Perceptions of Academicians. The visual network clearly demonstrates the analytical journey, showcasing how the raw data (Basic Themes) systematically connect to and support the central finding (Global Theme). This presentation ensures alignment between the phenomenological methodological approach and the analytical technique employed, thereby enhancing the transparency and validity of the study.

Table 3 includes the conceptual categories created from the metaphors produced by the participants regarding the "academician" concept.

Table 3. Categories of Participant Metaphors for "Academician"

No	Conceptual Categories	Messages given by metaphors
1	Source of information & guidance	Behaviors facilitating student guidance
2	Disciplined and hardworking	High work pace and discipline
3	Providing development & change	Behaviors promoting growth
4	Emotional & social	Compassionate and devoted attitudes
5	Injustice & ego	Injustice and egoistic behaviors
6	Negative perceptions	Stress-inducing attitudes
7	Ambiguity & contradiction	Unpredictable actions.

Table 3 shows that 160 metaphors produced by students were classified under seven conceptual categories. When the findings of the metaphors and participant expressions in each category were evaluated, in the (1) information source and guide category, academics were seen as figures who convey information, guide students and contribute to their development. In the (2) disciplined and hardworking category, the intensive work tempo and disciplined structure of academics were emphasized, while in the (3) development and change

providing category, the idea that academics contribute to students and help their development came to the fore. In the (4) emotional and social category, the meanings attributed to academics by people from their close circle were attributed to them, and their emotional aspects were highlighted. In the (5) injustice and ego category, more negativity-evoking emphasis was made, while in the (6) negative perceptions category, students defined academics as sources of stress and oppressive figures. In the (7) ambiguity and contradiction category, the inconsistent and unpredictable behaviors of academics were highlighted. While the produced metaphors were classified according to categories, some metaphors (comfort, homework, cat, prestige, turtle, octopus, upper floor, mouse, future) remained out of the category.

When classifying the metaphors as positive and negative, negative metaphors (55%) were used more than positive metaphors (40%). Additionally, neutral metaphors such as machine, robot, slide (10%) were used.

Source of Information and Guidance

Table 4 demonstrates that students produced a total of 52 metaphors regarding the academician concept in the "source of information and guide" category. Females used metaphors like "guide" and "light" more frequently (60%), reflecting a focus on guidance; 1st and 2nd-year students dominated with "book" and "knowledge" (70%); health sciences students used "encyclopedia" more (40%). This category, the largest, aligns with literature where academicians are seen as knowledge sources (Polat et al., 2013; 44%), similar to international studies like Al-Ibrahim and Al-Hussein (2024) on educators as guides in EFL contexts. Kurniati et al. (2022) on supportive roles in inclusive education, and Kaya et al. (2024) highlighting supportive roles amid stress.

Table 4. Metaphors in the information source and guide category

Category	Metaphor	Reasons
Information Source and Guide	Guide	It is like a bright path that guides our future. It guides our lives and allows us to discover ourselves
	Light	They light our way
	Book	Whatever you are looking for, they are there. They are educational and add new things to our lives
	Encyclopedia	They have a lot of knowledge and equipment. They know everything
	Traffic sign	They show where and how to go
	Compass	They show the right direction to the students
	Shepherd	They give direction to the students (herd). The responsibility belongs to them during the lesson.
	Road	They guide us on what we should do
	Lamp	They exhaust themselves and give light to others
	Lighthouse	They illuminate the darkness
	River	They drag us towards endless horizons with their ideas and knowledge
	Library	The articles they write with the knowledge they have acquired are not for every brave man
	Computer	They have all kinds of knowledge and equipment. They convey what they know
	Ocean	It has no end
	Universe	It contains a huge world
	Superman	It spares us, to some extent, from life's challenges
	Search engine	It is there for you. They store the desired information and guide us in accessing it
	Sun	They illuminate the dark side of our brain with their knowledge and experience
	Lamp	They guide us and illuminate our path
	Ocean	They have deep knowledge
	Faucet	Their knowledge flows as it flows
	Leader	They have modest knowledge and manage all subjects
	Food	We need it throughout our lives. It gives a feeling of satiety with the information transferred
	World	It constantly develops, repeats, is in a cycle
	Traffic sign	It shows where to go and how
	Moon	They become light in our lives and darkness
	Bottomless pit	It provides limitless value through knowledge
	Leader	They show the way and guide

Disciplined and Hardworking

Table 5 illustrates that students produced 15 metaphors in this category. Males and 3rd-4th year students emphasized "ant" and "machine" (55%), with sports sciences students noting discipline (35%). This aligns with Bayar and Bayar (2012), where academicians are perceived as having an intense work pace, and internationally with Itkin and

Nagy (2014) on organizational metaphors emphasizing efficiency and Alshammari (2023) on disciplined roles in EFL teaching.

Table 5. Metaphors in the disciplined and hardworking category

Category	Metaphor	Reasons
Disciplined and Hardworking	Ant	They work non-stop. They rush to everything
	Machine	They work non-stop and is unaware of most things
	Robot	They repeat memorized knowledge, confined within set boundaries
	Factory	It loads software onto brains that cannot work on their own and makes them work
	Bee	It swells as well as gives honey
	Teapot	Knowledge is patiently cultivated; results emerge over time
	Coach	Because it helps us develop
	Chief	He is a master at directing his players
	Fenerbahce	Despite all the difficulties, they continue to provide information without giving up
	Wall	They always stand upright
	Rule	They have strict rules that they set for themselves.
	Orderly	They love discipline
	Initiator	They are involved in every activity.
	Science	The more they learn, the more they want to teach
	Kratos	They are like warriors
Providing Development and Change	Lion	We listen to them, motionless and silent.
	Technology	"They continuously renew and enhance their knowledge

Providing Development and Change

Table 6. Metaphors in the category of providing development and change

Category	Metaphor	Reasons
Providing Development and Change	Tree	Their roots reach deep knowledge. They bear fruit as they are nourished. They rest in their shade
	Seed	They shape life with the information they give to people
	Fruit	It spreads seeds into the future
	World	They are in constant change and movement
	Water	If it flows, it becomes moisture, if it falls, it becomes a waterfall, if it stops, it becomes a lake
	Philosopher	They constantly question and encourage us to think
	Sea	Their contribution to our development is limitless.
	Pen	They spread knowledge objectively
	Machine	They work non-stop. They research and write non-stop

Research	They are very curious and open to learning
Iron	They are continuously shaped through challenges and life experiences
Body	They facilitate our development through their knowledge
Midfield	They affect the center of a student's development
Assistant	They support future generations by transferring knowledge
Dream	They help our dreams come true
Life	They guide our lives
Star	They become a light for students in their first steps
Eraser	Instead of covering up their mistakes, they erase them and help us get on the right path.
Leader	They excel at generating innovative solutions
Questioning Angel	They ask questions about a subject, get to the root of the problem and question the question.

Table 6 shows 20 metaphors in this category. Females and lower-class students used "tree" more (65%), health sciences dominating (40%). This finding resembles Demirbilek and Atila (2021), associating education with growth, and Kaya et al. (2024) on transformative roles in nursing education , as well as Kurniati et al. (2022) on development in inclusive settings.

Emotional and Social

Table 7. Metaphors in the emotional distance and social category

Category	Metaphor	Reasons
Emotional and Social	Shadow	They are with you at all times.
	Fatherly	They try to manage all the students at the same time.
	Veteran	Under these conditions, giving information to this difficult generation is the greatest effort.
	Superman	It saves us, even if only a little, from the ignorance and difficulties of life.
	White Dove	They convey the beauties of life to us. They open a white Page in our lives.
	Rain	As it rains, they make trees and flowers bloom.
	Shopping	We give back what we have taken from them in the exam.
	Rare gem	They are rare and important.
	Bird	They fly to their future and land on their dreams.
	Rainbow	Each color has a different meaning. Each color is unique.
	Man	They meet everything with maturity.
	Diamond	They are priceless.
	Gardener	They patiently nurture students' knowledge

Parent	They develop them with their knowledge. They set an example with their behavior.
Diamond	They are very valuable, not everyone who wants can buy it. People cannot take their eyes off them
Bridge	They create a connection between people with different ideas and bring them together.
Rose	They fade when plucked

Table 7 indicates 14 metaphors. Balanced across genders, but arts students used "friend" for social aspects (45%). This parallels Arslan and Bayrakçı (2006) on emotional distance in teacher-student relations, and internationally with Botha (2009) on metaphors fostering empathy and Alshammari (2023) on relational roles in EFL contexts.

Injustice and Ego

Table 8. Metaphors in the injustice and ego category

Category	Metaphor	Reasons
Adaletsizlik ve Ego	Unfair	They discriminate between students. They make unfair evaluations. They favor students
	Ego	He derives satisfaction from personal achievements and by demeaning others. He tends to belittle his peers. They exhibit egocentric behavior, prioritizing their own desires. Such individuals display narcissistic traits. They perceive themselves as superior and avoid accountability for substandard educational outcomes.
	Interpretation	They became academics through influence
	Nepotism	Does not treat students equally
	Dictator	As I said, they are scary
	Politician	They are not open to criticism
	Empathy deficit	They act like they've never been students
	Mountain	Their ego is insurmountable
	Airplane	Their swagger is insurmountable
	Lion	They think they're the king of the jungle
	Helicopter	They're so cool and egotistical
	Wolf	Students are sheep punished by academics
	Dollar	They keep rising
	Selfish	They don't think about anyone but themselves.
	Cake	They keep swelling

Table 8 reveals 28 metaphors in the "injustice and ego" category. Males and upper-class students used "dictator" and "ego" more (60%), with social

sciences dominating negative views (40%). This indicates injustice perception, similar to Bayar and Bayar (2012), where academicians are seen as authoritarian, and Al-Ibrahim and Al-Hussein (2024) noting bias in educational metaphors, as well as Kurniati et al. (2022) on power imbalances in inclusive education.

Negative Perceptions

Table 9. Metaphors in the Negative

Category	Metaphor	Reasons
Negative Perceptions	Stress	It triggers nervousness and future anxiety
	Slide	They only serve the function of reading slides. They do not make any explanations. They don't care about our opinions. They start and finish
	Monster	They crush those smaller than themselves
	Prickly rose	They are thorny to make students suffer. Their thorns prick the student
	Rooster	They make a lot of noise (talk) for no reason.
	Hitler	They talk, we keep quiet and listen.
	Oppressive	They threaten with grades and repeating the class.
	Dictator	I am a firm believer, they are scary
	Tyrant	They care about students. They are extremely distant. they won't help. They threaten you with bad grades and repeating the grade. They do not understand the student's situation. They almost never give any privilege
	Crab	They are like a herd who do not want their colleagues to advance and constantly drag them down
	Careless	They don't care much about the education of students
	Arrogant	They usually give answers to get rid of them
	Bank	They want more than what they give
	Know-it-all	They have relevant and irrelevant ideas about everything
	Dogma	They spread the information they learn. They don't meet the needs of the student
	Politician	They are not open to criticism, you exist as long as you accept their rules
	Empty glass	They act like wise men but they are not in reality
	Slave	They comply with and submit to the system.
	Cactus	They prick like thorns
	Empathy deficit	They make you live as if you have not passed through your student years
	Electricity	They strike
	Mold	They have an unproductive and inefficient structure within the formal education mold

Irresponsibility	They never follow the planned hours
Wall	They do not want to establish a relationship with students, they are condescending, soulless
Refrigerator	They all act cold, they are as cold as ice
Closed box	They do not convey their thoughts in great detail
Robot	We fail to form a secure emotional connection
Emotionless	They disregard students' opinions on any subject
Child	When they don't get something they want, they sulk. They act like we have to do everything
Ivy	They get more and more wrapped up
Mentally distressed	Is it because they work so hard? I don't know, but they're a little weird.

Table 9 demonstrates 32 metaphors in the “negative perceptions” category. Upper classes and males used “stress” and “robot” more (65%), arts students noting “wall” for disinterest. This finding resembles Demirbilek (2021), where distance education is perceived negatively by some students, and internationally with Kaya et al. (2024) on stress during pandemics and Kurniati et al. (2022) on negative views in inclusive contexts.

Ambiguity and Contradiction

Table 10. Metaphors in the ambiguity and contradiction category

Category	Metaphor	Reasons
Ambiguity and Contradiction	Thunder	They give peace to some and scare others.
	Snake	They are two-faced. They change skin according to their environment. It is not clear what they are
	Sun	Desirable during winter, unwelcome in summer.
	Ego	They harm lives and alienate students from education
	Chili pepper	Show initial kindness followed by revenge
	Chameleon	They exhibit situationally variable personalities
	Blind knot	It is incomprehensible what kind of structure they have. They are all very complicated and unsolvable.
	Paradox	They are complicated and never understood
	Sweet	A little is nice, a lot gives you a stomachache.
	Fate	Some make you smile, some make you crawl.
	Gasoline	Sometimes they take the student forward, sometimes they burn him/her.
	Star	There are many but only a few of them show the way.

Lawmaker	While some struggle, some sleep.
Pizza	It is luck that they are good.
Mine	Their target and timing of outburst are unpredictable
Watermelon	Outcomes are uncertain; soft inside, hard outside
Squirrel	jumping from branch to branch
City	They have every street.
Table	It changes depending on where you look.

Table 10 illustrates 19 metaphors in the “ambiguity and contradiction” category. Balanced across genders, but 3rd and 4th years and sports students used “snake” and “mine” for unpredictability (50%). This situation overlaps with Bayar and Bayar (2012), where academicians exhibit inconsistent behaviors, and Weaver (2015) on variable organizational metaphors, as well as Alshammari (2023) on ambiguous roles in EFL teaching.

Conclusion and Recommendations

This study analytically demonstrates that university students' metaphorical perceptions of academicians reveal a duality: positive roles as guides and knowledge sources contrast with negative views of authority, stress, and inconsistency, with negative metaphors dominating (55%). This predominance suggests systemic issues in academic-student interactions, potentially leading to alienation and reduced engagement, calling for interventions like professional development programs to foster empathy and fairness. The findings show that university students' perceptions of academicians are broad and grouped under different categories. While some students see academicians as information providers, guides, disciplined, hardworking, development-supporting individuals, others define them as unfair, egoistic, authoritarian, favoritist figures. This situation reveals that academicians' roles in educational processes are evaluated in both positive and critical frames. The research findings are largely consistent with similar studies.

In this study, the information source and guide category was the one with the most metaphors produced. Students described academicians with metaphors such as “guide”, “light”, “book”, and “compass”. This is consistent with Polat, Apak, and

Akdağ (2013), where academicians are seen as information sources and guides at a high rate (44%). In Tortop (2013), the category with the most metaphors about university instructors is imagined as information source and transmitter. Similarly, Bayar and Bayar (2012) emphasize academicians' information source and guiding roles. Internationally, Al-Ibrahim and Al-Hussein (2024) show similar guiding roles in EFL learning experiences.

In the disciplined and hardworking category, students' depiction of academicians with metaphors like “ant”, “machine”, and “bee” shows they are perceived as disciplined and hardworking. This finding overlaps with Bayar and Bayar (2012), where academicians are defined as individuals with intense work pace.

In this study, academicians were seen as figures contributing to students' development with metaphors like “tree”, “seed”, and “water”. This finding shows similarity with Demirbilek and Atila (2021), where science is associated with development and change.

Students' definition of academicians with metaphors like “shadow” and “fatherly” reflects emotional distance and coldness perception. This situation parallels Arslan and Bayrakçı (2006), drawing attention to distance in teacher-student relationships.

In this study, academicians' definition with negative metaphors like “unfair”, “ego”, and “dictator” shows the existence of injustice and authoritarianism perception among students. Similarly, Bayar and Bayar (2012) state that academicians are perceived as authoritarian and closed to criticism.

Students' definition of academicians with negative metaphors like “stress” and “monster” shows the existence of negative perceptions. This finding shows similarity with Demirbilek (2021), where distance education is perceived negatively by some students.

In this study, academicians were perceived as uncertain and contradictory figures with metaphors like “thunder” and “snake”. This situation overlaps with Bayar and Bayar (2012), where academicians may exhibit inconsistent behaviors.

When evaluated in terms of gender, women focused more on whether academicians were fair or

not, while men imagined academicians as powerful or oppressive figures.

When evaluated in terms of the class variable, new students saw academicians more as information sources, but this perception changes in later grades, defining them as unfair or oppressive figures.

When evaluated in terms of the department variable, in Social Sciences, academicians were defined as more authoritarian, egoistic, or guiding, while in Arts and Communication, as flexible but sometimes indifferent and favoritist. In Sports Sciences, the disciplined and normative aspects of academicians were emphasized, while in Health Sciences, metaphors like computer, book, light were used intensively.

Students perceive academicians more as negative figures. The greater use of negative metaphors also shows that academicians are perceived more as sources of stress in students' eyes. Students' definitions of academicians through metaphors are an important reflection of experiences and expectations in the academic environment. The existence of negative perceptions indicates that academicians need to review student relations and teaching methods. Academicians establishing more effective communication, improving teaching techniques, and exhibiting fairer attitudes in academic processes can contribute to positive academician perceptions in students. Future studies should examine negative perceptions' causes and solutions in depth. Additionally, studies examining how academician perception changes in different student groups can help make the academic environment more inclusive.

Declarations

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Ethical Approval: This research was conducted with the permission obtained from Munzur University Non-Interventional Research Ethics Committee with the decision number 1, session number 2025/03, dated 27.03.2025.

Informed Consent: Electronic informed consent was obtained from all participants before they began the questionnaire; participation was voluntary, and anonymity and confidentiality were ensured.

Data Availability: Due to privacy and confidentiality considerations, raw survey data are not publicly available. De-identified datasets and analysis materials (e.g., codebooks and regression outputs) are available from the corresponding author upon reasonable request.

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RESEARCH ARTICLE

Assessing Barriers to Hospital Resilience in War and Conflict Settings: A Fuzzy AHP Approach

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Abstract

This study aimed to identify the primary barriers that undermine the resilience of hospitals operating in war and conflict environments and to prioritize these barriers according to their importance. Hospital resilience has become an important research area in recent years due to the increasing attacks and system vulnerabilities in terms of ensuring the continuity of healthcare services under crisis conditions. In the study, the Fuzzy Analytical Hierarchy Process (AHP) method, which is a multi-criteria decision-making method that can provide reliable prioritization under uncertainty conditions, was used to address the limited number of research gaps in the literature on the subject. The data obtained from eight experts selected through purposive sampling method were analyzed by following the Fuzzy AHP steps. The findings reveal nine key barriers. The highest priority barrier was identified as "Interruptions in the supply of medicines, medical supplies and oxygen" (0.2300), followed by "Healthcare worker loss and retention" (0.1348) and "Weak governance/coordination and financing fragility" (0.1287). The conclusions show that for the sustainability of health services in war and conflict environments, the supply chain must be secured, health workers must be protected and retained, and governance and financial sustainability must be strengthened. The study contributes to the literature by providing an evidence-based prioritization framework for policy makers and managers to increase hospital resilience under crisis conditions.

Keywords: Hospital resilience, War and conflict environments, Supply chain disruption, Healthcare workers, Fuzzy AHP

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Öz

Bu çalışma savaş ve çatışma ortamlarında faaliyet gösteren hastanelerin dayanıklılığını zayıflatan temel engelleri belirlemek ve bu engelleri önem derecelerine göre önceliklendirmek amacıyla gerçekleştirilmiştir. Hastane dayanıklılığı, kriz koşullarında sağlık hizmetlerinin sürekliliğini sağlaması bakımından son yıllarda artan saldırılar ve sistem kırılganlıkları nedeniyle önemli bir araştırma alanı haline gelmiştir. Çalışmada, konuya ilişkin literatürde bulunan sınırlı sayıdaki çalışma boşluğunu gidermek üzere, belirsizlik koşullarında güvenilir önceliklendirme yapabilen çok kriterli karar verme yöntemlerinden Bulanık Analitik Hiyerarşi Prosesi (AHP) yöntemi kullanılmıştır. Amaçlı örnekleme yöntemiyle seçilen sekiz uzmandan elde edilen veriler Bulanık AHP adımları izlenerek analiz edilmiştir. Bulgular dokuz temel engeli ortaya koymaktadır. En yüksek önceliğe sahip engel "İlaç, tıbbi sarf ve oksijen tedarikinde kesintiler" (0,2300) olarak belirlenmiş, bunu "Sağlık çalışanı kaybı ve elde tutamama" (0,1348) ve "Yönetişim/koordinasyon zayıflığı ve finansman kırılganlığı" (0,1287) izlemiştir. Sonuçlar, savaş ve çatışma ortamlarında sağlık hizmetlerinin sürdürülebilirliği için öncelikle tedarik zincirinin güvence altına alınması, sağlık çalışanlarının korunması ve elde tutulması ile yönetim ve finansal sürdürülebilirliğin güçlendirilmesi gerektiğini göstermektedir. Çalışma, kriz koşullarında hastane dayanıklılığını artırmaya yönelik politika yapıcılar ve yöneticiler için kanıta dayalı bir önceliklendirme çerçevesi sunarak literatüre katkı sağlamaktadır.

Anahtar Kelimeler: Hastane dayanıklılığı, Savaş ve çatışma ortamları, Tedarik zinciri kesintisi, Sağlık çalışanları, Bulanık AHP

Introduction

The multilayered impacts of crises necessitate rethinking the resilience of health systems and positioning them at the center of societal existence. War and conflict profoundly impact the functioning of health systems, threatening the continuity, accessibility, and security of healthcare services. In recent years, war and conflict worldwide have led to a significant increase in attacks on healthcare facilities and healthcare workers. These attacks not only damage physical infrastructure but also directly disrupt healthcare delivery (WHO, 2024).

In 2024, the number of reported incidents of violence against or obstruction of healthcare services during war and conflict reached an all-time high. In 2024, 3,623 incidents targeting healthcare services were identified, representing a 15% increase compared to 2023 and a 62% increase compared to 2022 (SHCC, 2025). These incidents result in the deaths of hundreds of healthcare workers and the interruption of treatment for thousands of patients. Conflicts in the Middle East and Africa, in particular, have caused significant losses (WHO, 2024). Intense and persistent violence against healthcare services in Lebanon, Myanmar, Palestine, Sudan, and Ukraine not only increases the demand on healthcare systems in these regions but also negatively impacts healthcare facilities. This not only leads to physical destruction but also negatively impacts patient safety, staff morale and continuity of care (SHCC, 2025). Accordingly, the resilience of hospitals, which constitute the largest and most important share among healthcare facilities, in crisis situations, or in other words, their capacity to survive, emerges as a crucial issue.

Hospital resilience is defined as the capacity of hospitals to continue providing services under extraordinary circumstances such as crises, disasters, wars, or conflicts (Khalil et al., 2022). In other words, it is the ability of hospitals to emerge stronger from challenging circumstances by maintaining the positive nature of their operations (Wulff et al., 2015). It refers to the ability to anticipate potential threats, overcome undesirable events, and facilitate organizational change to maintain healthcare services (Luke et al., 2023). Resilience does not only mean the preservation of

physical infrastructure; it also encompasses human resources, managerial skills, supply chain management, and the continuity of social trust (Aburn et al., 2016). Barasa et al. (2018) consider the resilience of health systems through three capacities: absorption (tolerating current shocks), adaptation (adjusting to changing conditions) and transformation (structural and administrative renewal). Transformational capacity, in particular, is considered a critical dimension for sustainable healthcare services in crisis situations such as wars and conflicts (Mohtady Ali et al., 2023; Khalili et al., 2023).

Studies on this topic reveal various obstacles affecting hospital resilience. Khalil et al. (2022) emphasize that there is no standard approach to conceptualizing and measuring hospital resilience, and therefore, different obstacles may emerge in different contexts. Jolgehnejad et al. (2021) state that the main factors affecting hospital resilience are governance weaknesses, resource inadequacies, and workforce loss. Similarly, Loosemore & Chand (2016) emphasize that the most significant obstacles limiting the resilience of Australian hospitals to extreme weather events are infrastructure deficiencies, financial vulnerabilities, and strategic planning inadequacies. Experiences during the COVID-19 pandemic reveal that the fundamental problem of hospital management is a "lack of resilience," stemming particularly from supply chain disruptions and leadership weaknesses (Ghahramani et al., 2025). Jafari et al. (2023) state that high workloads, inadequate support mechanisms, and security concerns are factors that weaken the resilience of healthcare personnel during the pandemic. The fragility of physical infrastructure and administrative inadequacies are obstacles hospitals face in the context of the climate crisis (Pascale & Jones, 2025).

Research lists the most common obstacles encountered in conflict environments as loss of human resources, logistics and medicine shortages, infrastructure damage and financial constraints (Alameddine et al., 2019; Loosemore & Chand, 2016; Ghahramani et al., 2025; Jafari et al., 2023; Blanchet et al. 2022). In this context, resilience is understood to be not only a technical capacity but also a social and managerial process. Husted &

Dalton (2025) state that the most significant factors weakening the “resilience” of healthcare personnel in high-risk environments are psychosocial pressures and security concerns. In particular, the migration of healthcare workers and their abandonment of their duties due to security concerns directly limits service delivery capacity (Devkota et al., 2023). This situation increases the vulnerability of both the healthcare system and society to crises. These obstacles are of critical importance not only in times of peace but also in war and conflict environments and need to be addressed holistically.

The literature on measuring the resilience of hospital and healthcare systems employs different methodological approaches. Khalil et al. (2022) reveal that the indicators used to measure resilience are heterogeneous and lack standardization in this area. A bibliometric analysis by Cavalieri et al. (2025) indicates that research focuses on four main knowledge clusters: disaster response, information management systems applications, institutional capacity development and evaluation methods. Similarly, Ignatowicz et al. (2023) emphasize that frameworks used to measure resilience are often developed context-independently, thus highlighting the need for scales specific to war and conflict conditions.

In recent years, studies using multi-criteria decision-making techniques to prioritize factors that strengthen or hinder hospital resilience have become increasingly common (Haghighat & Mousavi, 2024; Fallah-Aliabadi, 2022). Ortiz-Barrios et al. (2023) developed a hybrid model combining IF-AHP, IF-DEMATEL, and VIKOR methods to assess hospital disaster preparedness, demonstrating the relationships and importance levels among criteria in a holistic manner. Similarly, Singh & Prasher (2019) emphasize that prioritizing barriers in healthcare systems using Fuzzy Analytic Hierarchy Process (Fuzzy AHP) provides more applicable results for policymakers. The Fuzzy AHP, stands out for its ability to more reliably model decision-makers' judgments in an environment of uncertainty (Gedikli, 2025). This approach allows for the systematic prioritization of barriers that limit hospital resilience by determining the relative importance of different criteria (Liu et al., 2020; Singh & Prasher, 2019).

While the literature on hospital resilience is rapidly expanding, most studies appear to focus on conceptual frameworks or general disaster preparedness. A significant gap remains in measuring resilience and prioritizing debilitating barriers in war and conflict settings. In this regard, the aim of this study is to identify the primary barriers that undermine the resilience of hospitals operating in war and conflict environments and to prioritize these barriers according to their importance. This study systematically addresses this gap using the Fuzzy AHP method and ranks the obstacles that weaken hospital resilience according to their importance. Unlike previous descriptive research, the study offers an evidence-based prioritization framework that integrates operational and managerial dimensions. In this respect, the study provides decision-making support for policymakers and practitioners on strengthening hospital resilience in war and conflict environments.

Method

This study employed a quantitative research design to identify, based on a literature review, the barriers that undermine the resilience of hospitals operating in war and conflict environments and to prioritize them according to their importance. Fuzzy AHP, a multi-criteria decision-making method, was used in the study. This method allows for more reliable results by expressing uncertainty and subjective expert judgments using triangular fuzzy numbers (Saaty, 2008; Chang, 1996; Liu et al., 2020).

The primary research question of the study is: “What are the most critical barriers that undermine hospital resilience in war and conflict environments, and what is their priority under conditions of uncertainty?”

Determination of Criteria

Based on the conceptual framework and literature presented above, the criteria used in this study (barriers affecting hospital resilience) were systematically derived from existing empirical and conceptual research.

The literature reveals that barriers affecting hospital resilience arise at both physical and administrative levels. Frequently cited barriers include governance weaknesses, resource inadequacies, healthcare worker losses, and lack of coordination.

Research Population and Sample

The research population consists of academics and professional hospital administrators specializing in healthcare delivery in war and conflict environments.

Table 1. Obstacles identified for Fuzzy AHP and their explanations

Obstacle Code	Obstacles	Explanation	Resource
AOH	Attacks and obstructions against healthcare facilities/personnel	Armed attacks, bombings, looting, and threats against healthcare workers directly disrupt the continuity of service delivery.	Abbara et al., 2023; SHCC, 2025; WHO, 2024; WHO 2025a; WHO, 2025b; OCHA, 2025
PFS	Power outages and fuel shortages	Interruptions in energy infrastructure and fuel shortages lead to the shutdown of critical services such as intensive care, operating rooms and the pharmaceutical cold chain.	Mahdi et al., 2025; WHO, 2025a; OCHA, 2025
MSO	Interruptions in the supply of medicines, medical supplies, and oxygen	Disruptions in the flow of medications, supplies, and oxygen cause vital treatments to be delayed or not performed in patient care.	Shore et al., 2022; WHO, 2025b; OCHA, 2025; Ali, 2020; SHCC, 2025; WHO 2025a; WHO, 2024
HRL	Healthcare worker loss and retention	Migration, loss of healthcare personnel due to security concerns and burnout, leads to a shortage of expertise and a serious decrease in service capacity.	Onvlee et al., 2023; Witter et al., 2017; Jafari et al., 2023; Sberro-Cohen et al., 2023; Shmul et al., 2024
WSD	Inadequate water, sanitation, hygiene (WASH) and medical waste management	Deficiencies in access to clean water, hygiene conditions and waste management increase the risk of in-hospital infection and public health threats.	Gnanasekaran et al., 2024; Gebreyessus et al., 2023; Leal Filho et al., 2023; Lowe et al., 2021
GFF	Weak governance/coordination and financing fragility	Lack of leadership in crisis management, inadequate inter-institutional coordination, and irregular financing limit the sustainability of health services.	Alameddine et al., 2019; Ghahramani et al., 2025; Qaddur et al., 2025; Blanchet et al., 2020; Khalil et al., 2022
OLW	Organizational culture and leadership/management capacity weaknesses	Rigid and traditional organizational structures, inadequate leadership skills and resistance to change hinder rapid and effective responses to crises.	Haghighat & Mousavi, 2024; Mohdady et al., 2023; Husted & Dalton, 2021; Aburn et al., 2016; Wulff et al., 2015
MDS	Mass displacement and sudden surge in demand	Increasing population density due to war and migration waves creates sudden demand pressure that exceeds the capacity of hospitals, reducing the quality of service.	Alameddine et al., 2019; Truppa et al., 2024; Haverkort et al., 2017; Sherwani et al., 2025; Orcutt et al., 2018
LSM	Lack of measurement standards	The lack of standardization in resilience indicators makes accurate prioritization of vulnerabilities and comparison across contexts difficult.	Cavalieri et al., 2025; Ignatowicz et al., 2023; Fallah-Aliabadi et al., 2022; Luke et al., 2022

Furthermore, studies on the COVID-19 pandemic and armed conflicts indicate that supply chain disruptions are a vital factor threatening service continuity. Recent studies on the subject highlight the lack of standardized assessment frameworks for measuring hospital resilience. The nine criteria identified for this purpose are described in Table 1.

The existing literature is quite limited in its systematic prioritization of these barriers under conditions of uncertainty. This study addresses this gap using the Fuzzy AHP method to prioritize barriers that impact hospital resilience in war and conflict environments. This study will make both a methodological and practical contribution, providing scientific evidence to strengthen decision-making processes under crisis conditions.

The sample consisted of a total of eight experts: six academics and two professional hospital administrators, using a purposive sampling method.

This sample size corresponds to the ideal number of experts recommended in the literature for AHP applications on specific topics: 5-10 (Campbell et al., 2020; Saaty, 2004; Özdağoğlu & Özdağoğlu, 2007).

Table 2 provides detailed information about the decision-makers.

Fuzzy AHP

The classical AHP method, developed by Saaty (1996), is one of the most widely used multi-criteria decision-making methods. This method allows decision makers to express their priorities among multiple factors through pairwise comparisons

(Meade and Sarkis, 1999; Haliloğlu & Odabaş, 2018; Acer & İnci, 2020). These comparisons utilize the relative importance scale of 1-9, as proposed by Saaty (2008). The relative importance of the criteria is obtained from the eigenvectors of the pairwise comparison matrix.

Table 2. Characteristics of Decision Makers

Decision maker	Profession	Area of Expertise	Professional Experience/Year
Decision maker 1	Academician	Emergency Aid and Disaster Management	11
Decision maker 2		Emergency Aid and Disaster Management	15
Decision maker 3		Health Management	16
Decision maker 4		Health Management	22
Decision maker 5		Health Management	9
Decision maker 6		Health Management	10
Decision maker 7	Hospital Administrator	Deputy Chief Physician *	18
Decision maker 8		Hospital Manager **	15

*Has served as a physician and administrator in war and conflict zones.

**He/she is the Hospital Emergency and Disaster Plan Manager.

Because the classical AHP method cannot fully reflect uncertain and subjective expert judgments, it was extended with fuzzy set theory. This gave rise to the Fuzzy AHP (Buckley, 1985; Kumar & Kumar, 2008). In this study, the Fuzzy AHP method was applied to prioritize obstacles to hospital resilience in war and conflict environments. The Fuzzy AHP application was carried out in accordance with the process shown in Figure 1.

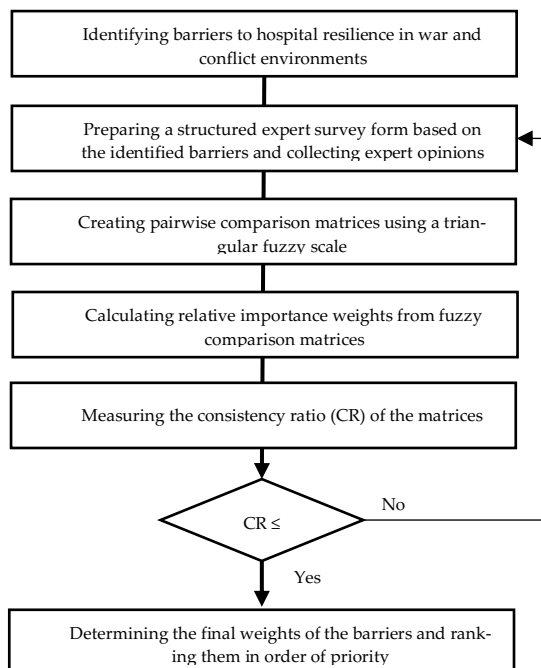


Figure 1. Fuzzy AHP Application

In the first phase, the main barriers to hospital resilience were identified based on the literature review and conceptual framework. Information about the identified barriers is provided in Table 1. These barriers constituted the criteria set defined in the form $C = \{C_1, C_2, \dots, C_n\}$.

An expert questionnaire form, including pairwise comparisons, was developed based on established criteria, and data was collected from eight experts. Data collection took place between August and September 2025. Eight experts, who were informed in advance and volunteered to participate, participated in the study face-to-face. Participant selection criteria included being an academic with expertise in healthcare delivery in war and conflict environments or a professional hospital administrator with experience in war and work environments. Data were collected from experts using a structured Fuzzy AHP comparison form. The relative importance scale proposed by Saaty (2008) was used in data collection. Fuzzy AHP questionnaire scores range from 1 to 9, with 9 representing Extremely Strong, 7 Very Strong, 5 Strong, 3 Medium Strong, and 1 representing Equal. The Fuzzy AHP questionnaire was administered to participants face-to-face, prompting pairwise comparisons. Participants completed the forms in an average of 20-25 minutes, and the data were compiled by the researcher for Microsoft Excel-based analysis.

Experts are structured to evaluate all criteria and attributes in the form of linguistic variables (Xiaoqiong et al., 2004). Verbal expressions are transformed into triangular fuzzy numbers through fuzzy sets, as shown in Table 3.

Table 3. Triangular fuzzy scales

Linguistic Term	Abbreviation	Relative Importance	Fuzzy Scales	Inverse Fuzzy Scales
Equal	E	1	1,1,1	1/1, 1/1, 1/1
Medium Strong	MS	3	2,3,4	1/4, 1/3, 1/2
Strong	S	5	4,5,6	1/6, 1/5, 1/4
Very Strong	VS	7	6,7,8	1/8, 1/7, 1/6
Extremely Strong	ES	9	9,9,9	1/9, 1/9, 1/9
Intermediate Values	IV	2;4;6,8	1,2,3;3,4,5;5,6,7;7,8,9	1/3, 1/2, 1/1; 1/5, 1/4, 1/3; 1/7, 1/6, 1/5; 1/9, 1/8, 1/7

Then, a fuzzy comparison matrix of size $n \times n$ was created for each expert (Chang et al., 2004).

The fuzzy comparison matrix is given as shown in Equation (1).

$$\tilde{A} = \begin{pmatrix} c_{11}^l, c_{11}^m, c_{11}^u & \cdots & c_{1n}^l, c_{1n}^m, c_{1n}^u \\ \vdots & \ddots & \vdots \\ c_{m1}^l, c_{m1}^m, c_{m1}^u & \cdots & c_{mn}^l, c_{mn}^m, c_{mn}^u \end{pmatrix} \quad (1)$$

The element c_{mn} , which is given $c_{ij}^l, c_{ij}^m, c_{ij}^u$, represents the comparison of the criteria m with criteria n ($i=j=1, 2, 3, \dots, n$). Owing to the operational laws of fuzzy, the matrix \tilde{A} can be denoted as Equation (2) by c_{mn} with the corresponding reciprocal values (Sevklı et al., 2012; Tuzkaya & Önüt, 2008).

$$\tilde{A} = \begin{pmatrix} 1, 1, 1 & \cdots & c_{1n}^l, c_{1n}^m, c_{1n}^u \\ \vdots & \ddots & \vdots \\ \frac{1}{c_{m1}^l}, \frac{1}{c_{m1}^m}, \frac{1}{c_{m1}^u} & \cdots & 1, 1, 1 \end{pmatrix} \quad (2)$$

One way to estimate fuzzy priorities is to use the logarithmic least squares method. This is the most effective and efficient method, as calculated in Equation (3) and Equation (4). This makes it possible to calculate the triangular fuzzy weights for the variables' relative importance, their feedback, and possible alternatives based on the factors separately (Ramik & Korviny, 2010).

$$w_k^s = \frac{(\prod_{j=1}^n c_{kj}^s)^{1/n}}{\sum_{i=1}^n (\prod_{j=1}^n c_{ij}^m)^{1/n}}, s \in \{l, m, u\} \quad (3)$$

$$\tilde{w}_k = w_k^l, w_k^m, w_k^u \quad k: 1, 2, 3, \dots, n \quad (4)$$

In the defuzzification phase, the fuzzy weights were converted to a single crisp value using the weighted centroid method as shown in Equation (5) (Büyüközkan & Çifçi, 2012; Opricovic & Tzeng, 2003).

$$C_i = \frac{l_i + m_i + u_i}{3} \quad (5)$$

The final importance levels were determined by normalizing the obtained absolute weights as shown in Equation (6) (Opricovic & Tzeng, 2003).

$$w_i = \frac{C_i}{\sum_{r=1}^n C_r} \quad (6)$$

Then, the consistency of expert judgments was measured on the crisp matrices obtained after defuzzification in accordance with the classical AHP method (Equation 7).

$$CI = \frac{\lambda_{\max} - n}{n-1}, CR = \frac{CI}{RI} \quad (7)$$

Here, RI is the random consistency index. When $CR \leq 0.10$ is met, the matrix is considered consistent; when $CR > 0.10$, expert evaluations are reconsidered (Saaty, 2013).

The final weights (w_i) obtained in the final stage were ranked from largest to smallest to determine the relative priority of the obstacles. The criterion with the highest weight was considered the primary obstacle that most weakens hospital resilience in war and conflict environments.

Research Limitations

This study has some limitations. The study was limited to a sample size of eight decision-makers. The findings cannot be generalized to a larger group of experts. The study was conducted on nine obstacles, excluding other potential obstacles. Because the study is based on expert judgment, the impact of subjective assessments should not be ignored.

Ethical Aspects of the Research

The study was conducted in accordance with scientific ethical principles and rules. Ethical approval was received for the study from the XXX University Non-Interventional Research Ethics Committee with decision number 1019 dated 14.08.2025.

Findings

This section of the study presents the findings obtained from the Fuzzy AHP analysis for prioritizing obstacles that undermine hospital resilience in war and conflict environments. The study was carried out in accordance with Figure 1, with the process of fuzzification, synthesis and defuzzification of the data obtained from the opinions of decision

makers and the calculation of the final criteria weights.

The identified criteria were evaluated by the decision makers, and comparison matrices were obtained containing their opinions. For example, the decision matrix showing the perception of decision maker 1 is shown in Table 4.

Table 4. Pairwise comparison matrix of criteria (Decision maker 1)

	AOH	PFS	MSO	HRL	WSD	GFF	OLW	MDS	LSM
AOH	E	VS	VS	MS	VS	E	MS	VS	ES
PFS		E	S	VS	E	S	VS	VS	VS
MSO			E	E	MS	VS	VS	MS	ES
HRL				E	MS	S	MS	ES	ES
WSD					E	MS	VS	S	VS
GFF						E	S	MS	MS
OLW							E	ES	S
MDS								E	MS
LSM									E

The importance levels of each criterion comparison in the decision matrices were combined with the opinions of the other seven decision makers and expressed as fuzzy numbers in Table 3. Accordingly, an integrated fuzzy decision matrix was created, containing the consensus opinions of eight decision makers. Triangular fuzzy numbers were calculated for each criterion comparison in the integrated fuzzy decision matrix.

Finally, the fuzzy weights, means, and normalized relative weights of the criteria were calculated. Table 5 presents the final importance weights.

According to the table, the highest priority criterion among the barriers that weaken hospital resilience in war and conflict environments is “Medicine, medical supplies, and oxygen supply interruptions (MSO)”. This criterion has a normalized weight of 0.2300, significantly higher than all other criteria. “Healthcare worker loss and retention (HRL)” comes second, with a normalized weight of 0.1348. “Governance/coordination weakness and financing fragility (GFF)” comes third (0.1287). “Power outages and fuel shortages (PFS)” and “Attacks and obstructions against health facilities/personnel (AOH)” were identified as the fourth (0.1257) and fifth (0.1169) priority barriers, respectively. Organizational and environmental factors were rated at a relatively lower priority level. “Organizational culture and leadership/management capacity weaknesses (OLW)” ranked sixth (0.1011), and “Inadequate water, sanitation, hygiene, and medical waste management (WSD)” ranked seventh (0.0970). The final two factors were “Mass displacement and sudden demand surge (MDS)” (0.0658) and “Lack of measurement standards (LSM)” (0.0234).

Table 5. Fuzzy AHP Average and Normalization Weights and Importance Ranking

Obstacle Code	Obstacles	Weight (Average)	Weight (Normalization)	Order of Importance
MSO	Interruptions in the supply of medicines, medical supplies, and oxygen	23,8327	0,2300	1
HRL	Healthcare worker loss and retention	13,9726	0,1348	2
GFF	Weak governance/coordination and financing fragility	13,3327	0,1287	3
PFS	Power outages and fuel shortages	13,0292	0,1257	4
AOH	Attacks and obstructions against healthcare facilities/personnel	12,1154	0,1169	5
OLW	Organizational culture and leadership/management capacity weaknesses	10,4753	0,1011	6
WSD	Inadequate water, sanitation, hygiene (WASH) and medical waste management	10,0544	0,0970	7
MDS	Mass displacement and sudden surge in demand	6,8164	0,0658	8
LSM	Lack of measurement standards	2,4300	0,0234	9

The largest eigenvalue (λ_{\max}) was found to be 9.454 in the calculations. The consistency index (CI) calculated using this value was 0.0568. For $n = 9$, the random consistency index (RI) was taken as 1.45, and accordingly, the consistency ratio (CR) was calculated as 0.0392. Since $CR < 0.10$, the pairwise comparison matrix was considered consistent.

The normalized weights obtained using the Fuzzy AHP method are presented in Figure 2 using a Pareto chart. The horizontal bars in the chart represent the normalized weights of each barrier, and the red line represents the cumulative percentage of these weights.



Figure 2. Pareto Chart of Obstacles Undermining Hospital Resilience

An examination of the graph reveals that the criteria “Medicine, medical supplies, and oxygen supply interruptions (MSO),” “Healthcare worker attrition and retention (HRL),” “Governance/coordination weakness and financing fragility (GFF),” and “Power outages and fuel shortages (PFS)” account for approximately 60% of the total importance. “Attacks and obstructions against health facilities/personnel (AOH)” and “Organizational culture and leadership/management capacity weaknesses (OLW)” rank fifth and sixth, bringing the cumulative importance to 82%. The less important criteria “Water, sanitation, hygiene and medical waste management (WSD),” “Mass displacement and sudden surge in demand (MDS),” and “Lack of measurement standards (LSM)” account for the remaining 18% of the total.

Discussion

In this study, the key resilience barriers faced by hospitals operating in war and conflict environments were prioritized using the Fuzzy AHP method. The analysis determined that the most important criterion was “Medicine, medical supplies, and oxygen supply interruptions (MSO),” followed by “Healthcare worker loss and retention (HRL)” and “Governance/coordination weakness and financing fragility (GFF)”. The least important criterion was “Lack of measurement standards (LSM)”.

The findings reveal that supply chain disruptions, specifically interruptions in logistics flows, are the most significant factor threatening the resilience of hospitals in war and conflict conditions.

This finding is consistent with the literature and reports from international organizations. It is emphasized that supply chain disruptions are the most significant factors that weaken healthcare services, especially in conflict zones such as Syria, Yemen, and Palestine (Ali, 2020; SHCC, 2025). WHO (2024) emphasizes that shortages of medicine and medical equipment in conflict zones directly impede access to essential healthcare services. Shore et al. (2022) state that disruptions in the supply chain of medicines and supplies under wartime conditions are one of the most critical obstacles that increase mortality and morbidity rates, demonstrating that disruptions to oxygen and essential medications, in particular, have fatal consequences in emergency and intensive care settings. For example, in the Gaza context, OCHA (2025) and WHO (2025a) report that critical shortages of oxygen and fuel in hospitals have brought services to a standstill, forcing hospitals to share supplies among themselves, and prompting WHO to conduct high-risk missions to procure medicines and medical supplies. Similarly, in Ukraine, ensuring continued access to life-saving medical supplies, especially oxygen, is identified as a top priority. Meanwhile, a record increase in attacks on healthcare services further disrupts supply/logistics flows, impacting access to medicines and medical supplies (WHO, 2025b). This situation demonstrates that in war and conflict zones, shortages of medicine and equipment directly disrupt both emergency and routine healthcare services.

Healthcare worker attrition (HRL) poses a critical risk due to the migration or inability of specialist physicians and healthcare professionals to perform their duties due to security concerns. War and conflict environments contribute to the loss of healthcare workers through attacks on healthcare facilities, increased workload, stress, and decreased motivation (Onvlee et al., 2023). Witter et al. (2017) similarly demonstrate that push factors such as employment conditions, security threats, and challenging work environments for healthcare workers trigger migration and departure from the profession. Abbara et al. (2023) report that healthcare workers in Syria are being forced off-site due to flight, displacement, and migration, directly impacting access to and quality of healthcare

services. WHO (2025a), states that many healthcare workers in Gaza have been killed, injured, or forced to flee due to the conflict, emphasizing that remaining healthcare personnel are struggling to cope with the increasing patient load. Sberro-Cohen et al. (2023) report that only 77.4% of hospital staff attended work during the Gaza conflict; they reveal that the reasons for absenteeism were related to the perception that the workplace was more dangerous and to childcare responsibilities. Shmul et al. (2024) emphasize that perceptions of threat negatively impacted the well-being and workplace resilience of healthcare workers during the Hamas attack on Israel in 2023, and that this impacted emergency room staff in particular. These findings clearly demonstrate that human resources are one of the most important resilience factors in crisis situations.

Governance/coordination weakness and financing fragility (GFF) are particularly associated with the equitable distribution of resources, the continuity of health policies, and the failure to ensure inter-institutional coordination. This weakness hinders the effective use of existing resources and amplifies the impact of all other obstacles. In South Sudan, where conflict is intense, the government's limited investment in health leads to continued dependence on international assistance; these obstacles limit coordination and create fragmented service delivery (Qaddour et al., 2024). Similarly, when humanitarian hospital programs in conflict settings are evaluated, it is seen that when local authorities fail to address chronic vulnerabilities, the sustainability of health services is threatened (Tjoflåt & Hansen, 2018). The public healthcare sector was caught more unprepared and strained than the private healthcare sector in the attacks carried out by ISIS in Iraq. This situation demonstrated the limited preparedness and resilience of Iraq's national and local governments (Ibrahim et al., 2021). Truppa et al. (2024) state that studies analyzing healthcare services in war and conflict environments most frequently address governance-focused issues. This highlights the critical role of governance structures in determining resilience outcomes.

According to their findings, power outages, fuel shortages (PFS), and attacks on healthcare facilities

and personnel (AOH) stand out as factors that directly disrupt service continuity and hinder vital interventions. Disruptions in the supply chains of conflict-affected hospitals exacerbate existing challenges and place additional burdens on healthcare systems (Lowe et al., 2021). Mahdi et al. (2025) emphasize that only 12 out of 36 hospitals in Gaza are partially operational due to fuel shortages for generators, electricity shortages, or attacks. Fuel shortages, in particular, cause outages in critical hospital units such as operating rooms and intensive care units. WHO (2025a) states that a significant portion of health facilities in Gaza were damaged by attacks and rendered inoperable due to fuel and electricity shortages. This demonstrates that infrastructure and energy security are among the priorities for resilience. The number of attacks on health infrastructure worldwide increased significantly in 2024. These attacks disrupt not only physical infrastructure but also hospital energy systems and the functioning of medical devices (SHCC, 2025). Attacks on health facilities negatively impact hospital resilience by directly harming service capacity, security, and patient safety.

The lower-ranked criteria, namely water, sanitation, hygiene, and medical waste management (WSD), organizational culture and leadership weaknesses (OLW), mass displacement and sudden demand surges (MDS), and lack of measurement standards (OSE), have relatively lower weights. Problems with WASH infrastructure and inadequacies in waste management facilitate the spread of epidemics and create long-term risks. Global studies reveal that one-quarter of healthcare facilities lack basic water services, affecting 1.8 billion people, and 21% of healthcare facilities lack sanitation, particularly in low- and middle-income countries (Gnanasekaran et al., 2024). Gebreeyessus et al. (2022) highlight serious deficiencies in medical waste management in Ethiopia, including inadequate training for waste handlers and a lack of medical waste protocols. Ukraine is a prime example of how war and conflict disrupt medical waste management, negatively impacting the United Nations Sustainable Development Goals and requiring international partnerships for post-war recovery (Leal Filho et al., 2023).

In war and conflict environments, mass displacement and sudden increases in demand severely strain hospital systems and create critical gaps in healthcare delivery. War and conflict lead to mass population displacement and the collapse of healthcare infrastructure (Orcutt et al., 2018). For example, the mass migration caused by the Syrian civil war has caused a sudden and intense increase in demand for healthcare services in hospitals in Turkey. Approximately 50% of hospitals in war and conflict zones are rendered inoperable, creating a destructive cycle where increased demand for surgical care is compounded by reduced healthcare system capacity (Sherwani et al., 2025). Hospitals face significant challenges in managing sudden patient surges during mass events, requiring specialized capacity expansion strategies and demand management approaches (Tariverdi et al., 2018). Some countries have established specialized hospitals to meet their sudden capacity needs. The diversity of these hospitals varies depending on local threat levels, from temporary buffer zones in Europe to fortified structures in conflict-prone areas like Israel (Haverkort et al., 2017).

Research on healthcare delivery in war and conflict zones reveals significant challenges related to inadequate standards and planning. These challenges are particularly compounded when considering detention centers and prisons, where mass casualties and epidemics are often neglected (Echeverri et al., 2025). The lack of standardized competency frameworks leads to under-fulfillment of training requirements and the failure to improve service delivery standards. This leaves healthcare providers facing unpredictable workloads and workplace accidents (Mani et al., 2020). While some hospitals implement important practices in infection prevention, training guidelines, employee motivation, and occupational health and safety in everyday life, comprehensive, evidence-based standards adapted to war and conflict environments are needed (Lowe et al., 2021; Echeverri et al., 2025). The lack of measurement and monitoring mechanisms makes it difficult to evaluate the effectiveness of resilience strategies and creates an information gap in policy development.

This study systematically prioritized the obstacles that weaken the resilience of hospitals in war

and conflict environments using the Fuzzy AHP method. The fact that the study findings are based solely on expert opinions creates limitations in terms of validity and generalizability of the results. In particular, the lack of empirical data encompassing experts' experiences across different professional groups, job descriptions, and institution types in war and conflict environments necessitates validation of the obtained prioritization results in a broader context. As emphasized in the literature, while multi-criteria decision-making methods such as AHP can be applied to limited and homogeneous expert groups (Tsyganok et al., 2012), collecting data from a broader and more diversified group of participants is crucial for generalizability of the findings (von Solms, 2011). This makes it valuable that policy and management recommendations are derived from an expert-based model, but also highlights the need to support these recommendations with field experience.

Conclusion

This study was conducted using the Fuzzy AHP method to identify the obstacles that weaken the resilience of hospitals operating in war and conflict environments and to prioritize them according to their importance. The factor that most threatens hospital resilience is "Medicine, medical supplies, and oxygen supply interruptions (MSO)." This is followed by "Healthcare worker attrition and retention (HRL)" and "Weak governance/coordination and financing fragility (GFF)." "Power outages and fuel shortages (PFS)" and "Attacks on healthcare facilities/personnel (AOH)" are critical and follow the first three criteria. The criterion with the least weight is "Lack of measurement standards (LSM)."

In war and conflict environments, the sustainability of healthcare services requires securing the supply chain, protecting and retaining healthcare workers, and strengthening governance and financial sustainability. Furthermore, protecting energy infrastructure, ensuring the security of healthcare facilities, and improving water, sanitation, and hygiene (WASH) services are among the strategies that will contribute to increasing resilience.

To strengthen hospital resilience, limited resources should be prioritized toward drug and supply procurement, human resource continuity, and governance/financial stability. Focusing on critical barriers will have the greatest impact on improving hospital resilience and provide a strategic roadmap for policymakers.

This study makes a unique contribution as one of the few studies to systematically prioritize the obstacles that undermine hospital resilience in war and conflict environments under conditions of uncertainty using Fuzzy AHP. This approach, which integrates operational and managerial dimensions within a single analytical framework, fails to reliably incorporate decision-makers' subjective assessments into the model, enabling clear identification of the critical factors that most significantly undermine resilience. The resulting prioritization provides a scientific basis for policymakers and hospital administrators to direct limited resources to the most effective areas and develop targeted strategies under war and conflict conditions.

Recommendations that strengthen hospital resilience, addressing policy and management priorities simultaneously at the operational and administrative levels, are as follows:

- Emergency stock management systems should be established in war and conflict zones to reduce disruptions in the supply of medicines, medical supplies, and oxygen.
- Local production capacity for critical products should be increased and external dependency should be reduced.
- Regional sharing mechanisms for oxygen and critical supplies should be developed.
- Alternative logistics channels and secure distribution networks should be established.
- Security protocols and physical protection measures should be strengthened to increase employee safety in hospitals.
- Psychosocial support programs should be implemented to reduce trauma, stress, and burnout.
- Incentive models (additional pay, accommodation, security support) should be developed for critical positions.
- Safe transportation and emergency shelter support should be provided to prevent migration and forced departures.
- Inter-institutional crisis coordination mechanisms should be strengthened to ensure the uninterrupted operation of healthcare services.
- Resource allocation should be managed through transparent, traceable, and accountable processes.
- Emergency funding pools specific to war and conflict zones should be established. Joint planning structures should be established between local governments, ministries, and civil society organizations.
- Uninterruptible power supply (UPS) and backup generator capacity should be increased in hospitals to prevent power outages.
- Safe and continuous access plans for fuel supplies should be developed, and alternatives should be planned.
- Protective physical measures should be taken to address the risks of attacks on energy infrastructure.
- Mobile WASH solutions should be installed in war and conflict zones to ensure the continuity of clean water and sanitation.
- Temporary field hospitals or buffer units should be planned for use during periods of peak demand.
- Standard indicators should be developed for measuring resilience.
- Specialized artificial intelligence-supported resilience monitoring systems should be installed during war and conflict periods.
- To increase hospital resilience in war and conflict environments, artificial intelligence-based decision support, forecasting, and early warning systems should be used in all critical processes, and artificial intelligence solutions should be integrated into supply chain management, capacity planning, security monitoring, and resource optimization.

In future research, the prioritization model developed in this study could be tested across different countries and conflict contexts, validated with a larger and more diverse group of experts, used with different MCDM methods (TOPSIS, VIKOR, DEMATEL, or hybrid models), and quantitative findings could be supplemented with qualitative methods. In particular, the development of AI-based resilience measurement tools and their applicability to real-time hospital decision-making are important areas for future research.

Declarations

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Ethical Approval: This research was approved by the Non-Interventional Clinical Research Ethics Committee of Istanbul Medipol University with decision number E-10840098-202.3.02-5561 dated 22.08.2025.

Informed Consent: Electronic informed consent was obtained from all participants prior to their involvement in the study. Participation was voluntary, and the confidentiality and anonymity of the participants were guaranteed throughout the study.

Data Availability: Due to privacy and confidentiality considerations, raw survey data are not publicly available. However, de-identified datasets and analysis materials are available from the corresponding author upon reasonable request.

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RESEARCH ARTICLE

“Hear Our Voice, Screenwriter!”: Participatory Culture in the New Media Age and Active Audience of Local TV Series

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Abstract

Participatory culture has led to a higher level of industry-audience interaction in the field of television in the new media age. This research aims to examine the effects of viewer feedback on the duration of characters' existence in the series, by analyzing YouTube comments for the series *Masumlar Apartmanı*, *Kızılıcak Şerbeti* and *Bahar* with the netnography method. In all three series, there are side characters whose existence in the story was terminated in line with the audience's demand. It is understood that the reason for the negative comments in the two examples is about the function of the character in the story, while in the third example, the actor is not considered suitable for the role. Regardless of the reasons, it is seen that in all three series, the audience expresses their demands, knowing that their voices are heard, and that they say that they will stop watching the production if their opinions are not taken into consideration. It is seen that participatory culture in the new media age creates a result in favor of the audience. However, the creators' need to obtain the audience's approval at every step may turn into an element of pressure on them.

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Öz

Yeni medya çağında yaşanmakta olan başlıca kültürel dönüşümler arasında katılımcı kültür öne çıkmaktadır. Kullanıcılar sosyal medya platformları başta olmak üzere çeşitli mecralarda kendi içeriklerini yayınlatabilmekte veya mevcut içerikler hakkında görüş bildirebilmektedir. Bu durum televizyon alanında da endüstri-izleyici etkileşiminin üst seviyeye taşınmasına neden olmuştur. Söz konusu yerli diziler olduğunda hikayelerin gelişimi ve karakterlerin devamlılığının büyük ölçüde izleyici görüşleri doğrultusunda şekillendiği söylenebilir. Son yıllarda popüler dizilere sonradan dahil olan bazı yan karakterlerin izleyicilerin olumsuz geri bildirimleri gerekçesiyle hikayenin dışında bırakıldıkları görülmüştür. Bu araştırma izleyici geri bildirimlerinin karakterlerin dizilerdeki varlık sürelerine olan etkilerini incelemeyi amaçlamaktadır. Netnografi yönteminin kullanıldığı bu çalışmada *Masumlar Apartmanı*, *Kızılıcak Şerbeti* ve *Bahar* dizilerine yönelik YouTube yorumları incelenmiştir. Her üç dizide de izleyicinin talebi doğrultusunda hikayedeki varlıkları sonlandırılan yan karakterler bulunmaktadır. İzleyicinin olumsuz yorumlarının gerekçesinin iki örnekte karakterin hikayedeki işlevinin beğenilmemesi olurken üçüncü örnekte karakteri canlandıran oyuncunun role uygun görülmemesi olduğu anlaşılmaktadır. Gerekçelerinden bağımsız olarak her üç dizide izleyicilerin seslerinin duyulduğunun bilincinde olarak taleplerini dile getirdikleri, görüşleri dikkate alınmazsa yapımı izlemeyi bırakacaklarını ifade ettikleri görülmektedir. Sonuç olarak, yeni medya çağında katılımcı kültürün izleyicinin lehine bir sonuç yarattığı söylenebilir. Bununla birlikte, yaratıcıların her adımda izleyicinin onayını almayı gerekli görmelerinin üzerlerinde bir baskı unsuruna dönüşeceği yorumunu yapmak mümkündür.

Anahtar Kelimeler: Katılımcı kültür, dizi, yerli dizi, izleyici, izleyici yorumları.

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Introduction

Participatory culture was conceptualized by Henry Jenkins back in the 1990s, a period that saw the peak years of the traditional media age and before widespread internet access for individual users. Referencing the fan culture created by the film and television industries, Jenkins argued that media texts were being interpreted and transformed by fan communities into re-created outputs. He emphasized that this process weakened the media's monopoly over content. With the advent of the internet, the feature of convergence—meaning the accessibility of multiple media channels through a single device—was interpreted by Jenkins as an innovation that would create a cultural shift, suggesting that participatory culture would reach an entirely new dimension in the new media age.

In the new media age, the user, now an active participant, also transforms into an active audience when it comes to series and films. Thanks to the internet, the film and television industry is now interacting with its audience more than ever before. Through their comments and/or likes, viewers have become decision-makers whose feedback is closely monitored by television channels and production companies. In recent years, the habit of watching television series on YouTube has been steadily increasing. While watching series content on YouTube, viewers can simultaneously write comments, respond to existing comments, or react with a like or dislike. Based on all these developments, it can be argued that the audience's position as a 'decision-maker' regarding the productions created is constantly growing stronger. It is a known fact that decisions are made based on audience comments on various issues, from how the series' storyline will progress to which supporting characters should be written out of the narrative.

This research aims to examine the impact of audience feedback on the duration of characters' presence in series. Audience comments regarding the Turkish TV series *Masumlar Apartmanı* (*The Innocents*), *Kızılıçık Şerbeti* (*Cranberry Sorbet*), and *Bahar* (*Blooming Lady*) were analyzed using the netnography method. Prior to this analysis, infor-

mation on the transformation of participatory culture and its relationship with the media was provided.

Participatory Culture and Television

Participatory culture defines the practice that emerges when the viewer or user goes beyond merely consuming the content presented to them, to producing their own content, interpreting, liking, or sharing existing content. Henry Jenkins was the first to coin the term "participatory culture." In his 1992 book, *'Textual Poachers': Television Fans and Participatory Culture*, which focused on the fans created by television content and their behavior, Jenkins argues that fans re-create the works they watch or read through their own interpretations. Fans also gather under the titles of their interests, forming various communities. The shares and creations that emerge allow for the development of a culture independent of the media monopoly. Jenkins states, "It transforms the experience of media consumption into a participatory culture which produces new texts, even a new culture, and a new community" (1992, p.46), and he initially developed the concept of participatory culture through analyses of the relationship between traditional media tools and the audience. In his 2006 book, *'Convergence Culture: Where Old and New Media Collide'*, he addresses the transformation of participatory culture with new media tools. He links the transition of the viewer or user from being a mere consumer of the media text to a producer with the concept of 'convergence', which describes the system resulting from the combination of different media channels on internet-enabled devices. According to Jenkins, convergence should not be perceived merely as a technological development; it should be viewed as a more comprehensive concept that initiates the re-shaping of the relationship between the industry and users, and even creates a new culture (2008, p.15). The author also touches upon participatory culture's relationship with collective intelligence, suggesting that virtual communities increase their expertise by combining the talents of their members, thereby enabling a task that could not be achieved individually to be accomplished collectively (ibid, p.27).

The participatory culture undergoing a transformation with today's communication technologies aligns with the concept of "prosumer" put forth by Toffler. This concept, derived from the combination of the words "producer" and "consumer", signifies that individuals are simultaneously in the position of both producer and consumer. According to Toffler, who divides societies into three categories in the context of production and consumption practices, the majority in the agricultural society were consumers, whereas in the industrial society, the distinction between producer and consumer became clear. When it comes to the information society, the new concept of "prosumer" should be used to define individuals (1980, pp.283-284)."

The transformation the internet has undergone over time is what has shaped participatory culture in the digital age. The transition to the Web 2.0 era was pioneered by the transformation that social media applications created in internet communication. The cultural effects of these applications quickly began to emerge. Chief among these is the influence of participatory culture, realized through social media, on language use. It can be said that users have started frequently using expressions like to like, to stalk, and to tweet in their daily lives, independently of their native languages (Koç, 2020, p.907).

Internet technologies, by enabling two-way communication, have led to the emergence of new professions that did not exist in previous eras. Examples of these include jobs known as social media manager and content creator. Users can share their own produced content for purposes such as informing or entertaining other users on various topics. Users who increase their followers with content prepared in various media formats using their creativity can eventually collaborate with brands or share advertising content. In summary, it is possible to define individuals who gain the appreciation of communities with the content they produce using their creativity as content creators today (Yeygel Çakır, 2015, p.243).

In their research titled "Social Media in the Context of Participatory Culture: A Netnographic Analysis," Eren Çetin and Ayhan divide participation occurring through social media platforms into

four categories based on their forms. Accordingly, producers of social media content, those who write comments on this content, and those who perform a secondary action (participating in a campaign, survey, etc.) based on the content are engaged in 'direct participation'. Those who share existing content for others to see—in other words, those who announce them—demonstrate 'indirect participation'. The form of participation by those who only 'like' the content is defined as 'fixed participation', and merely following without taking any action is defined as 'passive participation'. The classification of participation based on purpose is further categorized by Eren Çetin and Ayhan as "coming together," "sharing," "acquiring information," "entertainment," and "change" (2020, pp.58-59).

Another point that should be emphasized regarding participatory culture is that it's not mandatory for users to create any content. What's important is that users know they have the potential to produce, share, or engage in interaction whenever they want or need to (Çavuşoğlu, 2022, p.55). On the other hand, internet technology, which has led to the transformation of participatory culture, has also paved the way for new debates. For example, the limitless data obtained through the voluntary interactions of users constitutes a resource for technology companies. This situation leads to these companies unilaterally benefiting from the characteristics of this new communication medium. Fuchs, one of the pioneers of the concept of "digital labor", defines the fact that internet users, who are prosumers, generate data with every step they take as "unpaid labor" (2015, p.506). He argues that the participatory culture fostered by social media leads to "digital labor exploitation" by enabling technology companies to acquire resources at no cost (2015, p.146).

In terms of digital labor, Toffler's concept of "prosumer" was updated by Burns for the new media age. Burns introduced the term "produsage," which is derived from the English words "production" and "usage," and offered a definition that focuses on collective rather than individual creation. With the transformation brought about by internet technology, consumption practices have also changed, and "the boundary between passive consumption and active production has become

blurred." Considering the existence of a large number of users who are unaware that they are also producers, it can be argued that it has become ambiguous to determine who is the producer and who is the consumer (Bruns, 2006, as cited in Sevgi, 2021, p.25).

Despite such negative aspects, it can be said that internet technology has turned its ability to meet the communication and entertainment needs of individuals to its advantage. The promise of free communication independent of time and place, which the internet has emphasized since its early years, can also be interpreted as the emergence of a new medium that will enrich and facilitate participatory culture. Furthermore, participatory culture is enriched not only by new media technologies but also by the natural reflections of traditional media into digital spaces.

As Jenkins emphasized, many of the cultural transformations experienced in the digital age are directly related to 'convergence'. The transformation of television viewing practices is among these. Television channels recognized that having a presence on social media was a vital move in the Web 2.0 era and quickly established themselves in the digital sphere. By adapting to the transformation, they aimed to "benefit from and guide the online practices of television viewers" (Ateşalp & Başlar, 2015, p.167).

With the development of the internet infrastructure in the Web 2.0 era, the possibility of watching synchronized video enabled the emergence of digital platforms that would bring content belonging to the television and cinema industries to the audience. These platforms, initially thought to pose a threat to the television medium, later became a "complementary" element for television broadcasting (Dikmen, 2017, p.434). As of 2025, highly-watched local series from mainstream television channels are being broadcast on platforms like Netflix, Amazon Prime Video, and Disney Plus.

It is known that even before the new media age, television viewers had a desire to express their opinions about the programs they followed, especially local series. They used to send letters to television channels to report their complaints about what was happening in the series they watched or to demand the continuation of productions that

had an unexpected finale (Yıldırım, 2020, p.214). With the advent of the internet, it became much easier for the television audience to communicate their views to broadcasters. Television channels began to promote their programs through social media posts and, in this way, could access the opinions of potential viewers even before the program airs. The opinions obtained this way largely influence decisions made regarding the program's content and continuation. Posts shared on social media during a program's broadcast provide information about the extent to which the audience is following it. Social media, offering a measurement possibility outside the traditional rating system, has become indispensable for television organizations (Gökmen, 2023, p.561).

The 7:00 PM – 11:00 PM time slot, known as prime-time, which is when television broadcasting sees its most intensive viewing, is also the time when social media usage is at its peak (Kırık & Domaç, 2014, p.418). It is known that shares about television content especially increase during the evening hours. Headings sourced from television are frequently seen on the 'Trendtopic' list of the most popular topics on the X platform (formerly Twitter). Viewers share their comments using hashtags composed of the series name or character names while new episodes of local series are airing. They are observed not to wait for the episodes to finish to post these comments. The number of viewers who engage in series watching and social media use simultaneously is quite high.

Aside from social media shares, another example of the output of participatory culture in the new media age is re-created content made by modifying traditional media content with digital tools. Some users can modify photos obtained from content they are fans of using Photoshop or similar tools and circulate them (Çetin, 2019, p.157). Examples of this include visuals from popular television series being used as a humorous element (memes).

Local series serve as a source not only for pictures but also for videos used as a humor element. Users dress up as the most engaging characters from highly-watched series and produce short videos consisting of parodies of the shows. Many of these receive significant engagement when circulated on social media. It is common to find such

videos on YouTube, a video-sharing platform that exhibits social media platform characteristics.



Image 1. Memes about series of *Aşk-ı Memnu ve Avrupa Yakası*

When it comes to television content, YouTube can be said to function as a secondary television screen. It is observed that all television channels and series have their own YouTube channels. Most series upload their new episodes to their YouTube channels in one continuous piece, with the commercials removed, as soon as the broadcast time on television ends. A segment of local series viewers now states that they prefer to watch the shows they follow via YouTube channels instead of on the television screen. These dedicated series channels feature not only full episodes but also short videos consisting of clips from episodes presented under various headings. Viewers can write comments on the YouTube content of local series, reply to each other under these comments, or simply like the comments. Due to the platform's nature, the view counts and the level of audience interaction received by the series are transparently visible to everyone.

Aim and Methodology

When considering the relationship between participatory culture and the television audience, it is observed that YouTube receives significantly more interaction than other social media platforms. The reason for this is that the channels allow their followers to comment or like the content instantly while watching it. Viewers can share their detailed opinions about the events and character developments in each episode, thus providing a form of feedback to the series creators. This feedback sometimes leads to changes in the plot or supporting characters of the series. In recent years, it has

been witnessed that some actors who were later added as supporting characters to popular series have faced negative comments from the audience, and after a while, these actors were removed from the production's cast. This situation is even covered in tabloid news, with phrases used about the actors like, "the character they played was not liked by the audience." The fact that characters are often removed from the story without allowing time for their roles to be gradually minimized demonstrates the extent to which the creators of the productions value audience reactions and make decisions accordingly.

Based on the audience-industry interaction in the context of participatory culture, this research aims to examine the effects of viewer feedback on the duration of characters' existence in television series. The series selected as examples for the research are *Masumlar Apartmanı* (2020-2022), *Kızılıcak Şerbeti* (2022 – Present), and *Bahar* (2024 – Present), all popular productions from recent years. The characters who were later included in these series and whose presence in the series ended due to negative audience feedback are indicated in the table below.

Table 1: Episodes with Side Characters

Series	Character	Episodes
Masumlar Apartmanı	Rüya (Melisa Şenolsun)	38-57
Kızılıcak Şerbeti	Heves (Şebnem Dönmez)	67-75
Bahar	Süreyya (Büşra Pekin)	17-22

The research analyzing the comments found on the YouTube channels of the series used the netnography method. As is well-known, the proliferation of internet communication has caused user behaviors to turn into online data. This data, which the digital environment makes visible and accessible, has led to the emergence of a new research method. This method, which can be considered the virtual application of the ethnography method, is defined as netnography. It is also referred to as "cyber-ethnography," "cyber-anthropology," "digital ethnography," "online ethnography," and "virtual ethnography" (Özbölük & Dursun, 2015, p.233). Social media platforms that emerged during the Web 2.0 era have started to form a resource for research in the field of social sciences (Yarar Aksoy, 2023, p.101). The number of studies using netnography as a method is increasing every day.

With this method, users' online behaviors can be monitored in real-time, their behaviors and preferences can be determined, the language and expressions they use can be analyzed for various purposes, and their opinions or suggestions can be identified (Özbölük & Dursun, 2015, p.245). The application of the netnography method consists of five stages. The first is identifying the research questions; the second is selecting the sources (communities) to reach; the third stage is the evaluation of data related to the topic; the fourth stage is the analysis of the findings obtained; and the final stage is transforming the results into meaningful inferences (Kozinets, 2010, p.61).

All three series have their own YouTube channels that were launched concurrently with their start dates on television. These channels can also be considered an archive containing content such as trailers, full episodes, and short videos produced from these episodes. Information about the channels and the number of subscribers and views they reached as of June 20, 2025, are provided below.

Table 2: Data of Youtube Chanells of The Series

Channel Name	Date	Subscribers	Number of Content	Views
Masumlar Apartmanı	25.08.2020	1,09 Million	3.828	1.281.848.415
Kızılıcak Şerbeti	07.10.2022	2,68 Million	5.250	3.092.168.442
Bahar	23.01.2024	1,44 Million	1.978	963.556.055

The narrative structure of a fictional screenplay is fundamentally constructed around the events experienced by the protagonist. When devising the plot, it is mandatory that the main character possesses a definitive objective and acts in accordance with that goal. Concomitantly, the presence of supporting characters is required. The paramount rule governing the utilization of supporting characters in a script is the necessity for them to be intrinsically linked to the main character. Furthermore, the function of the supporting character must be readily comprehensible. Crucially, the supporting character's function is required to align with the main character's overarching objective. This, however, does not preclude supporting characters from having their own internal goals and desires.

In feature film screenplays, an excessive quantity of supporting characters may compromise the narrative's overall integrity. Conversely, the deployment of supporting characters in television series does not inherently pose this risk. The serialized nature of television allows for the gradual development of characters over time, enabling supporting characters to simultaneously advance the protagonist's narrative arc while pursuing their own storylines. Indeed, for multi-season series, the establishment of supporting characters as well-developed and profound individuals is one of the most critical factors determining the production's quality. Nevertheless, given that series screenplays continue to be refined throughout the ongoing production process, the introduction of new supporting characters into the narrative is considered both routine and necessary.

The supporting characters selected as examples in the three series analyzed in the research are those introduced to the narrative in later episodes. All three were presented to the audience with a direct connection to the main character(s). The research examined the comments made on the first episode in which each character was introduced to the series and the final episode in which they departed. Furthermore, within the 'playlists' on each channel, short videos dedicated to specific characters in the series are featured. From these, one short video corresponding to the character's first appearance and one corresponding to their last appearance were selected, and the comments on these videos were also included in the analysis. Four videos were selected for each series in the research. As is known, YouTube offers two options for listing video comments: 'Newest first' and 'Top comments.' For this research, the 'Top comments' option, which displays comments liked by other users, was chosen for every video, and the first five comments were taken, ranking them from 1st to 5th accordingly. In summary, the comments were determined as the five most popular comments for each video.

It was seen that a portion of the message writers' usernames are real first and last names. These examples have been changed as "Participant (number)" for the protection of personal data, while anonymous usernames have not been altered. It is

recognized that the use of capital letters in digital messaging practices signifies 'speaking loudly.' Therefore, comments written entirely in capital letters were shared exactly as they appeared, without modification. Some comments were observed to include emojis. These comments were transcribed with the emojis removed, but no intervention was made regarding spelling errors. The number of likes received by the comments has been added in parentheses.

Findings

When the audience's reactions to the characters are evaluated through the comments, the following conclusions were reached:

Masumlar Apartmanı

The series narrates the psychiatric disorders experienced by three siblings due to childhood trauma and their subsequent efforts to hold onto life despite these conditions.

Characters and Plot Introduction:

The main characters—siblings Safiye (Ezgi Mola), Gülben (Merve Dizdar), and Han (Birkan Sokullu)—reside in the same apartment building. Safiye and Gülben are portrayed as young women with severe cleanliness obsessions, while Han is presented as an obsessive and manipulative character. In stark contrast to his sisters, Han, a highly educated man, falls in love with and marries İnci, a young woman characterized by her joyful and free-spirited nature, during the first season of the series. Later in the narrative, İnci and their newborn child tragically perish. Han is plunged into deep grief and isolates himself from the outside world. During this period, Rüya, another free-spirited and cheerful young woman, similar to İnci, moves into the apartment building.

Rüya's Function in the Narrative:

Rüya was introduced to the story to provide a new direction for Han's plotline. By introducing a new young woman during Han's mourning process,

the seeds for a potential romantic relationship were sown from their initial encounters, thereby attempting to fill the dramatic void left by İnci's passing with a new love interest.

YouTube Data for Rüya's Introduction:

The 38th episode, which marks the first appearance of the Rüya character, was published on the YouTube channel on September 15, 2021. The video garnered 5,309,314 views and received 5,450 comments:

@emine06204: I think Rüya came into the story way too early. Han should've stayed alone for a while—both his wife and child died, so he didn't need to meet someone right away. The scenes between Rüya and Han, their first meeting and all, felt really off-putting to me. (382)

@idontcareduh806: I don't think there should be love between Rüya and Han. If I had written this script, I would've added someone to help Han, but I'd want him to learn to love himself, not someone else. (378)

Participant 1: Rüya feels completely unnecessary for this series. Honestly, she ruins the emotion and the tone. Bringing someone new into Han's life right away was a bad idea. You should've waited at least a while. (291)

@aaaaay8341: Melisa Şenolsun just doesn't fit the aura of this series somehow... (231)

@berrak8383: They tried to replace İnci with Rüya, but we already watched the love story between Han and İnci. You should've left İnci at her peak — that would've been much better, in my opinion. (129)

A video titled 'Rüya and Han Meet! | Masumlar Apartmanı Episode 38', featuring sequences from the first episode in which the character Rüya was introduced, was published on September 15, 2021. The video received 144,131 views and accumulated 267 comments.

@unknown_4744: Please don't put these two into a romantic relationship — the script has gone downhill, they have zero chemistry. If there has to be some kind of

connection, make the girl Han's close friend or something. Also, I'm sorry but Melisa just doesn't fit well with the show or the other actors in general. (650)

@warai-san: I feel like Rüya is going to ruin the entire atmosphere of the series — and she already did in this episode... (147)

Participant 2: Sorry, Rüya, but I never liked you :((91)

@TheRealSpecialGuest: I hope they're not planning to put them together because there's literally no chemistry. Couldn't they find anyone else to be his love interest besides a spoiled, petite young girl?? İnci's character and this one are worlds apart. (67)

@clarissa5420: Rüya really doesn't work. Even just one of İnci's smiles could warm your heart. Yes, Melisa is beautiful and acts well, but it just doesn't feel the same after İnci. (26)

It is evident that the audience articulated that the grieving protagonist beginning a new romantic relationship was unnecessary, starting from the very first episode featuring the character Rüya. While the Rüya character may have been found amiable in isolation, the potential direction for the storyline contradicted audience expectations. It is also understood that a segment of the audience was dissatisfied with the absence of the character İnci. Rüya's introduction to the narrative as a replacement for a beloved, departed character was instrumental in the emergence of negative audience opinions.

Since the audience's views regarding the potential relationship between the two did not become positive in subsequent episodes, the series creators decided to terminate Rüya's presence in the story. The decision to remove the character was announced in tabloid news before the episode featuring her last appearance, stating: "The story of Han and Rüya failed to attract the expected interest from the audience" (t24.com.tr, 2021).

The 57th episode, marking Rüya's final appearance in the series, was uploaded to the YouTube channel on February 9, 2022. The video received 3,113,395 views and garnered 2,110 comments:

@mamba1654: This one's for the screenwriters — since we know you like reading the comments. You dressed Melisa like İnci from the very first episodes and made her a target (they even look alike visually). Instead of having her listen to music in those chimney scenes, you should've added depth to her character and stayed consistent — the audience would've liked her. You shouldn't have shaped the story based on comments. A man who loved his wife could've healed and returned to life through love — everyone would've believed in that. As for the so-called chemistry between Rüya and Han... (145)

@senay3272: If Rüya hadn't been introduced as someone trying to flirt with Han from the start, she would probably still be in the show. While we were mourning İnci, we didn't like the idea of Han being with someone else — and this is the result. (28)

@g.n.c4019: I think a different kind of storyline could've emerged from Rüya and Han. There's no spark or chemistry between Han and Ceylan — she feels more like his older sister. Unfortunately, Han doesn't show even a trace of excitement, just wanders around blandly. (24)

Participant 3: The screenwriter brought in Rüya at first to replace İnci, but when the audience didn't like her, they pushed her to the background — so much for being the lead... (16)

Participant 4: They put Rüya in front of Han. It didn't work... and now they've sent her off just as quickly. (3)

A video titled 'Rüya Bids Farewell to Everyone... | Masumlar Apartmanı Episode 57', featuring the character's departure sequences, was published on February 8, 2022. The video received 177,807 views and accumulated 448 comments:

@runrunrun4114: Rüya didn't come into the story for Han or to replace İnci. She had a very deep backstory. But instead of developing it professionally, they adjusted the script based on YouTube comments. As a result, only the surface of that depth was filled. (940)

@Serendipity_143: Congratulations — you finally got what you wanted. Dear Masumlar Apartmanı viewers, and dear screenwriters who take every single audience

comment seriously... A show could only crash this badly. (52)

@berdine223: There were so many harsh comments here that I always tried to put myself in the actor's place. I think I would've been devastated and felt awful psychologically. I'm sure Melisa went through a really hard time. The result is what we see now. I actually think Rüya was a good character — if only she had been developed properly. (29)

@bkzade4688: A character like Rüya was wasted. She deserved to be happy, to rise from the ashes together with Han. Instead, they chose to cling to the past — Ceylan. Rüya represented hope; she was like the light at the end of the tunnel... You truly wasted her. (20)

@KING-ci9dd: They cast her as the lead, and then kicked her out of the show. (9)

When analyzing the comments regarding the departure of the Rüya character from the series, it is evident that the character's function within the narrative was what troubled the audience, independent of the casting choice or the actress's performance. In fact, some comments indicate that certain viewers actually liked the Rüya character and suggested that her continuation in the story could have been ensured by assigning her a different narrative direction. In summary, it can be stated that the audience did not reject the Rüya character herself, but rather the premise of Han immediately beginning a new relationship after losing his wife.

Kızılçık Şerbeti

The series is built upon the conflicts experienced by the members of two families, both amongst themselves and in their personal lives, following the marriage of a young woman raised in a modern family to a young man belonging to a traditional family.

Characters and Plot Introduction:

The main characters, Doğa (Sıla Türkoğlu) and Fatih (Doğukan Güngör), experience difficulty in

their relationship due to their contrasting lifestyles and family structures. Another key character, Doğa's mother, Kızılçım (Evrin Alasya), causes the relationship between the two families to become more intertwined by marrying Fatih's uncle. Following a turbulent divorce due to Fatih's infidelity, Doğa eventually marries Giray (Kaan Taşaner), a wealthy and understanding man she recently met. Giray, who is secretly engaged in an illicit affair with Heves, the much younger second wife of his elderly, terminally ill father, soon begins to experience problems in his marriage with Doğa and separates from her. It is revealed that Giray married Doğa to conceal his relationship with his stepmother.

Heves's Function in the Narrative:

Sometime before the introduction of Heves, the character Giray's behavior had already created an impression that required the audience to be mistrustful of him. The character Heves, who was introduced in the first episode of the third season, is presented as a flashy and seductive individual.

YouTube Data for Heves's Introduction:

The 67th episode, which marks the introduction of the Heves character, was broadcast on September 14, 2024. The episode reached 13,574,673 views and received 11,943 comments.

Participant 5: The only thing missing was an incestuous stepmother fantasy — now that's happened too. (8,600)

Participant 6: This season didn't engage me at all. Honestly, it felt like I was watching a completely different show. Some scenes with Heves and Giray were really disturbing. (8,200)

Participant 7: Are you really going to make us watch that disgusting relationship between a stepmother and stepson? How can you be so disgusting! (284)

Participant 8: Romance with a stepmother is nauseating — don't normalize it! (237)

Participant 9: No one seems to notice this detail. Shame on my country, shame on these people. We've gone beyond uncles and cousins; now they're promoting incest with a stepmother. Damn this show. (83)

A video titled 'Doğa and Giray Move Next to Heves! | Kızılçık Şerbeti Episode 67', created from the episode in which the audience first saw the character Heves, has 492,765 views and received 602 comments:

@playerinhell: They've messed it up. They've completely turned the show into Forbidden Apple. The screenwriters are the same anyway — what did you expect? (1,600)

@ayışığı518: An incestuous stepmother fantasy was missing anyway. (833)

Participant 10: Was such a disgusting scene really necessary? Seriously, a forbidden romance with a stepmother was really missing? How disgusting and unnecessary — did anyone really think this through? (646)

@Barbiee35: How immoral! The scenario goes against societal morals — incest! The screenwriter should be replaced immediately because of this ridiculous script!!! (377)

@hazell_trk2871: Look at how disgusting the topic is! It made me sick. (366)

It is observed that the audience immediately criticized Giray, a character they already mistrusted, for being involved with the most ethically compromised person possible. The character of Heves was perceived as taking the series outside the established thematic boundaries it had maintained until that point, and was consequently deemed superfluous. Viewers who found the clandestine relationship with a stepmother to be morally objectionable used the term "disgusting" to describe this affair.

The 75th episode, which marks the final appearance of the character Heves in the series, was broadcast on November 9, 2024. The episode received 10,594,560 views and accumulated 7,802 comments.

@edaa0613: Seeing Heves on screen killed my desire to watch the show — it's good that she's gone. Hopefully the same happens with Giray. (319)

Participant 11: The excess characters in the show — Meri, Cemal, Giray, Heves — I wish you'd replaced them with something nice like flowers or nature scenes; it would've been more pleasing. They annoyed us. (68)

Participant 12: Giray was already having a forbidden affair with Heves, so why did he marry Doğa? (66)

@Domestos-dc2le: Cemal, Giray, Heves — seeing them was really disgusting. (59)

@burume280: You added so many toxic characters that the show's original excitement is gone. (17)

A short video titled 'Heves Tests Doğa's Patience! | Kızılçık Şerbeti Episode 75', featuring sequences from the final episode in which the character Heves appeared, was published on November 8, 2024. The video was observed to have 706,696 views and received 292 comments:

@Gercekler-k6x: Heves is leaving, but if the screenwriter doesn't reveal the relationship between Giray and Heves and keeps Giray and Doğa's marriage going, I'll be furious. (77)

Participant 13: The screenwriter started conflicts with Doğa just because Heves is leaving the show. (61)

Participant 14: I get so annoyed with Heves — even if she leaves, I hope Doğa is saved too. (37)

Participant 15: I can't stand Heves, Giray, and Görkem — please, let them leave already. (5)

Participant 16: We finally got rid of Heves; hopefully, we'll get rid of Giray too. (1)

It is evident that the audience's discomfort stemmed not primarily from the infidelity against the protagonist, Doğa, but rather from the fact that her husband Giray's partner was his 'stepmother'. The Giray-Heves relationship, as indicated in the comments, generated intense audience backlash, a

reaction also highlighted in tabloid reports. These reports noted that the storyline involving the Heves character did not progress as desired (Altuntaş, 2024). Kaan Taşaner, the actor who portrayed Giray (Heves's stepson), stated in an interview that he was also displeased with the narrative trajectory (ensonhaber.com, 2024). In summary, this case study also demonstrates that the negative audience feedback was driven not by casting or performance issues, but by the character's 'inappropriate' position within the narrative structure.

Bahar

The series centers on a woman in her forties who, immediately after graduating from medical school, was compelled to live a life devoted to marriage and raising children. After experiencing a serious illness and recovering, she decides to return to the medical career she had deferred years earlier.

Characters and Plot Introduction:

The protagonist, Bahar (Demet Evgar), spent years fulfilling the role of the ideal mother and wife, making sacrifices for her two children and her doctor husband. Bahar, who had deferred her own dreams and was confronted with her husband's selfishness during her illness, decides to end her marriage and begins her specialty training. During this period, Bahar enters a relationship with Evren (Buğra Gülsoy), one of the hospital doctors, while maintaining communication with her two children and her ex-husband. The character Bahar, who takes control of her own life after many years of great sacrifice, has won significant acclaim, particularly from female viewers. The character Süreyya is introduced to the story as the hospital's new chief physician.

Süreyya's Function in the Narrative:

Shortly after starting her role as Chief Physician, it is revealed that Süreyya is Evren's ex-girlfriend. Süreyya's actions, which involve creating difficulties for Bahar from the moment she arrives at the hospital, are attributed to her intense jealousy.

YouTube Data for Süreyya's Introduction:

The 17th episode, which marks the introduction of the Süreyya character, was uploaded to the YouTube channel on September 24, 2024. This content has accumulated 12,066,572 views and received 6,529 comments from viewers:

@zenmerina4156: Let's remove Süreyya from the show, girls, together! We got rid of Dora, we can do this too! Update: Reporting from Episode 22 — we did it, girls! (3,000)

@berriiousb3509: Büşra Pekin doesn't fit at all; I'm almost not going to watch the show because of her. (2,400)

Participant 17: Could Büşra Pekin get an offer from another show, please? She doesn't belong in this one. (2,000)

@nslgnl0107: Büşra Pekin really doesn't fit this show. I wish they hadn't cast her. (1,200)

@huzurluolmakistiyorum: Büşra Pekin feels as artificial and mismatched in the show as her cosmetic procedures. (803)

A short video titled 'The Süreyya Biçer Era Begins at the Hospital! - Bahar Episode 17', which contains sequences from the episode featuring the character's introduction, was observed to have been viewed 105,582 times and received 107 comments:

Participant 18: I hope I don't stop watching the show because of how annoying this character is. (255)

@Su-nr1ro: I'm sorry, but Büşra Pekin really doesn't work. Her way of speaking feels so forced. The backstory with Evren is also nonsensical. A different storyline could have been explored. (166)

Participant 19: DID THEY REALLY HAVE TO CAST HER? With so many other actors available, where did Büşra come from? She was extremely off-putting. (159)

Participant 20: Was this head doctor even necessary? The new season didn't start well at all, in my opinion. (86)

Participant 21: People are going to quit the show because of the head doctor. (84)

When analyzing the comments made on the episode where the character was first introduced to the audience, it is evident that almost all comments regarding the character were negative. It is possible to state that the comments claiming the actress, Büşra Pekin, was "unsuitable" for the production outnumbered the negative opinions about the Süreyya character itself.

The 22nd episode, which marks the departure of the Süreyya character from the series, was uploaded to the YouTube channel on October 29, 2024. The content, which has 10,457,263 views, received 5,280 comments:

Participant 22: Those who are really happy that Süreyya left the show. (13,000)

Participant 23: "A woman shouldn't do this to another woman — Bahar, I'm sorry." I guess this is an apology requested by the audience. Thank you. (6,100)

@basrole.dusman: We can literally control the script, are you aware? We wrote and removed two partners that came for Evren. If Aşk-ı Memnu had done this, Bihter would still be alive today. (3,800)

Participant 24.: It's great that you listened to the audience and removed Süreyya. Thank you very much, please continue like this... (616)

@eylul-hn3tv: Ohhhh, Süreyya finally left — I feel so relieved. (242)

A video titled 'Süreyya Falls into the Trap She Dug for Bahar! - Bahar Episode 21', which was published on October 22, 2024, was observed to have reached 1,679,275 views and received 482 comments:

Participant 25: What a relief! We finally got rid of Süreyya! Now, who's next for Efsun? How many of us are there? (1,800)

Participant 26: Thanks to the screenwriter for listening to the comments and making us happy. (560)

Participant 27: Oh, those Süreyya's hairstyles — finally, we're rid of them! (314)

Participant 28: Friends, good news: Büşra Pekin is leaving the show next week. In Bahar, when there's a dramatic separation, the actor leaves — Büşra Pekin is leaving next week. I really thank the screenwriter; I've never seen a writer pay this much attention to the audience. (86)

@ccarrie: I also think you made the best decision by listening to the audience. (42)

The comments regarding the episode marking Süreyya's departure clearly show that the audience was highly satisfied with this decision. It is not surprising that viewers were displeased with a character introduced into the narrative as an adversary to the protagonist, Bahar, who had finally achieved happiness.

However, an examination of the comments reveals that the majority of the negative feedback was directed at the actress portraying the character. Users expressing dissatisfaction frequently mentioned the actress's name (Büşra Pekin) rather than the character's name (Süreyya). Other malevolent characters were introduced to the series with the intent to complicate Bahar's life, yet none of them received a negative reaction comparable to that directed at the Süreyya character. In summary, this case demonstrates that the reasons for the audience's negative opinions were based not only on the narrative development but also on casting choices. Indeed, the audience's complaints about the Süreyya character were taken into account by the production's creators, and the termination of the character's presence was announced in news headlines such as "The Audience's Call Regarding Büşra Pekin Was Heard!" (Köşger, 2024). The comments show that viewers expressed a sense of suc-

cess in having their voices heard by the screenwriter, with some even declaring that they could "dictate" the script. Furthermore, comments expressing gratitude to the screenwriter for listening to them and making decisions in line with their wishes are also notable.

Conclusion

The advent of two-way communication in the era of new media has fundamentally altered the role of the television audience. It is established that the producers of television programs are commencing the consideration of audience feedback via social media concerning both narrative development and casting decisions. This study, which aims to examine the impact of audience feedback on the screen time of supporting characters in television series, focuses on *Masumlar Apartmanı*, *Kızılıcak Şerbeti*, and *Bahar*. In all three series, it is known that supporting characters introduced in later episodes were eventually removed from the storyline following intense criticism from viewers. Reports circulated by entertainment journalists, with the approval of the production companies, included statements suggesting that "the audience's demands were taken into consideration." The study analyzed comments made on full episodes shared on the official YouTube channels of the three series, as well as short video clips featuring excerpts from these episodes. In *Masumlar Apartmanı*, the character Rüya, and in *Kızılıcak Şerbeti*, the character Heves, were criticized by viewers regarding their narrative functions. The character Rüya was introduced to replace another female character who had left the show, intending to fill the dramatic void in the story. Although viewers acknowledged that Rüya was a well-developed character in some respects, they expressed discomfort with the transformation she brought to the narrative. In *Kızılıcak Şerbeti*, Heves was introduced as a woman involved in a forbidden romance with her stepson, and from the very first episodes, she elicited strong audience reactions on the grounds that her storyline was "incompatible with societal moral values." In *Bahar*, the character Süreyya became the target of negative comments primarily due to the actor portraying her rather than the narrative function of the

character. Viewers argued that the actor was not suitable for the head doctor role she played and/or could not harmonize with the rest of the cast.

Regardless of the underlying reasons, in all three series, the supporting characters who generated negative audience commentary were subsequently removed from the storyline. The comments clearly reveal that viewers openly articulated their desire for the characters' departure, even threatening to stop watching the productions if their opinions were disregarded. Furthermore, it is evident that viewers are aware that they successfully made their voices heard by the creators, particularly the screenwriters, and that they possess the ability to "dictate the story," to use their own phrasing. In summary, when examining the audience-industry interaction within the context of participatory culture, it is tenable to conclude that the transformation witnessed in the new media age has yielded an outcome that heavily favors the audience. It must also be added that this dynamic creates significant pressure on creators, compelling them to seek audience approval at every stage of the narrative development.

Finally, it must be emphasized that the data collected in this research has limited representativeness and reliability. In services like YouTube, where membership is free and can be anonymous, users might be inclined to share content that does not reflect their genuine thoughts, or comment with manipulative or discrediting intentions. This research, which was conducted from a neutral standpoint consistent with the applied methodology hopes to provide a resource for future researches on participant culture and television audiences.

Declarations

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Conflicts of Interest: The author declares no potential conflicts of interest regarding the research, authorship, and/or publication of this article.

Ethical Approval: This research did not require ethical approval as it analyzed publicly available online data, specifically comments on YouTube, where participants' identities were anonymous and voluntary.

Informed Consent: Since the study utilized publicly available comments from YouTube videos, electronic informed consent was not required. The comments were voluntary, and participants were aware that their public responses could be viewed by others. Privacy and confidentiality were maintained by anonymizing usernames in the analysis.

Data Availability: The data collected for this study consists of publicly available comments on YouTube channels related to the series analyzed. Due to privacy concerns, raw data from the comments are not publicly available. However, de-identified datasets and analysis materials are available from the corresponding author upon reasonable request.

AI Disclosure: No artificial intelligence-based tools or applications were used in the conception, analysis, writing, or preparation of figures for this study. All content was generated by the author in accordance with scientific research methods and academic ethical standards.

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RESEARCH ARTICLE

An Examination of the Determinants of Life Satisfaction in Türkiye: A Logistic Regression Analysis

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Abstract

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The purpose of this study is to determine the relationships between satisfaction levels in different domains (income, health, housing, education, work, social relationships, etc.) that predict individuals' life satisfaction and their overall life satisfaction, as well as the relative importance levels of these predictors. Using microdata from the Turkish Statistical Institute's (TÜİK) 2024 Life Satisfaction Survey, the data of 9,462 participants (5,021 women, 4,441 men; mean age = 45.7, SD = 16.5) were examined using binary logistic regression analysis. The life satisfaction variable was divided into two categories, "satisfied" and "not satisfied," based on the average score. The model applied was found to be adequately fitted to the data, accounting for approximately 20% of the variance in life satisfaction. The findings indicate that income satisfaction is the strongest predictor of life satisfaction. Income satisfaction is followed by satisfaction with health, marriage, friendships, social life, housing, work, education, and time for oneself. The age variable negatively predicts life satisfaction, while gender was found to be a non-significant predictor. The findings reveal that life satisfaction in Türkiye is closely related to economic security, physical health, and social relationships. Accordingly, policies aimed at reducing income inequality, practices that increase access to health services, and interventions aimed at strengthening social bonds may be effective in increasing life satisfaction.

Keywords: Life satisfaction, income satisfaction, health satisfaction, logistic regression

Öz

Bu araştırmanın amacı, bireylerin yaşam memnuniyetini yordayan farklı alanlardaki (gelir, sağlık, konut, eğitim, iş, sosyal ilişkiler vb.) memnuniyet düzeylerinin genel yaşam memnuniyeti ile olan ilişkilerini ve bu ilişkilerin göreceli önem düzeylerini belirlemektir. Türkiye İstatistik Kurumu'nun (TÜİK) 2024 yılı Yaşam Memnuniyeti Araştırması'na ait mikro veriler kullanılarak, 9462 katılımcının (5021 kadın, 4441 erkek; Ort. yaş = 45.7, Ss = 16.5) verileri ikili lojistik regresyon analiziyle incelenmiştir. Yaşam memnuniyeti değişkeni, ortalama puan temel alınarak "memnun" ve "memnun değil" olmak üzere iki kategoriye ayrılmıştır. Uygulanan modelin veri ile uyumunun yeterli düzeyde olduğu belirlenmiştir; yaşam memnuniyetine ilişkin varyansın yaklaşık %20'si açıklanabilmektedir. Elde edilen bulgular doğrultusunda, yaşam memnuniyetinin en güçlü yordayıcısının gelir memnuniyeti olduğu sonucuna ulaşılmıştır. Gelir memnuniyetini sırasıyla sağlık, evlilik, arkadaşlık ilişkileri, sosyal yaşam, konut, iş, eğitim ve bireyin kendine zaman ayırma memnuniyeti izlemektedir. Yaş değişkeni, yaşam memnuniyetini negatif yönde yordarken; cinsiyetin anlamlı bir yordayıcı olmadığı görülmüştür. Bulgular, Türkiye'de yaşam memnuniyetinin ekonomik güvenlik, fiziksel sağlık ve sosyal ilişkilerle yakından ilişkili olduğunu ortaya koymaktadır. Bu doğrultuda, gelir eşitsizliğini azaltmaya yönelik politikalar, sağlık hizmetlerine erişimi artıran uygulamalar ve sosyal bağları güçlendirmeyi amaçlayan müdahaleler, yaşam memnuniyetini artırmada etkili olabilir.

Anahtar Kelimeler: Yaşam memnuniyeti, gelir memnuniyeti, sağlık memnuniyeti, lojistik regresyon

Introduction

The fundamental purpose of human life is not merely to survive; it is to derive meaning, fulfillment, and satisfaction from life. In this context, concepts such as happiness, peace, well-being, and subjective well-being come to the fore; the concept of "life satisfaction," which expresses the level of satisfaction individuals feel when evaluating their living conditions, also occupies an important place in the literature (Sousa and Lyubomirsky, 2001). Happiness, a concept close to life satisfaction, is characterized by momentary pleasures as an emotional experience, while life satisfaction is more related to long-term goals and individual satisfaction as a cognitive process (San Martin, 2010). Therefore, life satisfaction occupies an important place in research because it offers a more comprehensive assessment of an individual's life. Indeed, in recent years in Türkiye, the concept of life satisfaction has been addressed in the context of various variables such as income inequality (Telli, 2025), housing and its surroundings (Hatipoğlu-Şahin and Tereci, 2021), religiosity and meaning in life (Korkmaz, 2025), and tax burden (Bişgin, 2024). The concept of life satisfaction provides a general overview of an individual's life, while also covering satisfaction levels in various areas of life such as health, education, family, social relationships, work life, housing, and leisure time. However, although there is a relationship between overall life satisfaction and satisfaction levels in different areas of life, significant differences can be observed between these areas of life (López-Gómez et al., 2020). For example, Cummins (1996), in his meta-analysis study conducted to determine the sub-dimensions that constitute life satisfaction, identified seven key areas: close relationships, health, productivity, material well-being, security, social belonging, and emotional well-being. It was concluded that the most decisive of these areas were close relationships and health. A more recent study proposed that life satisfaction can be explained by four fundamental dimensions: a) work or daily activities, b) social relationships and family, c) health, and d) income. Among these areas, social relationships and family life have the highest impact on overall life satisfaction, followed by work and health. Income, on the

other hand, was identified as the area with the relatively lowest impact (Kapteyn et al., 2009).

Among comprehensive studies focusing on life satisfaction in the Turkish context, the Life Satisfaction Survey conducted by the Turkish Statistical Institute (TÜİK) stands out. This survey is a national-level questionnaire conducted annually, and its primary purpose is to track individuals' overall happiness levels, their satisfaction in various areas of life (e.g., health, education, income, housing, social relationships, public services, etc.), and changes in these satisfaction levels over time. In their study using microdata from TÜİK's 2019 Life Satisfaction Survey, Ulutürk-Akman (2021) evaluated data obtained from 9,212 individuals using binary logistic regression analysis. The findings revealed that women and married individuals reported higher levels of life satisfaction; satisfaction increased with age and education level, while divorced individuals reported lower life satisfaction. Furthermore, it was determined that income, housing, health, and social life satisfaction significantly increase life satisfaction, while perceived well-being is the strongest predictor variable.

These findings indicate that demographic variables play a decisive role in life satisfaction, in addition to satisfaction with sub-life domains. For example, when evaluated in terms of gender, women's life satisfaction is higher than men's on a global scale (López-Gómez et al., 2020). On the other hand, age is often considered an important demographic variable affecting life satisfaction, and many studies suggest a U-shaped relationship between age and life satisfaction. For example, Steptoe et al. (2015) reported that in high-income countries, life satisfaction is higher among young and older individuals and lower among middle-aged individuals, indicating a U-shaped relationship. However, this relationship can change direction in different cultural and socioeconomic contexts; in some regions, satisfaction is observed to decrease with age. On the other hand, there are also some methodological criticisms of this relationship (Bartram, 2020). This situation shows that findings regarding the age-satisfaction relationship are sensitive to context and the statistical approach used. This situation shows that life satisfac-

tion cannot be considered independently of cultural context. The influence of key determinants on life satisfaction may vary from society to society. For example, while income level has a stronger effect on life satisfaction in the United States, this effect has been found to be weaker in the Netherlands (Kapteyn et al., 2009). In this context, regularly identifying the sub-areas of satisfaction that determine life satisfaction in Türkiye and determining which areas have the strongest impact on life satisfaction can be instructive for policymakers and practitioners. Examining the relative importance of these factors related to life satisfaction will contribute to the development of social policies aimed at increasing individual well-being, the provision of psychological counseling services, and practices aimed at increasing social welfare. In this regard, the main objective of this study is to reveal the relationship between satisfaction levels in various areas of life (e.g., health, income, housing, social relationships, education, marriage, and work) and overall life satisfaction. The sub-questions of the study are as follows:

1. Do demographic variables (gender, age) significantly predict individuals' levels of life satisfaction?
2. Do satisfaction levels in different areas of life (health, marriage, education, housing, work, income, social life (entertainment, sports, cultural activities), time for oneself, relatives, friends, neighbors, work relationships) significantly predict individuals' overall life satisfaction?

Method

This research was conducted using the correlational survey model, one of the quantitative research methods. The correlational survey model aims to examine the relationships between variables through measurements made on a sample selected from a specific population (Creswell, 2017). The findings obtained in this model are evaluated at the sample level and then used to generalize about the population.

Data Sources

The data for this study were obtained from the microdata set of the Life Satisfaction Survey conducted by TÜİK in 2024. This survey has been conducted annually since 2003 and is a national study that aims to measure the general life satisfaction levels of individuals living in Türkiye and their assessments of basic areas of life (TÜİK, 2024). The sample analyzed in this study consists of a total of 9,462 individuals, including 5,021 women and 4,441 men, with an average age of 45.7 (Sd = 16.5).

Data Analysis

The dataset was imported into IBM SPSS Statistics 26, and the variables were recoded and had categories collapsed as needed prior to analysis. The dependent variable, life satisfaction, consists of scores given by participants on a scale of 0–10. These scores were converted into two categories to facilitate interpretation and make them suitable for logistic regression analysis: scores between 0–5 were coded as “dissatisfied” (1), and scores between 6–10 were coded as “satisfied” (2). This distinction was made based on the participants' average score ($\bar{X} = 5.87$). Satisfaction levels with living conditions used as independent variables (e.g., health, income, education, housing, social life, etc.) were measured using five-point Likert-type closed-ended questions (1 = Very satisfied, 2 = Satisfied, 3 = Neutral, 4 = Not satisfied, 5 = Not at all satisfied). For ease of analysis and to ensure statistical balance, the five-point scale was reduced to three categories (1 = Not satisfied, 2 = Neutral, 3 = Satisfied). Given that Likert-type items represent ordinal data (Boone & Boone, 2012), adjacent categories can be meaningfully collapsed when they share similar evaluative meaning. Harpe (2015) further highlights that such collapsing is appropriate when it improves category frequencies and supports more stable model estimation. In some satisfaction areas, a fourth category has been added because certain groups were unable to provide evaluations. For example, unmarried individuals could not answer questions about “marital satisfaction,” unemployed individuals could not

answer questions about “job satisfaction,” and individuals without education could not answer questions about “education satisfaction.” Taking this into account, these individuals were coded as the fourth category in the relevant variables. Thus, data loss was prevented, and the entire sample could be included in the analysis. Logistic regression analysis was used to analyze the data. This analysis method is used to predict the probability of belonging to a category of a dependent variable consisting of two categories (e.g., “life satisfaction: satisfied/not satisfied”) through independent variables (Çokluk et al., 2021). Logistic regression does not require assumptions such as the normal distribution of independent variables (Tabachnick and Fidell, 1996). However, there are some prerequisites for the analysis. The first is the absence of multicollinearity issues. The reviews conducted showed that there were no multicollinearity problems for all independent variables ($VIF < 10$ for all independent variables). The second requirement is that the observed frequency in each cell must be greater than 1. The cross-tabulation analyses conducted showed that the lowest cell count was 29, indicating that the assumption was satisfied.

Results

According to the logistic regression analysis, the model's level of fit with the data was found to be adequate (Hosmer–Lemeshow test = 14.689; $p = .065$) and the correct classification rate is 67%. The model explains approximately 20% of the variance in life satisfaction (Cox & Snell $R^2 = .153$; Nagelkerke $R^2 = .204$).

Demographic Predictors of Life Satisfaction

Age is a variable that significantly predicts life satisfaction in a negative direction ($\beta = -.007$; $p < .001$), indicating that life satisfaction tends to decrease as individuals get older. However, the gender variable was not a significant predictor ($p = .084$), suggesting that there is no significant difference in life satisfaction between men and women.

Life-Domain Predictors of Life Satisfaction

Health satisfaction is a strong predictor of life satisfaction ($p < .001$). Those who are moderately satisfied with their health are 1.88 times more likely to be satisfied with life than those who are dissatisfied, while those who are satisfied are 2.30 times more likely.

Marital satisfaction was found to be significant ($p < .001$). Individuals who are satisfied with their marriage are 2.14 times more likely to be satisfied with life than those who are dissatisfied. However this effect is not significant for those who are moderately satisfied ($p = .201$). Although there is a tendency for life satisfaction to increase among unmarried individuals, this difference is not significant ($p = .095$).

Educational satisfaction is a significant predictor ($p = .009$). Individuals who are satisfied with their education are 1.19 times more likely to be satisfied with life than those who are dissatisfied. The difference is not significant for those without education ($p = .359$).

Housing satisfaction is also a significant predictor ($p < .001$). Those who are moderately satisfied with their housing are 1.30 times more likely to have life satisfaction, while those who are satisfied are 1.47 times more likely.

Job satisfaction is also a significant predictor ($p = .001$). Individuals who are satisfied with their job are 1.47 times more likely to be satisfied with life than those who are dissatisfied.

Income satisfaction is the strongest variable in predicting life satisfaction ($p < .001$). Compared to those who are not satisfied with their income, individuals who are moderately satisfied are 1.63 times more likely to be satisfied with life, while those who are satisfied are 2.33 times more likely.

Social life satisfaction significantly predicts life satisfaction ($p < .001$). Those who are moderately satisfied with their social life are 1.41 times more likely to be satisfied with life, while those who are satisfied are 1.69 times more likely.

Satisfaction with time for oneself is also a significant predictor ($p = .004$). Those who are satisfied with time for themselves are 1.26 times more likely to have life satisfaction.

Table 1. Results of Logistic Regression Analysis Regarding the Prediction of Life Satisfaction

Variable	Estimate	Standart error	Wald	p	Odds ratio	%95 Confidence Interval	
						Lower	Upper
Constant	-3.382	.319	112.09	<.001	.034		
Gender (r: Male)	.086	.050	2.98	.084	1.09	.98	1.20
Age	-.007	.002	17.46	<.001	.99	.99	.996
Health satisfaction (r: Not satisfied)			99.95	<.001			
Neutral	.634	.090	49.82	<.001	1.88	1.58	2.24
Satisfied	.836	.084	98.83	<.001	2.30	1.95	2.72
Marriage satisfaction (r: Not satisfied)			66.24	<.001			
Neutral	.327	.256	1.63	.201	1.38	.84	2.29
Satisfied	.761	.230	10.95	<.001	2.14	1.36	3.36
Unmarried	.388	.232	2.78	.095	1.47	.93	2.32
Education satisfaction (r: Not satisfied)			13.33	.004			
Neutral	.042	.081	.26	.609	1.04	.89	1.22
Satisfied	.178	.068	6.81	.009	1.19	1.04	1.36
Uneducated	-.115	.126	.84	.359	.89	.70	1.14
Housing satisfaction (r: Not satisfied)			20.96	<.001			
Neutral	.269	.105	6.57	.010	1.30	1.06	1.60
Satisfied	.387	.086	20.08	<.001	1.47	1.24	1.74
Job satisfaction (r: Not satisfied)			15.75	.001			
Neutral	.094	.165	.32	.569	1.09	.79	1.51
Satisfied	.388	.142	7.41	.006	1.47	1.11	1.94
Unemployed	.258	.143	3.26	.071	1.29	.97	1.71
Income satisfaction (r: Not satisfied)			206.26	<.001			
Neutral	.49	.06	67.13	<.001	1.63	1.45	1.83
Satisfied	.84	.059	203.24	<.001	2.33	2.07	2.62
Social life satisfaction (r: Not satisfied)			51.08	<.001			
Neutral	.35	.072	23.32	<.001	1.41	1.23	1.63
Satisfied	.52	.074	50.24	<.001	1.69	1.46	1.95
Satisfaction with taking time for oneself (r: Not satisfied)			11.21	.004			
Neutral	.07	.077	1.04	.307	1.08	.93	1.25
Satisfied	.23	.074	9.91	.002	1.26	1.09	1.46
Relative satisfaction (r: Not satisfied)			5.84	.054			
Neutral	-.11	.108	1.04	.308	.89	.72	1.10
Satisfied	.07	.094	.64	.421	1.07	.89	1.29
Friend satisfaction (r: Not satisfied)			21.791	<.001			
Neutral	.26	.191	1.98	.159	1.30	.90	1.90
Satisfied	.60	.174	12.10	<.001	1.83	1.30	2.58
Neighbor satisfaction (r: Not satisfied)			.84	.655			
Neutral	.07	.128	.31	.578	1.07	.83	1.37
Satisfied	.10	.113	.79	.372	1.10	.88	1.38

Cox & Snell R² = .153; Nagelkerke R² = .204Hosmer-Lemeshow test = 14.689, $p = .065$; Overall classification accuracy: %67

Satisfaction with friends is also a significant predictor ($p < .001$). The likelihood of life satisfaction among individuals satisfied with their friendships is 1.83 times higher than among those who are dissatisfied.

However, satisfaction with relatives ($p = .054$) and satisfaction with neighbors ($p = .655$) were not among the significant predictors of life satisfaction.

Discussion and Conclusion

The findings of this study reveal that life satisfaction is closely related to satisfaction levels in economic, social, and relational domains. Among the findings, income satisfaction emerged as the strongest predictor. Individuals' perceptions of their income level are closely associated with their life satisfaction, as these perceptions relate not only to their living standards but also to psychological

needs such as a sense of control, security, and predictability. Indeed, Cheung and Lucas (2015) state that income level is meaningfully and positively related to life satisfaction throughout individuals' lives. Furthermore, other studies have also revealed that income inequality and economic insecurity are linked with lower levels of reported life satisfaction (Roth et al., 2017).

This situation is even more striking in the context of Türkiye. As of 2024, Türkiye has been reported as the country with the highest inflation among 155 countries (TheGlobalEconomy, 2024). High inflation, increasing livelihood difficulties, and economic instability make it difficult for individuals to meet their basic needs, which seriously affects life satisfaction. These findings align with Maslow's hierarchy of needs, indicating that life satisfaction is closely tied to the fulfillment of basic physiological and safety needs before higher-order needs can be achieved. (Çoban, 2021). Therefore, income is not merely a material variable; it has become one of the fundamental determinants of life satisfaction, serving as a prerequisite for individuals to achieve high levels of social, emotional, and psychological fulfillment. A high income gives an individual the opportunity to choose the most beneficial option from among more choices and services (Acar, 2019).

Health satisfaction is another important variable that predicts life satisfaction. Health is a fundamental condition for an individual to maintain both physical and social functioning and better health status is associated with higher reported life satisfaction (Moreno-Agostino et al., 2021). Similarly, marital satisfaction is positively associated with life satisfaction. This finding is consistent with other studies in the relevant literature (Carr et al., 2014; Kasapoğlu, 2018; Khadirnavar and G, 2024; Li and Jiang, 2021; Ng et al., 2009). By offering emotional support, a deep sense of belonging, and mutual trust, marriage constitutes a vital psychosocial context that is associated with higher levels of life satisfaction. Friendship satisfaction, another psychosocial resource, also emerges as a significant predictor of life satisfaction. Friendship strengthens an individual's social connectedness and supports life satisfaction through dimensions

such as relationship quality and frequency of contact (Amati et al., 2018). Friend satisfaction plays a particularly critical role in life satisfaction during adolescence and young adulthood. On the other hand, its importance continues throughout life (Kang, 2023; Schmidt et al., 2022).

Another area of satisfaction that significantly predicts life satisfaction is social life satisfaction. This indicates that individuals support their psychological well-being through social relationships, leisure activities, and cultural interactions. In the Turkish context, social life satisfaction is directly related to individuals' self-actualization not only personally but also socially. In particular, the isolation experienced in large cities, the limited opportunities for socialization, and inequalities in access to cultural activities may be linked to a stronger association between social life and life satisfaction. This finding also aligns with international literature. Brown et al. (2015) showed that individuals who participate in cultural and creative activities have higher life satisfaction. In this regard, it can be said that cultural and social programs aimed at strengthening social life in Türkiye can play a functional role in increasing individuals' life satisfaction.

Housing satisfaction has emerged as a significant predictor of life satisfaction in this study. Living in housing areas where individuals enjoy themselves, feel safe, and are socially satisfied supports their mental well-being and improves their quality of life (Hatipoğlu-Şahin & Tereci, 2018). This finding is consistent with international research. For example a large-scale study conducted in Europe revealed that as the share of housing expenses in income increases, individuals' life satisfaction decreases significantly, highlighting the negative effects of housing costs on psychological well-being (Acolin & Reina, 2022). In the Turkish context, these findings are closely related to current housing issues. In particular, the housing crises that followed the February 6, 2023 earthquakes clearly demonstrated that housing is not only a physical need but also a psychological and social one. Additionally, rapidly rising rental prices are associated with concerns that may coincide with lower life satisfaction, particularly for young people, students, and low-income groups.

Job satisfaction stands out as an important factor affecting individuals' life satisfaction. The spillover model proposed to explain this relationship argues that an individual's positive or negative experiences in their work life directly reflect on their overall life satisfaction (Wright et al., 1999). Indeed, empirical studies on this model have found meaningful and positive relationships between job and life satisfaction. Longitudinal studies reveal a reciprocal interaction between these two variables; however, the effect of life satisfaction on job satisfaction may be stronger (Białowolski & Węziak-Białowolska, 2021). However, the limited predictive power of job satisfaction on life satisfaction in this study can be explained by factors such as the perception of work primarily as a means of livelihood in Türkiye and economic insecurity. Such structural conditions may limit individuals' potential for job satisfaction, thereby overshadowing the effect of job satisfaction on life satisfaction.

While educational satisfaction and satisfaction with time for oneself are also among the meaningful predictors, when the determinants of life satisfaction in our country are examined in general, economic security, health, and close relationships come to the fore. This finding indicates that life satisfaction in Türkiye is based more on basic living conditions, while self-directed areas such as individual autonomy or leisure time quality are still only effective at a secondary level.

The findings indicated that age significantly predicted life satisfaction; however, the strength of this prediction was relatively low. This situation can be explained by the effect of the large sample size on statistical significance. Indeed, some studies show that the relationship between age and life satisfaction is generally weak and that this relationship weakens further when other variables (e.g., health status, social support, income) are controlled for (Doyle & Forehand, 1984; George et al., 1985). In addition, the frequently cited U-shaped relationship between age and life satisfaction is questioned from certain methodological perspectives. Bartram (2020) points out that such findings mostly stem from the inclusion of individual-level variables such as income and marital status as control variables in statistical models, and that this approach is flawed for a fixed variable such as age.

According to Bartram (2020), such variables cannot be considered confounding factors because they cannot be the cause of age, and when included in the model, they can artificially distort the effect of age. From this perspective, the fact that the effect of age on life satisfaction in our study is statistically significant but limited in practice is consistent with similar methodological discussions in literature. The findings indicate that both contextual and statistical factors must be carefully considered when evaluating the age-satisfaction relationship.

On the other hand, gender is not a meaningful predictor. A study conducted with a sample group from 166 different countries found that women have higher life satisfaction than men across all income, education, and employment groups (Joshanoov and Jovanović, 2019). The fact that gender is not significant in Türkiye may be due to the dominance of other areas of satisfaction. On the other hand, the significance of gender as a predictor may increase or decrease regionally. The satisfaction of neighbors and relatives is also not a significant predictor. This situation can be explained by changing social relationship dynamics in the social structure. Neighborhood and kinship relationships no longer provide as strong a social support as they did in the past. This may indicate that these relationships have become more superficial with the processes of urbanization and individualization.

Limitations and Suggestions

Research findings provide important insights into social policies and practices aimed at increasing life satisfaction. The fact that income satisfaction is the strongest predictor variable reveals that economic stability and individuals' purchasing power play a decisive role in terms of life satisfaction. In this regard, developing economic policies that reduce income inequality and preserve purchasing power can support individuals' overall well-being. The high impact of health satisfaction indicates that improving access to and quality of healthcare services can have a direct effect on life satisfaction. Variables related to social relationships, marriage, friendship, and social life satisfaction reveal how

important establishing and maintaining strong relationships is for psychosocial well-being. Therefore, social programs that encourage social interaction can be effective in increasing individual levels of well-being.

Housing satisfaction is a particularly noteworthy finding in the Turkish context. While housing security has returned to the agenda following the earthquakes of February 6, 2023, rapidly rising rents in major cities in recent years have also made housing a serious socioeconomic problem. The increase in housing costs directly affects individuals with fixed or low incomes, especially young people, students, and retirees; insecure housing conditions negatively impact life satisfaction. This situation demonstrates how important not only the need for housing, but also fair and accessible housing policies are for social welfare. In this context, social housing projects, rent control mechanisms, and the planning of post-disaster resettlement processes in a manner befitting human dignity are of critical importance in terms of increasing life satisfaction.

This study has some limitations. First, since the study is based on cross-sectional data, it is not possible to draw definitive conclusions about causal relationships. Second, recoding some variables into categorical form may have reduced the variability in some variables. Finally, since the research was conducted using secondary data, psychological, cultural, or contextual factors that could not be included in the model may have limited the scope of the findings regarding life satisfaction.

Declarations

Funding: No funding was received for conducting this study.

Conflicts of Interest: The authors declare no conflict of interest.

Ethical Approval: This study is based on publicly available secondary data and therefore does not require ethical approval.

Informed Consent: Not applicable.

Data Availability: The data that support the findings of this study were obtained from the Turkish

Statistical Institute. The data are not publicly available due to confidentiality and licensing restrictions. However, researchers may request access to similar datasets from the Turkish Statistical Institute.

AI Disclosure: Artificial intelligence tools (e.g., ChatGPT by OpenAI) were used solely for translation purposes. No AI tools were used for data analysis, interpretation, or substantive manuscript writing.

Author Contributions: Both authors contributed equally to all aspects of the study, including conceptualization, data analysis, interpretation, and manuscript preparation. Both authors have read and approved the final version of the manuscript.

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RESEARCH ARTICLE

Social Media, Aesthetic Surgery, and Psychosocial Factors: A Comparative Study

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Abstract

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This study compared social media use, attitudes toward aesthetic surgery, and psychosocial factors between a social media group (SMG) and an aesthetic surgery group (ECG). This descriptive and comparative study included 120 social media users and 120 individuals planning to undergo aesthetic surgery. The findings indicated that, in both groups, single participants exhibited higher levels of social media addiction and self-esteem. In the SMG, associate degree graduates exhibited higher self-esteem than master's degree graduates ($p=0.022$), whereas in the ECG, primary school graduates had higher levels of depression than associate degree graduates ($p=0.014$). Additionally, in the ECG, individuals whose income was lower than their expenses showed higher levels of social media addiction than other income groups ($p=0.001$; $p=0.048$). After aesthetic surgery, participants showed increases in social media addiction, the impact of body image on quality of life, positive attitudes toward aesthetic surgery, and body satisfaction, while depression levels decreased compared to pre-surgery levels and social media users ($p<0.001$). Furthermore, in the ECG, as the positive impact of body image on quality of life increased, the acceptance of aesthetic surgery also increased ($p=0.022$). These findings underscore the need for community-based initiatives that enhance media literacy, promote positive body image, and bolster self-esteem. They also indicate that individuals considering aesthetic surgery should be evaluated for social media addiction and depressive symptoms.

Keywords: Aesthetic surgery, body perception, depression, quality of life, self-esteem, social media

Öz

Bu çalışma, sosyal medya grubu (SMG) ve estetik cerrahi grubu (ECG) arasında sosyal medya kullanımı, estetik cerrahiye yönelik tutumlar ve psikososyal faktörleri karşılaştırmayı amaçlamıştır. Tanımlayıcı ve karşılaştırmalı yöntemle yürütülen araştırmaya, sosyal medya kullanan 120 birey ile estetik cerrahi planlanan 120 birey katılmıştır. Çalışmada, her iki grupta da bekar bireylerin sosyal medya bağımlılığı ve benlik saygısı düzeylerinin daha yüksek olduğu belirlenmiştir. SMG'de önlisans mezunlarının yüksek lisans mezunlarına kıyasla benlik saygısı düzeylerinin daha yüksek olduğu ($p=0.022$); ECG'de ise ilkökul mezunlarının önlisans mezunlarına göre depresyon düzeylerinin daha yüksek olduğu saptanmıştır ($p=0.014$). Ayrıca, ECG'de gelirleri giderlerinden düşük olan bireylerde diğer gelir gruplarına kıyasla sosyal medya bağımlılığının daha yüksek olduğu bulunmuştur ($p=0.001$; $p=0.048$). Estetik cerrahi sonrası bireylerde, cerrahi öncesine ve sosyal medya kullanıcılarına kıyasla sosyal medya bağımlılığı, beden imgesinin yaşam kalitesine etkisi, estetik cerrahiye yönelik olumlu tutum ve beden doyumu düzeylerinde artış; depresyon düzeylerinde ise azalma gözlenmiştir ($p<0.001$). Bunun yanı sıra, ECG'de beden imgesinin yaşam kalitesine olumlu etkisi arttıkça estetik cerrahiye yönelik olumlu tutumun da arttığı belirlenmiştir ($p=0.022$). Bu bulgular, medya okuryazarlığını geliştirmeye ve olumlu beden algısı ile benlik saygısını güçlendirmeye yönelik toplum temelli programların önemini vurgulamakta; estetik cerrahi düşünen bireylerde sosyal medya bağımlılığı ve depresyon düzeylerinin değerlendirilmesini önermektedir.

Anahtar Kelimeler: Estetik cerrahi, beden algısı, depresyon, yaşam kalitesi, benlik saygısı, sosyal medya

Introduction

In recent years, the rapid proliferation of social media platforms has significantly influenced individuals' perceptions of body image and physical attractiveness, contributing to a growing interest in aesthetic surgical procedures (Okgün-Alcan & Çetin, 2022; Shalmani & Jafari, 2024). An increasing number of studies have highlighted the impact of social media on the demand for aesthetic procedures (ASAPS, 2023). Among the most common aesthetic surgeries are liposuction, breast augmentation, blepharoplasty, abdominoplasty, and rhinoplasty (ISAPS, 2024).

Key psychosocial factors that drive individuals to pursue aesthetic surgery include body image, self-esteem, and body perception.

Body image refers to an individual's perceptions, emotions, and beliefs about their physical appearance (Borujeni et al., 2020; Okgün-Alcan & Canpolat, 2021; Shalmani & Jafari, 2024), while self-esteem reflects the degree of self-respect, self-approval, and perceived self-worth. Body perception refers to how individuals internally visualize and interpret their own bodies (Karaca & Beydağ, 2021). Negative body image is often associated with lower self-esteem (Demirbaş, 2019), and several studies have reported that low self-esteem may increase the likelihood of seeking aesthetic surgical interventions (Heidarzadeh et al., 2019). Furthermore, aesthetic procedures have been shown to positively influence body perception and enhance satisfaction with one's appearance (Demirbaş, 2019).

Beyond improving physical appearance, aesthetic surgery is also associated with psychosocial benefits, including enhanced psychological well-being, increased self-confidence, and overall quality of life (QoL) (Karaca et al., 2017; Spadoni-Pacheco et al., 2018). Evidence demonstrates that aesthetic surgery can improve self-confidence (Asimakopoulou et al., 2020), body image, and self-esteem (Heidarzadeh et al., 2019; Kazeminia et al., 2023), as well as positively affect mental health outcomes, such as reducing anxiety, depression, and dysmorphic concerns, and improve QoL (Demirbaş, 2019; Kazeminia et al., 2023).

Although numerous studies have examined social media use, self-esteem, body perception, depression, QoL, and attitudes toward aesthetic surgery in social media users (Di Gesto et al., 2022; Okgün-Alcan & Çetin, 2022; Özer & Güzel, 2023; Swathi et al., 2023; Tecimer & Balcı, 2023) and individuals undergoing aesthetic surgery (Asimakopoulou et al., 2020; Borujeni et al., 2020; Emüler & Ayhan, 2021; Gajić & Gajić, 2022; Karaca & Beydağ, 2021; Katamanin et al., 2024; Shalmani & Jafari, 2024), there is a notable lack of studies that examine and compare these variables simultaneously across different groups. This gap has been highlighted by Gajić and Gajić (2022) and Okgün-Alcan and Çetin (2022). Therefore, this study compared social media use, attitudes toward cosmetic surgery, and psychosocial factors (self-esteem, body image, depression, and QoL) across both groups. Accordingly, it sought to answer the following research questions:

Research questions

1. Do scale scores differ according to demographic characteristics between participants who use social media and those who have undergone aesthetic surgery?
2. Do scale scores differ between participants who use social media and those who have undergone aesthetic surgery?
3. Are there significant differences in scale scores before and after aesthetic surgery?
4. Which factors influence the acceptance of cosmetic surgery among the groups?

Method

Participants

The study is descriptive and comparative in design with two distinct populations. The first population consisted of patients who applied to the Plastic, Reconstructive, and Aesthetic Surgery Clinic at Kocaeli University Hospital for aesthetic surgical procedures between January 2 and June 30, 2023. The sample size for this group was determined through power analysis based on statistical parameters reported in the study by Okgün Alcan and Çetin (2022), titled *"The effect of social media use on*

women's attitudes toward aesthetic surgery." Using a significance level of $\alpha = 0.05$, a power of $1 - \beta = 0.95$, and an effect size of 0.47, the required sample size was calculated as 117. To account for potential attrition, the study was conducted with 120 participants scheduled for aesthetic surgery (ASG). Inclusion criteria included being aged 18–65 years, providing informed verbal and written consent, and having no communication difficulties, psychiatric disorders, or cognitive impairments that could affect comprehension. Exclusion criteria were being under 18, having communication or psychiatric problems, or withdrawing from the study after surgery.

The second population comprised individuals aged 18–65 who were active social media users (SMG). To ensure balanced and homogeneous data distribution between the two groups, the sample size for this population was set at 120 participants, equal to that of the first group. Inclusion criteria for this population included being aged 18–65, regular social media use, and providing informed consent to participate in the study.

Data collection

In the sample group scheduled for aesthetic surgery, data were collected by the researcher (SM) through face-to-face interviews conducted in a quiet environment, free of patients' relatives or visitors, allowing participants to express their feelings comfortably. The data collection forms included the Descriptive Information Form (DIF), the Social Media Addiction Scale–Adult Form (SMAS-AAD), the Acceptance of Aesthetic Surgery Scale (ACSS), the Body Perception Scale (BPS), the Rosenberg Self-Esteem Scale (RSES), the Beck Depression Inventory (BDI), and the Body Image Quality of Life Inventory (BIQLI). Each interview lasted approximately 15–20 minutes.

Two months after the surgical procedure, the same patients were re-contacted either via phone or during their follow-up hospital visits. At this stage, all data collection instruments—except the Personal Information Form—were re-administered by the same researcher (SM).

For the sample group consisting of participants active on social media, data collection forms were

prepared using Google Forms and distributed via platforms such as Facebook, Instagram, Twitter, and WhatsApp. The form included a statement indicating that "completion of the questionnaire implies consent to participate in the study," and participant consent was obtained accordingly. To ensure completeness, the forms were structured so that respondents could not proceed to the next question without answering the current one. Additionally, IP tracking was employed to prevent multiple submissions from the same participant.

Data collection tools

Data were collected using the following instruments: DIF, SMAS-AAD, ACSS, BPS, RSES, BDI, and BIQLI.

DIF: Developed by the researchers, the form includes items regarding participants' demographic information (e.g., age, gender, education level, marital status, employment status), social media usage, and prior experience or knowledge related to plastic surgery.

SMAS-AAD: This 20-item scale was developed by Şahin and Yağcı (2017) and consists of 20 items to determine the level of social media addiction (SMA) in adults and to support preventive measures by evaluating the resulting outcomes. The scale comprises two sub-dimensions: Virtual Tolerance (Items 1–11) and Virtual Communication (Items 12–20). Total scores range from 20 to 100, with higher scores indicating a greater risk of SMA. The original reliability analysis reported a Cronbach's alpha of 0.94 for the total scale, 0.92 for the Virtual Tolerance subscale, and 0.91 for the Virtual Communication subscale (Şahin & Yağcı, 2017). In the present study, Cronbach's alpha coefficients were 0.932 for the SMG, 0.925 for the ASG, and 0.927 for the total sample.

ACSS: The scale, developed by Henderson-King (2005) and translated into Turkish by Karaca et al. (2017), is a 15-item, 7-point Likert-type instrument designed to assess individuals' attitudes toward cosmetic surgery. It comprises three sub-dimensions: intrapersonal, social, and consideration. Total scores range from 15 to 105, with higher

scores indicating more favorable attitudes toward aesthetic surgery. The Turkish adaptation demonstrated a Cronbach's alpha of 0.92 (Karaca & Beydağ, 2021). In the present study, Cronbach's alpha coefficients were 0.939 for the SMG, 0.901 for the ASG, and 0.933 for the total sample.

BPS: The scale was originally developed by Secord and Jourard (1953), and its Turkish adaptation was conducted by Hovardaoğlu (1986). It assesses an individual's satisfaction with 40 different body parts or functions. Higher scores indicate greater satisfaction with body perception, whereas scores below the cut-off point suggest dissatisfaction with one's body image. The scale has demonstrated strong internal consistency, with a Cronbach's alpha of 0.91 reported in the original Turkish adaptation (Hovardaoğlu, 1992). In the present study, reliability analysis yielded Cronbach's alpha coefficients of 0.905 for the SMG, 0.893 for the ASG, and 0.918 for the total sample.

RSES: The scale was developed by Rosenberg (1965), and its Turkish adaptation and validation were conducted by Çuhadaroglu (1986). It is a self-report instrument with 63 multiple-choice items. It includes twelve subcategories, which can be used separately in research if necessary. In the present study, only the first 10 items were used to assess participants' self-esteem levels, yielding a total score ranging from 0 to 30. Scores between 15 and 25 indicate adequate self-esteem, while scores below 15 reflect low self-esteem. The scale's Cronbach's alpha was previously reported as 0.71 (Karaca et al., 2017). In the current study, Cronbach's alpha coefficients were 0.878 for the SMG, 0.718 for the ASG, and 0.828 for the total sample.

BDI: The scale, developed by Beck et al. (1961), is a self-report instrument designed to assess emotional, somatic, cognitive, and motivational symptoms of depression (Beck, 1961). Its Turkish validity and reliability were established by Hisli (1989). The scale includes 21 symptom statements, with total scores ranging from 0 to 63: 0–9 indicating minimal depression, 10–16 mild, 17–29 moderate, and 30–63 severe depression. In the original study,

Cronbach's alpha was reported as 0.80 (Hisli, 1989). In the present study, Cronbach's alpha was 0.896 for the SMG, 0.874 for the ASG, and 0.969 for the total sample.

BIQLI: The scale was developed by Cash and Fleming (2002) to assess the effect of body image on an individual's quality of life (QoL) and the extent of this effect. It was adapted into Turkish by Demiralp et al. (2015), who also conducted validity and reliability analyses. The scale is a 19-item, 7-point bipolar instrument, with each item scored from -3 to +3. Total scores range from -57 to +57, with positive scores showing a positive effect of body image on QoL, negative scores reflecting a negative impact, and a score of 0 suggesting no impact. In the original Turkish adaptation, Cronbach's alpha was reported as 0.89 (Demiralp et al., 2015). In the present study, Cronbach's alpha was 0.970 for the SMG, 0.936 for the ASG, and 0.963 for the total sample.

Ethical considerations

Written approval for the study was obtained from the Kocaeli University Non-Interventional Clinical Research Ethics Committee (Date: 22.12.2022, Decision No: KU GOKAEK-2022/21.15) and the relevant hospital. To minimize potential bias, the objectives of the study were not disclosed to participants during recruitment, as prior knowledge could influence their responses. The primary aim of the study was explained to participants only after they had completed the data collection forms. Only data from participants who provided informed consent were recorded. Additionally, permission to use the scales in the study was obtained via e-mail from the responsible authors.

Data analyses

Statistical analyses were performed using IBM SPSS Statistics for Windows, Version 20.0 (IBM Corp., Armonk, NY, USA). The Kolmogorov-Smirnov test was used to assess the normality of data distribution. Numerical variables were presented as median (25th–75th percentile) and fre-

quencies (percentages). Cronbach's alpha coefficients were calculated to evaluate the internal consistency of the scales. The Mann-Whitney U test and Kruskal-Wallis test were used for comparisons of non-normally distributed variables. Differences between measurements were evaluated using the Wilcoxon signed-rank test for continuous

variables with non-normal distribution. Additionally, regression analysis was performed to identify factors associated with ACSS scores. A p-value of <0.05 was considered statistically significant.

Results

Table 1. Comparison of the groups according to socio-demographic and aesthetic surgery information (median (25th-75th percentile) / n (%))

Characteristics		SMG (n=120)	ASG (n=120)	Total (n=240)	p ^a
		Median (Q1-Q3)	Median (Q1-Q3)	Median (Q1-Q3)	
Age		26.50 (20.00-41.00)	23.00 (21.00-35.75)	24.00 (20.00-39.75)	0.985
		n (%)	n (%)	n (%)	p^b
Gender	Female	107 (89.2)	84 (70.0)	191 (79.6)	p<0.001
	Male	13 (10.8)	36 (30.0)	49 (20.4)	
Education Level	Primary school	0 (0.0)	9 (7.5)	9 (3.8)	p<0.001
	Secondary school	3 (2.5)	4 (3.3)	7 (2.9)	
	High school	8 (6.7)	31 (25.8)	39 (16.3)	
	Associate degree	14 (11.7)	73 (60.8)	87 (36.3)	
	Bachelor's degree	69 (57.5)	3 (2.5)	72 (30.0)	
	Post-graduate	26 (21.7)	0 (0.0)	26 (10.8)	
Marital status	Single	70 (58.3)	84 (70.0)	154 (64.2)	0.062
	Married	45 (37.5)	29 (24.2)	74 (30.8)	
	Widowed/divorced	5 (3.8)	7 (5.8)	12 (5.0)	
Employment	Unemployed	53 (44.2)	23 (19.2)	76 (31.7)	p<0.001
	Civil servant	48 (40.0)	34 (28.3)	82 (34.2)	
	Working in private sector	5 (4.2)	6 (5.0)	11 (4.6)	
	Retired	0 (0.0)	8 (6.7)	8 (3.3)	
	Housewife	1 (0.8)	45 (37.5)	46 (19.2)	
	Others	13 (10.9)	4 (3.3)	17 (7.1)	
Income level	Income less than expenses	57 (47.5)	32 (26.7)	89 (37.1)	0.004
	Income equal to expenses	51 (42.5)	68 (56.7)	119 (49.6)	
	Income more than expenses	12 (10.0)	20 (16.7)	32 (13.3)	
Use of social media	Yes	87 (72.5)	89 (74.2)	176 (73.3)	0.770
	No	33 (27.5)	31 (25.8)	64 (26.7)	
Following physicians or centers on social media related to aesthetic surgery	Yes	28 (23.3)	54 (45.0)	82 (34.2)	0.001
	No	92 (76.7)	66 (55.0)	158 (65.8)	
Someone around having an aesthetic surgery	Yes	81 (67.5)	70 (58.3)	151 (62.9)	0.142
	No	39 (32.5)	50 (41.7)	89 (37.1)	
Previous aesthetic surgery	Yes	10 (8.3)	11 (9.2)	21 (8.8)	1.000
	No	110 (91.7)	109 (90.8)	219 (91.3)	
Most recent plastic surgery	Otoplasty	1 (10.0)	1 (0.8)	2 (1.5)	p<0.001
	Mammoplasty	3 (30.0)	10 (8.3)	13 (10.0)	
	Blepharoplasty	3 (30.0)	2 (1.7)	5 (3.8)	
	Rhinoplasty	1 (10.0)	69 (57.5)	70 (53.8)	
	Lip augmentation	2 (20.0)	0 (0.0)	2 (1.5)	
	Liposuction	0 (0.0)	6 (5.0)	6 (4.6)	
	Abdominoplasty	0 (0.0)	4 (3.3)	4 (3.1)	
	Others	0 (0.0)	28 (23.3)	28 (21.5)	
	Total	10 (100.0)	120 (100.0)	130 (100.0)	
Expectations from aesthetic surgery	Change in physical appearance	3 (30.0)	73 (60.8)	76 (58.5)	0.002
	Improvement of health problems	6 (60.0)	44 (36.7)	50 (38.5)	
	Achieving social gains	1 (10.0)	3 (2.5)	4 (3.0)	
	Total	10 (100.0)	120 (100.0)	130 (100.0)	
Satisfaction with aesthetic surgery	Yes	6 (60.0)	115 (95.8)	121 (93.1)	p<0.001
	Not sure	2 (20.20)	1 (0.8)	3 (2.3)	
	No	2 (20.0)	4 (3.3)	6 (4.6)	
	Total	10 (100.0)	120 (100.0)	130 (100.0)	

SMG: Social Media Group; ASG: Aesthetic Surgery Group

^a: Mann-Whitney U Test; ^b: Pearson Chi-Square, Bold faced values are shown as p<0.05.

Table 2. Comparison of median scale scores between groups according to certain demographic characteristics (n=240) (median (25th-75th percentile))

		SMG (n=120)					
Characteristics		SMAS-ADD	BIQLI	ACSS	BPS	RSES	BDI
Gender	Female (n=107)	53.00 (41.00-63.00)	85.00 (61.00-109.00)	63.00 (49.00-76.00)	88.00 (78.00-98.00)	25.00 (20.00-29.00)	32.00 (28.00-42.00)
		59.00 (51.50-69.50)	76.00 (66.50-106.00)	59.00 (47.00-96.00)	100.00 (80.50-110.00)	24.00 (21.00-27.50)	33.00 (24.50-37.00)
	Male (n=13)						
	p ^a	p=0.179	p=0.949	p=0.785	p=0.144	p=0.966	p=0.803
Marital status	1. Single (n=70)	58.00 (49.00-68.25)	87.50 (62.00-107.25)	61.50 (44.25-75.25)	89.00 (77.75-100.00)	27.00 (21.00-31.25)	33.50 (28.75-42.00)
	2. Married (n=45)	46.00 (33.50-59.50)	85.00 (63.00-112.00)	62.00 (49.00-77.00)	89.00 (79.00-99.00)	24.00 (19.00-25.00)	31.00 (24.00-38.00)
	3. Widowed/divorced (n=5)	50.00 (40.50-59.50)	84.00 (58.00-105.50)	81.00 (57.00-86.00)	79.00 (70.50-97.50)	25.00 (20.00-28.50)	29.00 (29.00-40.00)
	p ^c	p=0.001	p=0.902	p=0.332	p=0.676	p=0.015	p=0.195
	p ^d	1>2***				1>2*	
Education Level	1. Secondary school (n=3)	33.00 (33.00- .)	130.00 (84.00- .)	17.00 (17.00- .)	115.00 (79.00- .)	19.00 (19.00- .)	26.00 (26.00- .)
	2. High school (n=8)	55.00 (39.00-68.75)	79.00 (64.75-109.00)	71.00 (49.00-96.00)	92.00 (80.25-106.00)	24.00 (18.50-30.50)	31.50 (30.25-57.00)
	3. Associate degree (n=14)	57.50 (43.75-69.75)	60.00 (45.25-116.50)	50.50 (29.75-86.25)	100.00 (72.00-107.25)	28.00 (23.75-32.00)	37.50 (28.75-50.75)
	4. Bachelor's degree (n=69)	57.00 (48.00-64.00)	85.00 (69.00-103.00)	63.00 (49.50-76.00)	88.00 (79.00-97.50)	25.00 (21.00-28.50)	33.00 (29.00-39.00)
	5. Post-graduate (n=26)	48.50 (39.00-57.75)	95.00 (58.00-114.00)	64.00 (52.50-77.00)	84.00 (76.00-94.50)	21.50 (19.00-25.25)	29.00 (24.00-38.00)
	p ^c	p=0.148	p=0.252	p=0.506	p=0.244	p=0.028	p=0.255
	p ^d					3>5*	
Income level	Income less than expenses (n=57)	54.00 (40.50-64.50)	93.00 (62.00-113.50)	65.00 (49.00-76.00)	92.00 (77.50-104.50)	24.00 (20.00-29.50)	32.00 (27.00-42.50)
	Income equal to expenses (n=51)	52.00 (41.00-62.00)	82.00 (66.00-102.00)	58.50 (40.75-78.00)	88.00 (80.00-94.00)	25.00 (19.00-28.00)	31.00 (26.00-40.00)
	Income more than expenses (n=12)	58.50 (51.25-65.75)	80.50 (58.25-98.00)	64.00 (50.50-79.00)	79.50 (74.50-88.00)	28.00 (24.75-29.00)	37.00 (35.00-41.50)
	p ^c	p=0.356	p=0.517	p=0.448	p=0.112	p=0.151	p=0.114
PAS-ASG (n=120)							
Characteristics		SMAS-ADD	BIQLI	ACSS	BPS	RSES	BDI
Gender	Female (n=84)	66.00 (46-.00-75.00)	96.50 (90.00-103.00)	91.50 (82.00-98.00)	90.00 (90.00-90.00)	21.00 (19.00-24.00)	1.00 (0.00-4.00)
		69.00 (47.50-72.75)	99.50 (90.25-103.00)	88.00 (75.00-94.75)	103.00 (87.00-117.00)	22.00 (19.50-24.00)	0.00 (0.00-3.50)
	Male (n=36)						
	p ^c	p=0.311	p=0.542	p=0.108	p=0.561	p=0.230	p=0.143
Marital status	1. Single (n=84)	69.00 (64.00-75.00)	97.00 (90.00-103.00)	90.00 (82.25-96.00)	103.50 (91.00-112.75)	22.00 (20.00-24.00)	1.00 (0.00-3.00)
	2. Married (n=29)	41.00 (30.50-53.50)	98.00 (90.50-102.50)	87.00 (64.00-98.00)	100.00 (90.00-118.00)	21.00 (17.50-22.50)	1.00 (0.00-3.50)
	3. Widowed/divorced (n=7)	49.00 (44.00-77.00)	99.00 (82.00-131.00)	82.00 (75.00-96.00)	100.00 (66.00-125.00)	21.00 (21.00-27.00)	7.00 (0.00-13.00)
	p ^c	p<0.001	p=0.872	p=0.241	p=0.697	p=0.037	p=0.059
	p ^d	1>2***					
Education Level	1. Primary school (n=9)	49.00 (45.00-57.50)	96.00 (86.00-100.00)	92.00 (71.00-104.50)	95.00 (86.00-97.50)	23.00 (22.00-26.00)	4.00 (2.00-13.50)
	2. Secondary school (n=4)	41.00 (31.25-61.25)	99.00 (88.50-102.00)	88.50 (77.75-91.00)	95.00 (86.00-97.50)	23.00 (20.25-25.00)	5.00 (0.00-13.00)
	3. High school (n=31)	63.00 (43.00-71.00)	94.00 (86.00-112.00)	83.00 (77.00-92.00)	105.00 (90.50-114.50)	22.00 (18.00-24.00)	1.00 (0.00-7.00)
	4. Associate degree (n=73)	69.00 (57.00-75.00)	98.00 (91.00-103.00)	92.00 (81.00-98.00)	108.00 (94.00-119.00)	21.00 (19.00-24.00)	1.00 (0.00-2.00)
	5. Bachelor's degree (n=3)	76.00 (66.00- .)	121.00 (128.00-120.00)	99.00 (87.00- .)	103.00 (83.00- .)	19.00 (15.00- .)	0.00 (0.00- .)
	p ^c	p=0.003	p=0.063	p=0.085	p=0.019	p=0.083	p=0.024
	p ^d	1>2**, 1>3*					1> 4*
Income level	1. Income less than expenses (n=32)	72.00 (60.50-78.00)	98.00 (91.00-107.00)	92.00 (90.00-98.00)	94.50 (84.25-109.00)	21.00 (20.00-23.75)	2.00 (0.00-7.00)
	2. Income equal to expenses (n=68)	64.00 (42.50-71.00)	96.00 (89.25-102.00)	87.50 (78.00-96.75)	107.00 (94.00-119.00)	22.00 (19.25-24.00)	0.50 (0.00-3.00)
	3. Income more than ex-penses (n=20)	67.50 (45.00-71.75)	97.00 (89.50-108.00)	87.00 (65.25-96.00)	101.00 (91.00-117.25)	21.00 (18.25-23.50)	0.50 (0.00-3.00)
	p ^c	p=0.001	p=0.653	p=0.031	p=0.076	p=0.444	p=0.204
	p ^d	1>2**, 1>3*					

SMG: Social Media Group; ASG: Aesthetic Surgery Group
 PAS: Post Aesthetic Surgery; BPS: Body Perception Scale; BDI: Beck Depression Inventory; BIQLI: the Body Image Quality of Life Inventory; ACSS: Acceptance of Aesthetic Surgery Scale; RSES: the Rosenberg Self-Esteem Scale; SMAS-ADD: the Social Media Addiction Scale-Adult Form

^a: Mann-Whitney U Test; ^c: Kruskal-Wallis Test;

^d: Multiple Comparison Test, Bold faced values are shown as

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The comparison of the groups based on socio-demographic characteristics and aesthetic surgery information is presented in Table 1.

In the SMG, single participants had significantly higher median scores for SMAS-AAD ($p < 0.001$) and RSES ($p = 0.011$) than the married participants. In the ASG, single participants also had higher median SMAS-AAD scores than married participants ($p < 0.001$).

RSES scores ($p = 0.037$). The median BDI score was higher among primary school graduates than associate degree graduates ($p = 0.014$). Moreover, participants with income less than expenses had higher median SMAS-AAD scores than those with income equal to expenses ($p = 0.001$) and those with income more than expenses ($p = 0.048$). A significant difference was also found in the median post-surgery ACSS scores according to income status ($p = 0.031$, Table 2).

As for the scores between the SMG and ASG, the post-surgery median scores for SMAS-AAD, BIQLI, ACSS, and BPS were significantly higher in the ASG than in the SMG ($p < 0.001$), while the median scores for RSES and BDI were significantly lower ($p < 0.001$).

Table 3. Comparisons of pre and post aesthetic surgery median scale scores between SMG and ASG (n=240) (median (25.-75th percentile))

Scales and subscales	SMG	ASG (PAS)	p^a	ASG		p^e
				PrAS	PAS	
	Median (Q1-Q3)	Median (Q1-Q3)		Median (Q1-Q3)	Median (Q1-Q3)	
SMAS-AAD	54.00 (42.00-63.00)	69.50 (46.00-73.75)	$p < 0.001$	63.00 (46.00-73.00)	69.50 (46.00-73.75)	$p < 0.001$
BIQLI	85.00 (62.00-108.75)	97.00 (90.00-103.00)	$p < 0.001$	76.00 (71.00-89.00)	97.00 (90.00-103.00)	$p < 0.001$
ACSS	63.00 (49.00-76.00)	90.00 (80.00-97.00)	$p < 0.001$	83.00 (69.25-90.00)	90.00 (80.00-97.00)	$p < 0.001$
BPS	89.00 (79.00-99.00)	103.00 (90.00-114.75)	$p < 0.001$	77.00 (76.00-88.00)	103.00 (90.00-114.75)	$p < 0.001$
RSES	26.00 (20.25-29.00)	24.00 (22.00-26.00)	$p < 0.001$	22.00 (19.00-24.00)	24.00 (22.00-26.00)	$p < 0.001$
BDI	32.00 (27.25-40.00)	1.00 (0.00-3.75)	$p < 0.001$	4.00 (2.00-7.00)	1.00 (0.00-3.75)	$p < 0.001$

SMG: Social Media Group; ASG: Aesthetic Surgery Group
 PrAS: Pre Aesthetic Surgery; PAS: Post Aesthetic Surgery
 BPS: Body Perception Scale; BDI: Beck Depression Inventory
 BIQLI: the Body Image Quality of Life Inventory
 ACSS: Acceptance of Aesthetic Surgery Scale
 RSES: the Rosenberg Self-Esteem Scale
 SMAS-ADD: the Social Media Addiction Scale-Adult Form

^a: Mann-Whitney U test; ^e: Wilcoxon Signed Ranks Test

Bold faced values are shown as $p < 0.05$.

Additionally, in the ASG, significant relationships were observed between educational status and the median scores of SMAS-AAD ($p = 0.003$), BPS ($p = 0.019$), and BDI ($p = 0.024$) related to aesthetic surgery. A significant difference was also found between marital status and post-surgery

Furthermore, within the ASG, comparisons of pre- and post-surgery scores showed that post-surgery median scores for SMAS-AAD, BIQLI, ACSS, BPS, and RSES were significantly higher ($p < 0.001$), while the median BDI score was significantly lower ($p < 0.001$, Table 3).

In the ASG, the “social” and “consider” sub-dimensions of the ACSS, along with the “effect of body image on QoL” from the BIQLI, were positively associated with ACSS scores. In other words, as the scores for “social,” “consider,” and the impact of body image on QoL increased, the acceptance of aesthetic surgery also increased (Table 4).

Table 4. Regression analysis for the scores of ACSS and other scales in ASG and SMG

Coefficients ^a							
Model			Unstandardized Coefficients		Standardized Coefficients	t	Sig.
			B	Std. Error	Beta		
SMG (n=120)	1	(Constant)	13,198	4,066		3,246	0.002
		Self-esteem	-,373	,198	-,174	-1,884	0.062
		Daily life	,243	,254	,095	,958	0.340
		Interaction with opposite sex	-,306	,385	-,090	-,794	0.429
		Intrapersonal	2,477	,122	,895	20,243	p<0.001
Coefficients ^b							
Model			Unstandardized Coefficients		Standardized Coefficients	t	Sig.
			B	Std. Error	Beta		
ASG (PAS) (n=120)	1	(Constant)	4,939	3,049		1,620	0.108
		Daily life	-,035	,139	-,009	-,251	0.802
		Interaction with opposite sex	-,231	,224	-,052	-1,031	0.305
		Behavior/Attitude	-,174	,157	-,036	-1,114	0.268
		Social	1,112	,052	,531	21,226	p<0.001
		Consider	1,458	,065	,568	22,593	p<0.001
		BIOLI	,192	,083	,165	2,326	0.022

SMG: Social Media Group; ASG: Aesthetic Surgery Group

PAS: Post Aesthetic Surgery

ACSS: Acceptance of Aesthetic Surgery Scale

BIQLI: the Body Image Quality of Life Inventory

^a: Dependent Variable: ACSS; ^b: Dependent Variable: ACSS (PAS)

Bold faced values are shown as $p < 0.05$.

Discussion

In the present study, social media use, attitudes towards aesthetic surgery, and psychosocial factors, including self-esteem, body perception, depression, and quality of life were compared between social media users and individuals who had undergone aesthetic surgery. The main findings are presented in the following sections.

Comparison of scale scores between groups according to certain demographic characteristics

Social media platforms, where users can present their lives as they wish, may encourage social comparisons that impact self-esteem (Lisa et al., 2025). Research indicates that SMA and self-esteem are influenced by certain sociodemographic factors, with marital status playing a particularly significant role (Kabar, 2024; Kaya, 2025; Özer & Güzel, 2023; Tecimer & Balcı, 2023). In the studies by Özer and Güzel (2023) and Kabar (2024), single participants had significantly higher levels of social media/internet addiction than married individuals. Kaya (2025) reported that single women who use social media placed greater importance on how they appear on these platforms than married women. In the study by Tecimer and Balcı (2023), internet and social media addiction levels were

higher among single individuals, whereas their self-esteem levels were lower than those of married participants. In the present study, single participants in both the SMG and the ASG demonstrated higher levels of social media addiction and self-esteem, consistent with the findings of Özer and Güzel (2023), Kabar (2024), and Kaya (2025). Additionally, Valkenburg et al. (2006) noted that individuals with higher self-esteem tend to be more active on social media. Based on these findings, it seems that single individuals tend to spend more time on social media, and the positive feedback they receive from these platforms may further boost their self-esteem. However, this increased engagement may also contribute to higher social media addiction and potential psychosocial risks. Therefore, it is important to closely examine how social media use affects both self-esteem and addiction levels, particularly among single individuals.

One of the important sociodemographic factors affecting an individual's self-esteem is their education level. The literature indicates that higher education levels may be associated with increased self-esteem, which in the long term can contribute to the development of individuals with high self-esteem (Öner Altıok et al., 2010; Saygılı et al., 2015). For example, in a study conducted by Saygılı et al. (2015) with students, it was found that self-esteem scores increased in parallel with higher levels of education. Similarly, Öner Altıok et al. (2010) reported that students enrolled in faculties or four-year programs had higher self-esteem levels than those attending two-year vocational colleges. In

contrast, in the present study, it was observed that associate degree graduates in the SMG had higher levels of self-esteem than postgraduate graduates. Although this finding contradicts previous literature, it suggests that the relationship between education level and self-esteem may be influenced not only by individual factors but also by temporal and environmental factors (Kaya, 2021; Tecimer & Balci, 2023; Özer & Güzel, 2023). In particular, the widespread use of social media today, variations in platform usage according to education level, and responses to social feedback may have reshaped its effects on self-esteem. These results indicate that self-esteem research should consider not only sociodemographic characteristics but also social, environmental, and cultural contexts.

This study examined the relationship between educational level and social media addiction, body satisfaction, and depression in individuals undergoing aesthetic surgery, and the findings were generally consistent with the literature. Higher educational levels were associated with increased social media addiction and body satisfaction, as well as lower levels of depression, suggesting that education plays a significant role in psychosocial variables. In this study, associate degree graduates had higher levels of social media addiction than other educational groups, supporting previous findings that “social media use increases with educational level” (Gökkaya et al., 2020; Özer & Güzel, 2023). This indicates that as education level rises, individuals may be more exposed to appearance-focused content, which could influence their motivation to undergo aesthetic surgery. However, education alone may not be protective against the effects of social media; thus, mindful usage is important. Regarding body satisfaction, educational level can significantly influence individuals’ perceptions (Austin et al., 2009; Cheung et al., 2011). The literature shows a complex relationship: some studies report a positive association between higher education and body image (Gören Yılmaz, 2016; Rosenqvist et al., 2024), while others report a negative association (Ashgar, 2023; Austin et al., 2009; Gökkaya et al., 2020). Our findings suggest that more educated individuals can evaluate their body image more consciously and make aesthetic deci-

sions on a more rational basis. Concerning depression, the literature indicates that higher education is generally associated with lower risk and severity of depression (Cohen et al., 2020; Magakwe et al., 2025; Xiong et al., 2024). In our study, primary school graduates had significantly higher levels of depression than associate degree graduates, suggesting that increased education, along with better problem-solving skills, health literacy, and access to psychosocial resources, may have a protective effect against depressive symptoms. In conclusion, educational level is an influential factor in social media addiction, body satisfaction, and depression among individuals undergoing aesthetic surgery. These findings highlight the importance of considering educational level in preoperative psychosocial assessments.

Aesthetic surgery, which was previously accessible primarily to high-income groups, is now sought by individuals across different income levels (Gürler, 2018; Okumus, 2021). The literature indicates that the inclination toward aesthetic surgery varies according to income level; some studies highlight the middle-income group (Alharethy, 2017), while others emphasize high-income individuals (Ahmadi et al., 2022; Bidkhori et al., 2021), and Okgün-Alcan and Çetin (2022) found no significant effect of economic status, suggesting that income level may be related not only to cost but also to self-perception, social interactions, and social media experiences. The relationship between income level and social media addiction also shows varied findings. Özer and Güzel (2023) reported that lower-income groups exhibit higher levels of social media addiction; Stockdale and Coyne (2020) indicated that individuals experiencing financial stress use social media as a coping mechanism, which may increase the risk of problematic use. Chen et al. (2025) and Sun et al. (2021) emphasized that lower-income individuals use social media more intensively as an escape, for entertainment, and for social comparison. Consistent with this literature (Chen et al., 2025; Özer & Güzel, 2023; Stockdale & Coyne, 2020; Sun et al., 2021), the present study found that participants whose income was less than their expenses exhibited higher social media addiction and more positive attitudes toward cosmetic surgery than other

groups. These findings suggest that economic stress and daily life challenges may lead lower-income individuals to use social media more frequently, and exposure to idealized body images and individuals who have undergone aesthetic procedures may reinforce positive attitudes toward cosmetic surgery (Fardouly & Vartanian, 2016; Verduyn et al., 2020). Therefore, it is recommended to strengthen media literacy programs for lower-income groups, support body-positive content on social media, and expand awareness initiatives regarding the psychosocial aspects of aesthetic surgery. Additionally, healthcare professionals should comprehensively assess social media influence, economic vulnerability, and psychosocial risks among individuals seeking aesthetic procedures.

Comparison of scale scores between SMG and ASG

Although studies directly comparing the psychosocial characteristics of individuals who have undergone cosmetic surgery with those who have not are limited, the available literature indicates that variables such as self-esteem, body image, quality of life, social media addiction, anxiety, and depression may be influenced differently in individuals who undergo cosmetic procedures. (Di Mattei et al., 2015; Heidarzadeh et al., 2019; Spadoni-Pacheco & Carvalho, 2018). While the findings are not entirely consistent, there is a growing research interest in the potential effects of cosmetic surgery on individuals' psychosocial well-being. For example, Heidarzadeh et al. (2019) found no significant differences in self-esteem, body image, or psychological problems between those who had undergone cosmetic surgery and those who had not. Spadoni-Pacheco and Carvalho (2018) reported that older women who underwent cosmetic surgery did not show significant improvements in self-esteem or quality of life compared to those who did not; however, improvements in social interactions and reductions in anxiety and depression were observed. Di Mattei et al. (2015) found that individuals not interested in cosmetic surgery were less satisfied with their body image than

those who were interested. Öztürk et al. (2020) reported higher social media addiction scores in individuals who had undergone rhinoplasty than in a non-surgical control group. Our study findings align with those of Spadoni-Pacheco and Carvalho (2018), Di Mattei et al. (2015), and Öztürk et al. (2020). In this study, social media addiction, the impact of body image on quality of life, positive attitudes toward cosmetic surgery, and body satisfaction were higher in the ASG, while self-esteem and depression levels were lower. These results suggest that individuals who undergo cosmetic surgery may exhibit a more positive psychosocial profile. Improving self-esteem has been identified in the literature as one of the main motivations for seeking cosmetic surgery (Spadoni-Pacheco & Carvalho, 2018).

In our study, the lower self-esteem scores in the ASG than the SMG suggest that individuals may be more vulnerable in terms of self-esteem prior to surgery. However, the observed increase in self-esteem following cosmetic surgery supports the positive effect of surgery in this domain. This finding is consistent with numerous studies indicating that cosmetic surgery can enhance self-esteem (Borujeni et al., 2020; Kazeminia et al., 2023; Spadoni-Pacheco & Carvalho, 2018).

Social media use has emerged as an important factor shaping attitudes toward cosmetic surgery (Hermans et al., 2022; Okgün-Alcan & Çetin, 2022). The increase in cosmetic surgery-related content on social media has recently contributed to a rise in demand for these procedures (Arab et al., 2019; Okumus, 2021). Individuals who undergo surgery tend to have higher levels of social media addiction (Gürkan & Çakmak, 2025; Kaya, 2025; Okumus, 2021; Özer & Güzel, 2023; Reshadi Mohammadi et al., 2023; Sorice et al., 2017; Türk & Bayrakçı, 2019). For example, Sorice et al. (2017) reported that patients widely use social media when selecting a surgeon, and Özer and Güzel (2023) found positive associations between social appearance anxiety, social media addiction, and the perceived likelihood of undergoing cosmetic procedures. In our study, the ASG also exhibited higher social media addiction scores, with the group classified within the "highly addicted" category (Table 3). Furthermore, 45% of individuals in the ASG were found to

follow social media accounts of physicians or clinics related to cosmetic surgery (Table 1). Taken together, these findings suggest that the increase in visual content and information sharing about cosmetic surgery on social media may influence individuals' aesthetic perceptions and body image awareness, potentially increasing the time spent on social media and elevating addiction levels. Therefore, social media use may play a significant mediating role both in the inclination toward cosmetic surgery and in psychosocial outcomes. This underscores the importance of considering the effects of social media use in cosmetic surgery planning and in the postoperative period.

Comparison of preoperative and postoperative scale scores before and after aesthetic surgery

The literature has widely demonstrated that aesthetic surgery has positive effects on body image, psychological well-being, and social functioning (Asimakopoulou et al., 2020; Borujeni et al., 2020; Demirbaş, 2019; Karaca & Beydağ, 2021; Kazeminia et al., 2023; Spadoni-Pacheco & Carvalho, 2018). For example, Karaca and Beydağ (2021) reported that women who underwent cosmetic surgery experienced high levels of satisfaction with their body image, while Spadoni-Pacheco and Carvalho (2018) found that it improved quality of life and reduced anxiety and depression levels. Similarly, Katamanin et al. (2024) and Borujeni et al. (2020) showed that surgery positively affects body image, self-esteem, and overall psychosocial well-being. Consistent with the literature, our study found that following aesthetic surgery, body satisfaction, self-esteem, and quality of life increased, whereas depression levels decreased, confirming the beneficial psychosocial effects of the procedure. However, the observed increase in social media addiction scores after surgery is noteworthy. Previous studies have indicated that increased exposure to social media among individuals who undergo cosmetic surgery may be associated with heightened interest in physical appearance (Kaya, 2025; Türk & Bayrakçı, 2019). These findings suggest that while aesthetic surgery supports psychosocial well-being and quality of life, it may also influence individuals' digital behaviors,

highlighting the need for a more comprehensive evaluation of social media use in the postoperative period.

Factors affecting aesthetic surgery acceptance in the groups

The expected outcome of aesthetic surgery is not only an improvement in physical appearance but also an enhancement in the psychosocial aspects of an individual's life (Borujeni et al., 2020; Karaca et al., 2017). Postoperative expectations often include increased psychological well-being, self-confidence, and quality of life (Karaca et al., 2017). Various studies have shown that aesthetic surgery can improve quality of life (Asimakopoulou et al., 2020; Demirbaş, 2019; Kazeminia et al., 2023; Spadoni-Pacheco & Carvalho, 2018). Additionally, some research emphasizes that quality of life serves as an important motivating factor in seeking aesthetic interventions (Demirbaş, 2019). In line with the literature, our study found that in the ASG, as the positive impact of body image on quality of life increased, acceptance of cosmetic surgery also rose, indicating that aesthetic surgery not only improves physical appearance but also supports individuals' overall quality of life. Specifically, the postoperative enhancement of quality of life related to body image increases individuals' interest in and acceptance of cosmetic surgery. This finding suggests that aesthetic interventions are not merely aesthetic choices but also factors that enhance quality of life and strengthen psychosocial well-being. Furthermore, it supports the notion highlighted in the literature that "quality of life is an important motivating factor in seeking aesthetic procedures" and underscores the importance of considering patients' expectations and quality-of-life-oriented motivations during surgical planning. In other words, decisions to undergo aesthetic surgery are influenced not only by concerns about physical appearance but also by expectations regarding psychosocial well-being and overall quality of life.

Conclusions and Recommendations

This study compared social media use, attitudes toward aesthetic surgery, and psychosocial variables (self-esteem, body image, depression, and quality of life) between social media users and individuals who underwent aesthetic surgery. The findings indicate that there are certain demographic differences in social media addiction, self-esteem, depression, body satisfaction, and attitudes toward cosmetic surgery. In both the SMG and ASG groups, single individuals exhibited higher levels of social media addiction and self-esteem. Within the SMG group, associate degree graduates had higher self-esteem than postgraduate graduates, whereas in the ASG group, primary school graduates showed higher levels of depression than associate degree graduates. Additionally, participants in the ASG group whose income was lower than their expenses demonstrated higher social media addiction and more positive attitudes toward cosmetic surgery than those with other income levels. Between-group comparisons revealed that, compared to the SMG group, the ASG group exhibited higher post-surgery social media addiction, greater impact of body image on quality of life, more positive attitudes toward cosmetic surgery, and higher body satisfaction, while self-esteem and depression levels were lower. Pre- and post-surgery comparisons showed increases in social media addiction, the impact of body image on quality of life, positive attitudes toward cosmetic surgery, body satisfaction, and self-esteem, alongside a decrease in depression levels following surgery. Furthermore, in the ASG group, as the positive effect of body image on quality of life increased, acceptance of cosmetic surgery also increased. Based on these findings, it is recommended that awareness programs be developed for individuals with high social media use and those considering cosmetic surgery; psychological support should be provided before and after surgery; personalized interventions should be planned, taking demographic differences into account; future studies should investigate the causes and long-term effects of social media addiction and inclination toward cosmetic surgery; and

healthcare institutions should develop informative guidelines and ethical standards

Declarations

Funding: No funding was received for conducting this study.

Conflicts of Interest: The authors declare no conflict of interest.

Ethical Approval: Written approval was obtained from the Kocaeli University Non-Interventional Clinical Research Ethics Committee (22.12.2022; Decision No: KU GOKAEK-2022/21.15) and from the relevant hospital/clinic administration. Permission to use the measurement scales was obtained from the respective scale authors via e-mail.

Informed Consent: Informed consent was obtained from all participants. For the aesthetic surgery group, consent was obtained verbally and in writing prior to data collection; for the social media group, consent was obtained electronically via the online questionnaire.

Data Availability: The datasets generated and/or analyzed during the current study are not publicly available due to ethical and privacy restrictions. De-identified data may be made available by the corresponding author upon reasonable request and with appropriate approvals.

AI Disclosure: Artificial intelligence tools (e.g., ChatGPT by OpenAI) were used solely for translation purposes. No AI tools were used for data analysis, interpretation, or substantive manuscript writing.

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RESEARCH ARTICLE

Balancing Career and Childbearing: The Effect of Work–Family Conflict on Fertility Intentions among Employed Women

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Abstract

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Balancing career and childbearing: The effect of work–family conflict on fertility intentions among employed women. *OPUS– Journal of Society Research*, 22(6), 1295-1304.

This study aimed to examine the impact of the conflict experienced by full-time working women between their work and family roles on their intentions to have children in the future. In this context, an online survey was administered between July and September 2025 to 403 women who had been working full time for at least one year, were between the ages of 25 and 45, married, and had never given birth. Data were collected using a Descriptive Information Form, the Work–Family Conflict Scale (WFCS), and the Attitudes Toward Fertility and Childbearing Scale (AFCS). In the data analysis, descriptive statistics were used to summarize participant characteristics, followed by t-tests, one-way ANOVA, and two multivariable linear regression models examining work-to-family and family-to-work conflict as continuous variables. The mean age of participants was 31.85 years (SD = 3.75); 51.4% reported experiencing work–family conflict, and overall conflict levels were moderate (WFCS total = 39.5, SD = 3.3). AFCS subscales significantly predicted both directions of conflict ($R^2 = 0.553$ for work-to-family; $R^2 = 0.238$ for family-to-work). The findings indicate that counseling practices such as boundary management in healthcare settings, spousal role-sharing, structured return-to-work planning, and referrals to reliable childcare services provide meaningful support for women. When these interventions are combined with predictable and flexible work arrangements and accessible leave policies, they may help women achieve a more balanced alignment between their reproductive goals and well-being in the workplace.

Keywords: Work–family conflict, fertility intention, attitudes toward childbearing, health services, women's health.

Öz

Bu çalışma, tam zamanlı olarak çalışan kadınların iş ve aile rolleri arasında yaşadığı çatışmanın, gelecekte çocuk sahibi olma niyetleri üzerindeki etkisini incelemeyi amaçlamıştır. Bu kapsamda, Temmuz–Eylül 2025 tarihleri arasında, en az bir yıldır tam zamanlı çalışan, 25–45 yaş aralığında, evli ve hiç doğum yapmamış 403 kadına çevrim içi bir anket uygulanmıştır. Veriler Tanımlayıcı Bilgi Formu, İş-Aile Çatışması Ölçeği (WFCS) ve Doğurganlığa ve Çocuk Doğurmaya Yönelik Tutumlar Ölçeği (AFCS) ile toplanmıştır. Verilerin analizinde tanımlayıcı istatistikler, katılımcı özelliklerini özetlemek için kullanılmış; ardından işten aileye ve aileden işe çatışmayı sürekli değişkenler olarak inceleyen t-testleri, tek yönlü ANOVA ve iki çok değişkenli doğrusal regresyon modeli uygulanmıştır. Katılımcıların ortalama yaşı 31,85'tir (SD = 3,75); %51,4'ü iş-aile çatışması yaşadığını bildirmiş ve genel çatışma düzeyleri orta düzeydedir (WFCS toplamı = 39,5, SD = 3,3). AFCS alt ölçekleri, çatışmanın her iki yönünü de anlamlı şekilde öngörmüştür (işten aileye geçiş için $R^2 = 0,553$; aileden işe geçiş için $R^2 = 0,238$). Bulgular, sağlık hizmetlerinde sınır yönetimi, eşler arası rol paylaşımı, yapılandırılmış işe dönüş planlaması ve güvenilir çocuk bakım hizmetlerine yönlendirme gibi danışmanlık uygulamalarının kadınlara destek sağladığını göstermektedir. Bu uygulamalar, öngörülebilir ve esnek çalışma düzenlemeleri ile erişilebilir izin politikalarıyla birlikte sunulduğunda, kadınların üreme hedefleri ile iş yaşamındaki iyilik hallerini daha uyumlu bir şekilde dengelemelerine yardımcı olabilir.

Anahtar Kelimeler: İş-aile çatışması, doğurganlık niyeti, çocuk sahibi olmaya yönelik tutumlar, sağlık hizmetleri, kadın sağlığı

Introduction

Balancing career progression with first-birth planning is especially salient for married, nulliparous, non-pregnant women in full-time employment, a life stage at which occupational investments and family formation often collide (Li et al., 2024). In many settings these pressures manifest as work–family conflict—an inter-role tension that is bidirectional: Work can interfere with family (work-to-family conflict, WFC) and family demands can impede work (family-to-work conflict, FWC) via time-, strain-, and behaviour-based pathways (Greenhaus & Beutell, 1985; Li et al., 2024). Accumulating evidence links WFC to lower fertility intentions or postponement, while policy environments (e.g., parental-leave design, childcare access) and everyday workplace practices shape the magnitude of these associations (Li et al., 2024; Organisation for Economic Co-operation and Development [OECD], 2024). In Turkey, recent OECD reviews highlight limited father-reserved (non-transferable) leave and generally rigid scheduling norms, signalling structural frictions around the transition to parenthood (OECD, 2024; OECD, 2025).

Beyond structures, fertility-related attitudes appear to condition how role pressures translate into intentions and timing. Perceived current barriers (e.g., affordability, career interruption, unstable schedules), the future importance attributed to having a child, and the centrality of femininity/female identity may either amplify or buffer conflict in this population, where the opportunity costs of stepping out of full-time roles are particularly salient (Vignoli et al., 2020). Informal supports such as grandparental care can mitigate pressures in some contexts, yet effects vary by setting and cannot substitute for formal, reliable services (Aassve et al., 2012). Together, these factors underscore the need to examine WFC/FWC alongside nuanced fertility attitudes in well-defined, policy-relevant cohorts.

Prior studies rarely examine bidirectional WFC/FWC together with multidimensional fertility attitudes among married, nulliparous, non-pregnant full-time employees, and they seldom translate their findings into health services (nursing) practice, including antenatal/preconception

counselling, postpartum follow-up, and return-to-work planning (Cooklin et al., 2015; Hashemzadeh et al., 2021; Kohan et al., 2021; Schober & Scott, 2012).

Although previous research has explored the links between work–family conflict and women’s fertility intentions, these studies typically rely on broad or heterogeneous samples and seldom integrate comprehensive attitudinal frameworks. For instance, many analyses focus on general employed women (Schober & Scott, 2012) or examine WFC primarily as a unidirectional construct, without simultaneously considering both work-to-family and family-to-work pathways (Hashemzadeh et al., 2021). Likewise, studies evaluating fertility attitudes frequently emphasize single-domain measures—such as overall fertility intention—rather than multidimensional constructs including present barriers, future importance, and identity-based dimensions (Kohan et al., 2021). Furthermore, existing evidence rarely operationalizes a strictly defined population of married, nulliparous, non-pregnant, full-time employees, despite this group being at a critical life stage where occupational demands and first-birth planning directly intersect. The limited translation of findings into health services and nursing practice—particularly in areas of preconception counselling, antenatal education, postpartum follow-up, and structured return-to-work support—further underscores the gap this study seeks to address.

This study focuses on married, nulliparous, non-pregnant women aged 25–45 who have been employed full-time for at least one year, and pursues three aims: (i) to describe the sociodemographic correlates of WFC/FWC; (ii) to assess associations between fertility attitudes—present barriers, future importance, and femininity/female identity—and conflict; and (iii) to test whether these attitudes predict WFC/FWC, generating practice-oriented implications for health services (nursing) counselling and workplace policy in Türkiye.

Methods

Study Design

This study was designed as a descriptive, cross-sectional and analytical study because this approach is suitable for examining relationships between psychosocial constructs and health-related intentions at a single point in time. It also allows for the efficient recruitment of a well-defined sample and the use of multivariable analyses to identify predictors (Levin, 2006; Setia, 2016; Greenhaus & Beutell, 1985).

Sample/Participants

The study was conducted nationwide in Türkiye through an online, web-based platform; data were collected from July to September 2025. An a priori power analysis (G*Power 3.1) for multiple linear regression (fixed model, R^2 different from zero), assuming a small effect size ($f^2 = 0.02$), $\alpha = 0.05$, power $(1-\beta) = 0.80$, and 10 predictors, indicated a minimum required sample of 395 women. A total of 403 women were included in the study. Eligible participants were married, full-time employed, nulliparous, aged 25–45 years who had been working full-time in Türkiye for at least 12 months. Exclusion criteria were part-time or irregular employment, current pregnancy, and parity ≥ 1 . Participants were recruited via social media, WhatsApp groups, and women's health and employment-related social media communities, using non-probability convenience and snowball sampling methods.

Measures

Descriptive Information Form: Developed by the researchers in line with the relevant literature, this form was prepared to assess participants' socio-demographic, occupational, and institutional characteristics. It includes items on age, educational level, income status, length of marriage, use of contraceptive methods, desire to have children, employment sector, career goals, and the presence of work–family conflict (Akin et al., 2017; Vignoli et

al., 2020; Alderotti et al., 2021; Damar and Bolsoy, 2021).

Work–Family Conflict Scale (WFCS): The WFCS, developed by Haslam et al. (2015) and adapted into Turkish by Akin et al. (2017), is a two-dimensional, 10-item instrument designed to evaluate conflict between individuals' work and family roles. Items are rated on a 7-point Likert scale (1 = Strongly disagree to 7 = Strongly agree). The Work-to-Family Conflict subscale score is the sum of Items M1–M5 (range 5–35), and the Family-to-Work Conflict subscale score is the sum of Items M6–M10 (range 5–35). Higher scores indicate greater levels of conflict in work and family life. In Akin et al. (2017), the Cronbach's alpha was reported as 0.86. In the present study, Cronbach's alpha was 0.90.

Attitudes Toward Fertility and Childbearing Scale (AFCS): Developed by Söderberg et al. (2013) and revised in 2015, the AFCS assesses and compares attitudes toward fertility and childbearing among women who have not yet become mothers. The scale comprises 21 items and three subscales: Future Importance (7 items), Present Barriers (9 items), and Importance of Female Identity (5 items). Items are rated on a 5-point Likert scale (Strongly disagree to Strongly agree), with no reverse-coded items. Possible score ranges are 7–35 for Future Importance, 9–45 for Present Barriers, and 5–25 for Importance of Female Identity; higher scores indicate stronger attitudes in the respective domain. The Turkish validity and reliability study by Damar and Bolsoy (2021) reported a Cronbach's alpha of 0.82. In the present study, Cronbach's alpha was 0.86.

Data Collection

Data were collected using an online survey on Google forms. The Google Forms landing page provided a summary of the study purpose, eligibility criteria, voluntary participation, and confidentiality/anonymity. Only individuals who selected "I agree" (electronic informed consent) were able to proceed to the questionnaire. Mandatory response settings were applied to minimize item nonresponse and data loss.

Statistical Analysis

Analyses were conducted in IBM SPSS v27. Descriptive statistics (n, %, mean±SD) summarized demographic, occupational, and institutional characteristics. Distributional assumptions were checked using plots and skewness/kurtosis; group comparisons employed independent-samples t-tests and one-way ANOVA as appropriate. To address the aims, we fitted two multivariable linear regression models with WFC and FWC as continuous outcomes; primary predictors were the AFCS subscales (Present Barriers, Future Importance, Femininity Identity). Variance inflation factors (VIFs) were calculated to assess multicollinearity. Statistical significance was set at $p < 0.05$.

Ethics

Prior to study initiation, ethics approval was obtained from the Scientific Research Ethics Committee of Giresun University (Approval No. 07/386; July 2025). The study was conducted in accordance with the Declaration of Helsinki. Electronic informed consent was obtained from all participants before enrollment.

Findings

Participants' Demographic and Work-Related Characteristics

Table 1. Participant Characteristics by Demographic and Work-Related Variables (N= 403)

Age: Mean±SD: 31.85±3.75 Minimum-Maximum:24-38	N	%
Education level		
High school	60	14.9
Associate degree	110	27.3
University	130	32.3
Master's degree	68	16.9
Doctorate degree	35	8.7
Income status		
Income < Expenses	112	27.8
Income = Expenses	165	40.9
Income > Expenses	126	31.3
Spouse's education level		
High school	84	20.8
Associate degree	112	27.8
University	108	26.8
Master's degree	67	16.6
Doctorate degree	32	7.9
Your sector of employment		
Healthcare	50	12.4
Technology	82	20.3

Education	54	13.4
Finance	54	13.4
Public sector	47	11.7
Manufacturing	62	15.4
Services	54	13.4
Career goals in the next 3 years		
Promotion/advance to a higher-level position	64	15.9
Stay in the same position and specialize	92	22.8
Changing sectors	177	43.9
Starting your own business	70	17.4
Do you experience conflict between your work and family roles?		
Yes	207	51.4
No	196	48.6
Do you think your current workplace has family-friendly policies?		
Yes	168	41.7
No	235	58.3
Do you plan to have children within the next 3 years?		
Yes	221	54.8
No	182	45.2
Do you use birth control ?		
Yes	120	29.8
No	283	70.2
Duration of marriage ?		
1-5 years	209	51.9
5-10 years	194	48.1

The mean age of the sample was 31.85±3.75 years (range 24–38). The most common education level among participants was bachelor's degree (32.3%), while spouses most frequently held an associate degree (27.8%). Regarding household finances, the most frequently reported category was income expenses (40.9%). In terms of occupation, the technology sector was the largest group (20.3%). For three-year career goals, the largest share planned to change sector (43.9%). More than half reported experiencing work–family conflict (51.4%), and 58.3% perceived their organizations as not family-friendly. Concerning fertility, 54.8% planned to have a child within three years, while 70.2% reported not using contraception. For marital duration, the 1–5 years category was slightly predominant (51.9%).

WFC/FWC and AFCS Scores by Sociodemographic and Occupational Characteristics

Education level significantly influenced fertility-related attitudes: doctoral-level women reported stronger femininity identity than master's and bachelor's respondents ($p=0.001$); "current barrier" was also associated with education ($p=0.026$). Income disparities correlated with both conflict and barrier perceptions: those with income < expenses had higher WFC scores ($p=0.026$), while those

earning more reported elevated “current barrier” ($p<0.001$). Occupational sector affected femininity identity, with higher scores in education versus manufacturing ($p=0.048$). Career aspirations, workplace policies, contraceptive usage, and marriage duration all showed notable associations with conflict and fertility attitudes.

Multiple Linear Regression Analysis

The model examined the predictive role of AFCS subscales on work–family conflict. The final model explained 55% of the variance in work–family conflict (Adjusted $R^2=0.550$, $F=164.497$, $p<0.001$). “Fu-

ture importance” ($\beta=-0.184$, $p<0.001$) and “femininity identity” ($\beta=-0.248$, $p<0.001$) were significant negative predictors, while “current barrier” ($\beta=0.534$, $p<0.001$) was a significant positive predictor. Variance inflation factors (VIF) were within acceptable limits (<1.3), indicating no multicollinearity.

This model evaluated the effects of AFCS subscales on family–work conflict, explaining 23.8% of the variance (Adjusted $R^2=0.238$, $F=42.959$, $p<0.001$).

Table 2. WFC/FWC and AFCS Scores by Sociodemographic and Occupational Characteristics

Sociodemographic and Occupational Characteristics	Work–Family Conflict Scale (WFCFS)			Attitudes Toward Fertility and Childbearing Scale (AFCS)		
	The Work-to-Family Conflict (WFC) Mean±SD	The Family-to-Work Conflict (FWC) Mean±SD	WFCFS Total Mean±SD	Future Importance Mean±SD	Present Barriers Mean±SD	Female Identity Mean±SD
Education level						
High school	20.57±2.65	20.15±2.31	40.19±4.50	13.27±1.91	30.10±3.49	19.28±2.30
Associate degree	18.74±5.36	19.23±2.39	39.55±4.52	14.64±2.70	29.18±3.34	18.88±3.95
University	18.85±4.67	19.94±2.70	39.78±4.52	15.42±2.25	28.90±2.93	19.77±3.92
Master's degree	18.65±4.69	19.06±2.34	39.79±4.84	16.26±1.98	28.79±2.54	18.57±3.61
Doctorate degree	18.57±6.21	19.71±2.42	40.88±4.90	18.09±2.80	29.23±3.64	19.63±4.88
Post Hoc Test/Bonferroni	$F=1.879$ $p=.113$	$F=2.785$ $p=.026$	$F=1.252$ $p=.290$	$F=28.606$ $p=.001$	$F=1.798$ $p=.128$	$F=1.505$ $p=.200$
Income status						
Income < Expenses	19.75±3.80	19.64±2.42	40.18±4.42	14.15±2.33	29.57±2.69	19.12±3.38
Income = Expenses	18.26±5.98	19.52±2.62	39.87±4.70	15.54±2.80	28.96±3.37	19.64±4.60
Income > Expenses	19.35±3.66	19.69±2.37	39.86±4.77	15.88±2.43	29.08±3.22	18.83±2.79
Post Hoc Test/Bonferroni	$F=3.680$ $p=.026$	$F=1.177$ $p=.837$	$F=2.140$ $p=.039$	$F=15.108$ $p=.000$ $3>1$	$F=1.333$ $p=.265$	$F=1.692$ $p=.186$
Spouse's education level						
High school	19.04±4.44	18.96±2.32	39.85±4.27	13.64±2.17	28.93±3.10	18.60±3.40
Associate degree	19.15±4.82	19.90±2.46	39.96±4.71	14.82±2.57	29.44±3.45	19.29±3.72
University	19.56±4.25	19.56±2.52	40.61±4.63	15.75±2.49	29.56±2.98	19.13±3.76
Master's degree	17.91±5.50	19.51±2.58	39.81±5.03	16.07±2.25	28.36±2.89	19.43±4.04
Doctorate degree	18.94±5.80	20.63±2.44	41.10±3.91	17.69±2.54	29.22±3.12	20.72±4.29
Post Hoc Test/Bonferroni	$F=1.261$, $p=.285$	$F=3.194$ $p=.013$	$F=1.936$ $p=.043$	$F=21.328$ $p=.000$	$F=1.852$ $p=.118$	$F=1.913$ $p=.107$
Your sector of employment						
Healthcare	20.36±2.43	19.48±2.15	40.86±4.98	15.18±2.52	29.48±2.71	18.66±2.45
Technology	19.72±4.27	19.62±2.72	40.50±4.46	15.09±2.63	29.52±2.63	18.83±3.00
Education	18.13±5.82	19.76±2.21	39.43±4.31	15.52±2.47	29.09±3.67	20.24±4.57
Finance	18.50±5.39	19.56±2.91	39.89±4.99	15.81±2.69	28.76±3.12	19.94±4.99
Public sector	18.32±5.13	19.72±2.48	39.35±4.69	15.57±2.63	28.89±3.38	19.60±3.93
Manufacturing	19.03±4.40	19.42±2.68	39.72±4.39	14.90±2.80	28.92±3.52	18.26±2.67
Services	18.69±5.51	19.72±2.20	39.67±4.67	14.93±2.78	29.33±3.16	19.52±4.33
Post Hoc Test/Bonferroni	$F=1.569$ $p=.155$	$F=.151$ $p=.989$	$F=1.892$ $p=.039$	$F=.984$ $p=.436$	$F=.556$ $p=.765$	$F=2.139$ $p=.048$
Career goals in the next 3 years						
Promotion/advance to a higher-level position	19.64±4.25	19.34±2.47	40.30±4.85	14.95±2.39	29.44±2.85	18.73±2.93
Stay in the same position and specialize	18.54±5.69	19.57±2.57	39.60±4.97	15.79±2.88	29.29±3.41	19.66±4.33
Changing sectors	19.76±4.15	20.04±2.48	40.18±4.35	15.01±2.49	29.62±2.93	19.19±3.27
Starting your own business	17.17±5.12	18.81±2.29	38.63±4.67	15.49±2.89	27.60±3.19	19.27±4.83
Post Hoc Test/Bonferroni	$F=5.688$ $p<.001$	$F=4.453$ $p=.004$	$F=5.620$ $p=.000$	$F=2.254$ $p=.082$	$F=7.528$ $p<.001$	$F=.771$ $p=.511$

Table 2. WFC/FWC and AFCS Scores by Sociodemographic and Occupational Characteristics (continue)

	Work–Family Conflict Scale (WFC)			Attitudes Toward Fertility and Childbearing Scale (AFCS)		
	The Work-to-Family Conflict (WFC) Mean±SD	The Family-to-Work Conflict (FWC) Mean±SD	WFC Total Mean±SD	Future Importance Mean±SD	Present Barriers Mean±SD	Female Identity Mean±SD
Do you experience conflict between your work and family roles?						
Yes	19.81±4.27	19.94±2.43	40.85±4.66	15.19±2.57	29.98±3.10	19.43±3.53
No	18.59±5.60	19.33±2.61	39.07±4.65	14.81±2.78	28.47±3.22	19.86±4.20
Test/p (value)	t=2.738 p=0.006	t=2.167 p=0.003	t=1.469 p=.011	t=2.989 p=0.03	t=2.901 p=0.004	t=1.228 p=.513
Do you think your current workplace has family-friendly policies?						
Yes	18.57±5.54	19.86±2.42	40.37±4.72	15.35±2.69	28.65±3.17	19.88±4.22
No	19.33±4.21	19.43±2.55	39.74±4.62	15.20±2.62	29.53±3.09	18.78±3.38
Test/p (value)	t=1.566 p=.118	t=1.733 p=0.084	t=1.245 p=.041	t=5.79 p=.563	t=2.773p=0.006	t=2.892 p=0.04
Do you plan to have children within the next 3 years?						
Yes	19.24±4.76	19.71±2.56	38.78±4.69	14.69±2.72	29.33±3.24	19.28±3.65
No	18.74±4.83	19.48±2.42	40.03±4.64	15.96±2.40	28.97±3.03	19.19±3.95
Test/p (value)	t=1.033 p=.302	t=.905 p=.366	t=1.605 p=.046	t=4.907p<.001	t=1.150 p=.251	t=.232 p=.816
Do you use birth control ?						
Yes	17.93±5.68	19.41±2.41	40.10±4.58	15.56±2.87	28.88±2.97	19.58±4.74
No	19.47±4.32	19.69±2.54	39.84±4.69	15.13±2.55	29.29±3.32	19.10±3.30
Test/p (value)	t=2.964 p=0.003	t=1.042 p=.298	t=.529 p=.597	t=1.468 p=.143	t=1.172 p=.242	t=1.153 p=.250
Duration of marriage ?						
1-5 years	17.95±6.02	19.69±2.59	38.15±4.66	15.48±2.85	28.74±3.39	19.86±4.53
5-10 years	20.16±2.56	19.52±2.40	40.89±4.36	15.02±2.41	29.62±2.81	18.57±2.62
Test/p (value)	t=4.740 p<.001	t=.674 p=.501	t=2.674 p=.001	t=1.752 p=0.080	t=2.827 p=0.005	t=3.456p<.001

Values are mean ± SD unless otherwise indicated. Comparisons use independent-samples t-tests or one-way ANOVA with appropriate post-hoc tests. WFC = Work-to-Family Conflict; FWC = Family-to-Work Conflict; AFCS = Attitudes Toward Fertility and Childbearing Scale

Table 3. Multiple Linear Regression Analysis Predicting Work–Family Conflict

Variable	B	Std. Error	B (Beta)	t	p	95% CI		VIF
						Lower	Upper	
Constant	6.412	2.274	-	2.820	.005	1.941	0.883	
Future Importance	-.334	.066	-.184	-5.057	<.001	-.463	-.204	1.180
Present Barriers	.815	.055	.534	14.848	<.001	.707	-.922	1.154
Female Identity	-.315	.047	-.248	-6.678	<.001	-.408	-.222	1.233

B: Unstandardized regression coefficient; β : Standardized regression coefficient; CI: Confidence interval; VIF: Variance inflation factor. Dependent variable: Work–family conflict subscale. Model statistics: $R = 0.744$, $R^2 = 0.553$, Adjusted $R^2 = 0.550$, $F = 164.497$, $p < 0.001$, Durbin–Watson = 1.159.

Table 4. Multiple Linear Regression Analysis Predicting Family–Work Conflict

Variable	B	Std. Error	B (Beta)	t	p	95% CI		VIF
						Lower	Upper	
Constant	12.690	1.538		8.252	<.001	9.667	15.714	
Future Importance	-.184	.045	-.195	-4.131	<.001	-.272	-.097	1.180
Present Barriers	.095	.037	.120	2.563	.011	.022	.168	1.154
Female Identity	.362	.032	.547	11.323	<.001	.299	.424	1.233

B: Unstandardized regression coefficient; β : Standardized regression coefficient; CI: Confidence interval; VIF: Variance inflation factor. Dependent variable: Family–work conflict subscale. Model statistics: $R = 0.494$, $R^2 = 0.244$, Adjusted $R^2 = 0.238$, $F = 42.959$, $p < 0.001$, Durbin–Watson = 1.262.

“Future importance” ($\beta = -0.195$, $p < 0.001$) was a significant negative predictor, while both “current barrier” ($\beta = 0.120$, $p = 0.011$) and “femininity identity” ($\beta = 0.547$, $p < 0.001$) were significant positive predictors. VIF values indicated no multicollinearity.

Minimum, maximum, and average scores from scales and sub-dimensions

Values are presented as mean ± standard deviation (SD), minimum, and maximum scores. The WFC

total score in the sample averaged 39.53 ± 3.28 (min-max: 33–46). The work–family conflict subscale mean was 19.01 ± 4.81 (min-max: 12–30), while the family–work conflict subscale mean was 19.61 ± 2.50 (min-max: 13–27). The Attitudes Toward Fertility and Childbearing Scale total score was 63.88 ± 5.02 (min-max: 54–78). The subscales of AFCS included ‘Future importance’ (mean: 15.26 ± 2.65 , min-max: 8–26), ‘Current barrier’ (mean: 29.17 ± 3.15 , min-max: 18–39), and ‘Femininity identity’ (mean: 19.24 ± 3.79 , min-max: 12–35).

These descriptive findings provide baseline insights into participants' levels of work–family conflict and attitudes toward fertility and childbearing.

Table 5. Minimum, maximum, and average scores from scales and sub-dimensions

	N	Minimum-maximum	Mean \pm SD
Work–Family Conflict Scale (WFCS) total	403	33–46	39.53 \pm 3.28
Work–family conflict subscale (WFC)	403	12–30	19.01 \pm 4.81
Family–work conflict subscale (FWC)	403	13–27	19.61 \pm 2.50
Attitudes Toward Fertility and Childbearing Scale total			
Future importance	403	8–26	15.26 \pm 2.65
Current barrier	403	18–39	29.17 \pm 3.15
Femininity identity	403	12–35	19.24 \pm 3.79

Discussion

The present study shows that fertility-related attitudes—particularly perceived current barriers and the centrality of femininity (female) identity—play a critical role in how work–family conflict relates to fertility intentions. Greater perceived current barriers were associated with higher work-to-family conflict (WFC), whereas placing higher future importance on childbearing and holding a stronger femininity identity buffered WFC. These patterns align with evidence that perceived constraints—such as employment/earnings insecurity, opportunity costs, and childcare gaps—deter or postpone childbearing in high- and middle-income settings (Vignoli et al., 2020; Alderotti et al., 2021; OECD, 2024; OECD, 2025). At the same time, higher education and income may reduce economic insecurity yet increase opportunity costs, often delaying childbearing; under supportive family policies, women tend to narrow the gap between intended and achieved fertility (OECD, 2024).

The workplace context also matters. “Family-friendly” policies that exist only on paper have limited impact without implementation quality—managerial support, workload redesign, and schedule control (Moss et al., 2019; Las Heras et al., 2020). In our data, perceiving the workplace as family-friendly coexisted with higher current-barrier scores, underscoring the policy–practice gap. Moreover, social support—notably grandparental

care in Turkey—can buffer WFC/FWC, though effects vary by context and child age (Aassve et al., 2012).

The distributions of age, education, sector, and marital duration support a demands–resources interpretation: time- and strain-based demands in one role undermine performance in the other (Greenhaus & Beutell, 1985). In Turkey, gaps between the end of parental leave and access to affordable early childhood education and care can elevate caregiving load (OECD, 2024). Grandparental support may buffer conflict but is context-sensitive (Aassve et al., 2012). Sectoral patterns with long hours and low flexibility are consistent with higher conflict; OECD (2025) also notes the absence of non-transferable father-reserved leave and rigid scheduling as barriers.

Bivariate contrasts indicate that conflict and attitudes are sensitive to sociodemographic conditions. Education and income can reduce economic insecurity while raising opportunity costs, consistent with postponement that narrows under supportive policies (Vignoli et al., 2020; OECD, 2024). The distinction between policy presence and implementation quality/culture is crucial—symbolic provisions rarely improve lived experience (Kelly et al., 2014; Moss et al., 2019). Lower WFC among contraceptive users suggests that perceived control over timing may mitigate conflict; recent open-access evidence links WFC to fertility intentions through attitudes and child-rearing burden (Li et al., 2024). Cross-national comparisons further highlight how leave designs interact with family behaviors (OECD, 2024).

Regression results show that Future Importance and Femininity (Female) Identity are protective for WFC, whereas Present Barriers increase WFC; for FWC, Femininity is a positive predictor. This asymmetry implies different boundary-management levers across conflict directions. Recent findings report that WFC/FWC can depress second-child intentions and that grandparental support may weaken the WFC burnout pathway (Fu et al., 2025), with effects conditioned by job quality (“decent work”) and formal supports (Yan et al., 2025).

The participants exhibited moderate levels of bidirectional work–family conflict, indicating that both work demands interfering with family life

and family-related pressures affecting work performance were meaningfully present in this cohort. Such mid-range levels are consistent with role interference mechanisms articulated in the work–family literature and with prior applications of WFCS/WFCS in employed women (Greenhaus & Beutell, 1985; Haslam et al., 2015). At these magnitudes, conflict is unlikely to be trivial for reproductive decision-making and has been associated with lower or postponed fertility intentions (Li et al., 2024). The AFCS findings suggest that participants perceived notable current barriers to childbearing, while future motherhood and femininity-related attitudes were only moderate. This pattern aligns with evidence that work and structural demands elevate perceived constraints shaping fertility intentions (Vignoli et al., 2020). In the AFCS framework, higher Current Barriers typically align with greater conflict, whereas Future Importance and identity can buffer the translation of demands into conflict (Söderberg et al., 2015). Contextually, policy design and usability—particularly non-transferable father-reserved leave and accessible childcare—shape how these averages translate into behavior (OECD, 2024; OECD, 2025). In Türkiye, persistent scheduling rigidity and limited father-specific leave likely sustain perceived barriers, helping explain the moderate levels of work–family conflict observed in similar national contexts. Evidence from ILO and OECD reports shows that long working hours and limited schedule flexibility are common in Türkiye, particularly among full-time employees, contributing to heightened role strain for women (İlkkaracan, 2021; OECD, 2025). Moreover, parental-leave structures provide short and largely transferable father leave, resulting in mothers carrying the primary caregiving burden during the transition to parenthood (OECD, 2024). While informal supports such as grandparental care can offer partial buffering, these supports cannot fully substitute for reliable, formal childcare services (Aassve et al., 2012).

Conclusion

This study indicates that fertility-related attitudes—particularly perceived present barriers and the centrality of femininity (female) identity—

shape how bidirectional work–family conflict (WFC/FWC) relates to fertility intentions among married, nulliparous, non-pregnant women in full-time employment. Higher present barriers were linked to greater WFC, whereas stronger future importance of childbearing and femininity identity buffered WFC; femininity identity also positively predicted FWC, suggesting asymmetric spillover between domains. Conflict levels were moderate with meaningful heterogeneity, underscoring potential relevance for reproductive decision-making. Interpreting these findings requires caution given the cross-sectional design, self-report measures, and single-country context.

Building on these findings, several Türkiye-specific implications can be highlighted. Within health services, preconception and routine counselling could incorporate brief assessments of WFC/FWC and fertility-related attitudes, with referrals to municipal or public childcare services, family health centres, and psychosocial support where perceived barriers are high. At the organisational level, employers—particularly in the private sector—may adopt more predictable scheduling, expand remote-work and flexible-arrival options, and formalise graded return-to-work plans for women after childbirth. Encouraging fathers' participation through workplace awareness programmes and promoting the uptake of existing paternal leave could also reduce gendered caregiving burdens. At the policy level, expanding accessible 0–3 childcare capacity through public or subsidised crèche programs, extending non-transferable father-specific leave, and supporting flexible work legislation would address structural barriers that contribute to conflict. These concrete measures may better align reproductive intentions with employment sustainability for women in Türkiye.

This study has several limitations. First, its cross-sectional design does not allow causal inferences regarding the directionality between WFC/FWC and fertility attitudes. Second, the data rely on self-report measures, which may be subject to recall or social-desirability bias. Third, the sample consists solely of full-time employed, married, nulliparous women in Türkiye, limiting generalisability to other groups, such as part-time workers,

unmarried women, or multiparous mothers. Finally, online recruitment may have led to selection bias, favouring women with higher digital literacy or specific socio-economic profiles.

Future studies could address these limitations by employing longitudinal or mixed-methods designs to capture changes in conflict and fertility attitudes over time. Including diverse employment forms and family structures, sampling across different regions and sectors in Türkiye, and integrating objective workplace indicators (e.g., contract type, schedule variability) may strengthen external validity. Additionally, qualitative inquiry could deepen understanding of how cultural norms, workplace practices, and policy environments interact to shape conflict and fertility decision-making among women.

Declarations

Funding: No funding was received for conducting this study.

Conflicts of Interest: The authors declare no conflict of interest.

Ethical Approval: Prior to study initiation, ethics approval was obtained from the Scientific Research Ethics Committee of Giresun University (Approval No. 07/386; July 2025).

Informed Consent: Electronic informed consent was obtained from all participants before enrollment via the web-based survey; only individuals who selected “I agree” were able to proceed to the questionnaire.

Data Availability: The dataset generated during this study (web-based survey responses) is not publicly available due to the confidentiality/anonymity commitments made to participants and the ethical approval conditions. De-identified data may be made available by the corresponding author upon reasonable request and in line with relevant ethical requirements/approvals.

AI Disclosure: Artificial intelligence tools (e.g., ChatGPT by OpenAI) were used solely for translation purposes. No AI tools were used for data analysis, interpretation, or substantive manuscript writing.

Author Contributions: Both authors contributed equally to all aspects of the study, including conceptualization, data analysis, interpretation, and manuscript preparation. Both authors have read and approved the final version of the manuscript.

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RESEARCH ARTICLE

Reliability of Human Expert and AI Raters in Translation Assessment

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Abstract

Although AI-based assessment systems offer new opportunities in education, their consistency with human judgment in measuring complex cognitive skills such as translation remains debatable. This study examines inter-rater reliability between a domain expert and AI raters (ChatGPT-5 and Gemini 1.5 Pro) in evaluating C2-level Turkish translations. Using a convergent mixed-methods design, translations from 14 students were scored with a 5-point analytic rubric. Krippendorff's alpha revealed low overall agreement ($\alpha = .392$), particularly weak in "Semantic Accuracy" ($\alpha = .288$). Qualitative analysis identified three key divergences: task fidelity, error severity perception, and criterion interpretation variability. Findings show AI models exhibit partial consistency in formal accuracy but systematically diverge from human experts in semantic nuance, style, and contextual appropriateness. The expert adopted a "task-oriented" approach, while AI models were more "form-focused" (Gemini) or "surface coherence-oriented" (ChatGPT). Although AI systems serve as useful auxiliary tools in translation assessment, they are not able to replace expert judgment.

Keywords: Artificial intelligence, inter-rater reliability, teaching Turkish as a foreign language, translation assessment.

Öz

Yapay zekâ tabanlı değerlendirme sistemleri eğitimde yeni olanaklar sunsa da çeviri gibi karmaşık bilişsel becerilerin ölçümünde bu değerlendirme sistemlerinin insan yargısıyla tutarlılığı tartışmalıdır. Bu çalışma, C2 düzeyinde Türkçe çevirilerin değerlendirilmesinde alan uzmanı ile yapay zekâ puanlayıcıları (ChatGPT-5 ve Gemini 1.5 Pro) arasındaki puanlayıcılar arası güvenilirliği incelemektedir. Yakınsak karma yöntem tasarımı kullanılarak, 14 öğrencinin çevirileri 5'li analitik rubrikle puanlanmıştır. Krippendorff alfa, düşük genel uyum ($\alpha = .392$) ortaya koymuş, özellikle "Anlamsal Doğruluk" boyutunda uyum zayıf bulunmuştur ($\alpha = .288$). Nitel analiz üç temel farklılık belirlemiştir: görev sadakati, hata ciddiyeti algısı ve kriter yorumlama çeşitliliği. Bulgular, yapay zekâ modellerinin biçimsel doğrulukta kısmi tutarlılık gösterdiğini ancak anlamsal nüans, üslup ve bağlamsal uygunlukta insan uzmanından sistematik olarak ayrıştığını ortaya koymaktadır. Uzman "görev odaklı" bir yaklaşım benimserken, yapay zekâ modelleri daha "biçim odaklı" (Gemini) veya "yüzeysel tutarlılık odaklı" (ChatGPT) değerlendirmeler yapmıştır. Yapay zekâ sistemleri çeviri değerlendirmesinde yararlı yardımcı araçlar olsa da uzman yargısının yerini alamamaktadır.

Anahtar Kelimeler: Çeviri değerlendirmesi, yabancı dil olarak Türkçenin öğretimi, yapay zekâ, puanlayıcı güvenilirliği.

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Introduction

Recent developments in artificial intelligence (AI) have fundamentally reshaped educational and assessment processes, offering novel alternatives for evaluating individual competencies. In recent years, AI-based assessments have generated substantial transformation in education and skill development. Such assessments are considered to provide high reliability in monitoring both interpersonal competencies and academic achievement and learning processes (Kotlyar & Krasman, 2025). Recent research demonstrates that large language models exhibit state-of-the-art performance in translation quality assessment (Kocmi & Federmann, 2023). AI systems offer opportunities to evaluate student performance more objectively and systematically through the application of big data analytics and machine learning techniques. By producing results comparable to those of human evaluators, AI systems enable educators to examine student performance in a more objective and structured manner (Kotlyar & Krasman, 2022).

AI systems provide significant advantages over traditional methods in assessment and feedback provision through characteristics such as objectivity, consistency, speed, and scalability. These qualities are particularly crucial in large-scale educational settings (Kotlyar & Krasman, 2025; Fahmy, 2024; Farrokhnia et al., 2024; Zawacki-Richter et al., 2019). Both traditional metric frameworks (Lommel et al., 2014) and neural network-based approaches (Rei et al., 2020) are employed in translation evaluation.

Moreover, the rapid feedback capabilities afforded by AI enhance the effectiveness of educational processes and support personalized learning experiences (Fahmy, 2024; Kotlyar & Krasman, 2025). The more effective utilization of AI-generated data by educators to monitor and guide student development may contribute to the improvement of learning processes. As the importance of interpersonal skills increases, AI feedback in the assessment process becomes increasingly significant. This situation underscores the necessity for more in-depth research on AI integration in education (Kotlyar & Krasman, 2025).

However, the proliferation of AI-based assessments has revealed certain disadvantages. Primarily, AI's capacity to comprehend emotional and cultural nuances remains limited. This inadequacy may result in assessments lacking the richness of human interaction. Furthermore, dependence on AI systems may lead teachers and students to overlook the human element in assessment processes. Human experience and intuition in evaluation processes are critically important in making sense of AI-generated data.

Within this framework, establishing a balance between the opportunities and limitations offered by AI is of paramount importance for understanding complex and dynamic structures such as the translation process. Translation is not merely the task of transferring words into another language. It is a multidimensional process requiring the effective communication of emotion, intention, and meaning (Bassnett, 2002). The translation process constitutes a complex form of communication emerging from the convergence of both linguistic and cultural elements, wherein the translator's role extends far beyond word transfer. Translators must endeavor to establish a cultural connection with readers, beyond merely conveying the meaning and significance of the foreign text to native readers (Venuti, 2012). In addition, the translator's role and textual analysis are significant in emphasizing social and cultural elements. Translation is simultaneously a meaning-making process within a socio-cultural context. Snell-Hornby (1988) articulates that the translation process functions as a bridge not only between languages but also between cultures. In this context, cultural transfers are required to be executed carefully to prevent losses or deformations in translation.

Rather than transferring every detail from the source text, the translator prioritizes the effect to be created upon the reader. Building on this approach, Munday (2016) emphasizes that more flexible and creative approaches have developed in translation practice. Reiss and Vermeer (1984) note that successful translation processes require consideration of the target audience and the purpose of translation. Due to the necessity of considering these two fundamental factors, functionality assumes prominence in translation.

When the effects of AI in education converge with the complexity of translation processes, despite certain inadequacies and disadvantages, new opportunities and approaches emerge for both educators and translators. In this context, this study will examine the Turkish translation competencies of international undergraduate students and compare AI and human assessments.

In contemporary contexts, foreign language learning holds critical importance in enabling individuals to enhance their global communication skills and engage with diverse cultures. "Teaching Turkish as a Foreign Language" is regarded as a strategic domain for imparting both language proficiency and cultural awareness (Özdemir, 2018). While the rich phonetic structure of Turkish facilitates linguistic encoding for foreign learners, it also enhances the language's significance at the international level (İşcan, 2011; Özdemir, 2018).

AI-based tools enable personalized and interactive learning experiences in foreign language teaching, rendering the process more effective by offering solutions tailored to learners' individual needs (Kaleli & Özdemir, 2025). Teaching Turkish as a foreign language not only imparts linguistic competence but also promotes cultural interaction. The rapid advancement of digital technologies has led to the displacement of traditional classroom-based methods by online platforms and AI-supported systems. AI's role in education possesses tremendous potential in evaluating student performance, providing personalized feedback, and delivering interactive learning experiences (Luo et al., 2025).

The purpose of this study is to determine the level of consistency and reliability between AI-based assessment systems and human raters (domain experts) in evaluating the Turkish translation competencies of international undergraduate students. Thus, AI systems' capacity to approximate expert judgment and methodological differences are comparatively revealed. Accordingly, the research seeks answers to the following questions:

- a) What is the level of inter-rater reliability (IRR) between AI-based raters (ChatGPT and Gemini) and the domain expert?
- b) At which points do the raters converge and diverge across the rubric dimensions of

grammatical accuracy, semantic accuracy, fluency and naturalness, lexical choice, and cultural appropriateness?

Methodology

Research Design

This study was conducted according to a convergent mixed-methods design, examining the agreement between artificial intelligence (AI)-based raters (ChatGPT and Gemini) and a domain expert in evaluating C2-level student translation texts. The quantitative dimension of the research focused on inter-rater reliability (IRR) coefficients, while the qualitative dimension concentrated on comparative content analysis based on raters' "evidence" explanations included in the rubric.

Study Group and Data Collection Process

The study was conducted with 14 international undergraduate students proficient in Turkish at the C2 level, enrolled at a university in western Türkiye, who had completed course access/permission procedures. Convenience sampling was employed in participant selection, considering accessibility and ease of implementation (Büyüköztürk et al., 2020).

The sample group consists of individuals learning Turkish as a foreign language. Therefore, the text to be translated was selected from a more general topic that addresses the individual and social contributions of foreign language learning, rather than from a specialized field. The countries and native languages chosen by the participants for the translation text are as follows: 3 participants from Pakistan (Urdu), 1 from the Democratic Republic of the Congo (French), 1 from Kenya (English), 1 from Iran (Persian), 1 from Angola (Portuguese), 1 from Albania (Albanian), 1 from Afghanistan (Persian), 1 from North Macedonia (Albanian), 1 from Burundi (Kirundi), 1 from Somalia (Arabic), 1 from Madagascar (Malagasy), and 1 from Somalia (English).

The native languages of the 14 graduate students participating in the study belong to six different language families. Eight of the participants

speak languages from the Indo-European language family (Urdu, Persian, French, English, Portuguese, and Albanian). Among these, three participants' native language is Urdu, two speak Persian, two speak English, two speak Albanian, one speaks French, and one speaks Portuguese. The remaining participants represent different language families. The target language, Turkish, belongs to the Ural-Altaic language family.

The data collection process was performed with approval decision number 21/114 obtained from the Social Sciences and Humanities Ethics Committee of a public university. During the data collection process, each student was provided with a text in their native language on the topic "Individual and Social Contributions of Foreign Language Learning." Students were asked to translate this text into Turkish. Analyses were conducted on the 14 Turkish texts obtained.

Assessment Tool and Raters

Assessment was performed using an analytical rubric developed by the researcher, comprising five sub-dimensions:

a) Grammatical Accuracy b) Semantic Accuracy c) Fluency and Naturalness d) Lexical Choice e) Cultural Appropriateness

Scoring was conducted on a scale from 1 (Very Poor) to 5 (Excellent).

Raters: (i) Domain Expert (experienced in Turkish language teaching), (ii) ChatGPT-5, (iii) Gemini-Pro 1.5.

AI Rater Settings: ChatGPT-5 and Gemini-Pro 1.5 were operated through the web interface by creating new accounts; both models were provided with the same rubric text and identical task instructions as system prompts. The models scored texts that had been stripped of file names containing clues about student identities/country information and had no access to other raters' scores/evidence.

Data Analysis

Quantitative analysis: Inter-rater agreement was calculated using Krippendorff's alpha (α) coefficient, appropriate for ordinal data. For statistical significance of results, 95% confidence intervals

were considered; in interpretation, Krippendorff's (2004) threshold value of $\alpha < .667$ was accepted as "low reliability."

Qualitative analysis: Raters' explanations in the "Evidence" columns were examined through comparative content analysis to identify the causes of low agreement in quantitative findings. This analysis yielded themes such as task fidelity, error severity, and academic register.

Findings

Inter-Rater Reliability (IRR) Analysis Findings

Data were analyzed on an ordinal scale. As no missing observations were present, all data were included in the analysis. Results are presented in Table 1.

Table 1. Inter-Rater Reliability

Rubric Dimension	Krippendorff's α	%95 CI (Confidence Interval)
Grammatical Accuracy	$\alpha = .441$	[.268 - .600]
Semantic Accuracy	$\alpha = .288$	[.123 - .451]
Fluency and Naturalness	$\alpha = .428$	[.234 - .596]
Lexical Choice	$\alpha = .455$	[.281 - .609]
Cultural Appropriateness	$\alpha = .311$	[.102 - .498]

Examination of Table 1 reveals that inter-rater reliability was at a low level according to Krippendorff's (2004) standards. Krippendorff (2004) classifies $\alpha \geq .800$ as adequate reliability and $\alpha < .667$ as "low reliability" in social science research. Within this framework, the overall reliability coefficient of $\alpha = .392$ falls considerably below the recommended threshold. The highest level of agreement was observed in the Lexical Choice dimension ($\alpha = .455$), whereas the lowest agreement was found in the Semantic Accuracy dimension ($\alpha = .288$).

Comparative Score Analysis and Qualitative Findings by Rubric Dimensions

To visualize the causes underlying the low-level agreement patterns observed in the IRR analysis (see Table 1) and to identify points of rater divergence, score distributions and evidence-based interpretations are presented below for each rubric dimension. Qualitative analyses revealed that one of the primary sources of divergence among raters

stemmed from differences in the perception of "Task Fidelity." In this study, task fidelity was operationally defined as the degree to which students fulfilled the translation task into the target language (Turkish) while preserving the academic register, terminology, and semantic integrity required by the source text, without resorting to summarization or rewriting.

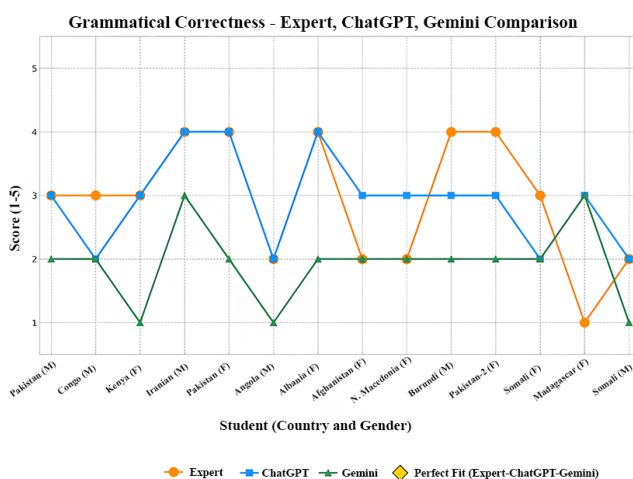


Figure 1. Comparison of Grammatical Accuracy

Figure 1 reveals the similarities and differences among the evaluations of three raters (Domain Expert, ChatGPT, Gemini) in the "Grammatical Accuracy" dimension. The findings generally demonstrate that Gemini (green line) exhibits a systematically lower scoring tendency compared to the other two raters (predominantly within the 1-2 point range). This situation indicates that Gemini adopts an approach that interprets error "severity" more stringently, prioritizing structural accuracy over surface-level errors.

Example 1 - Albanian (F) student: While the Domain Expert and ChatGPT evaluated this translation with a score of 4 (Good), Gemini assigned a score of 2 (Poor). The Domain Expert noted a limited morphological error with the statement "suffix usage is incorrect in some places," and ChatGPT reached a similar judgment with the comment "Grammatical structure is strong, but suffix usage is occasionally erroneous." In contrast, Gemini classified expressions such as "gelişmesinde" as "serious phrase structure and verb voice errors," lowering the score by two points. This situation

demonstrates that Gemini addresses grammar within a deeper syntactic framework.

Example 2 - Iranian (M) and Pakistani (M) students: In the Iranian example, both the Domain Expert and ChatGPT assigned a score of 4, identifying a translation that was semantically strong but contained minor formal errors. The Domain Expert reported the finding of "error in the use of the possessive suffix," while ChatGPT expressed the same error in a different dimension by stating "'Toplumsal bakımda' is not used in established Turkish." Similarly, for the Pakistani (M) student's text, both raters assigned a score of 3. While the Domain Expert noted "spelling errors are excessive: sam-pati kurmak, kabilyeti...", ChatGPT confirmed the same linguistic weakness using the rationale "suffix and syntax errors are frequently observed." These points of convergence demonstrate that the two raters exhibit high alignment in surface-level grammatical accuracy.

Example 3 - Madagascan (F) student (Methodological Divergence): The most pronounced methodological difference was observed in this text (Expert: 1, ChatGPT: 3, Gemini: 3). The Domain Expert indicated that the task was completely violated with the note "Text was not translated. Each paragraph was summarized," and assigned a score of 1 (Very Poor). In contrast, ChatGPT and Gemini disregarded this violation and scored only the surface-level grammatical accuracy of the existing text (e.g., ChatGPT - "'hafızayı günclendirir' expression is erroneous, but the overall structure is correct"; Gemini - "The existing 3 sentences are fundamentally correct."). This situation demonstrates that both AI models did not include the task fidelity criterion in their evaluation.

In the Grammatical Accuracy dimension, the Domain Expert and ChatGPT detected errors similarly at the formal level, while Gemini conducted a more stringent evaluation by focusing on structural integrity; however, both AI models did not incorporate the text's appropriateness to the translation purpose (task fidelity) into their scoring. These results indicate that contextual awareness in measuring linguistic accuracy remains limited in AI-based assessments.

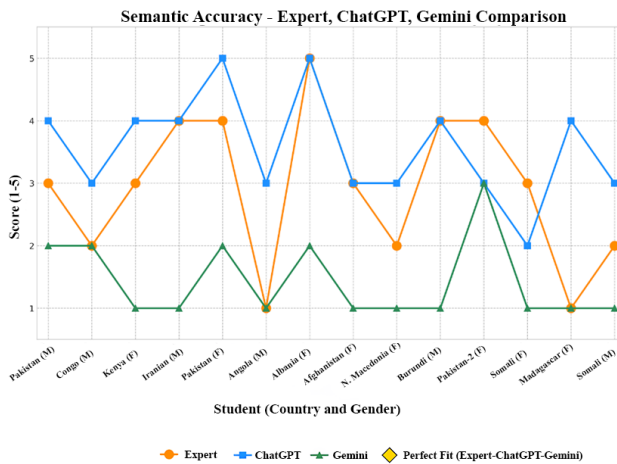


Figure 2. Comparative Analysis of Semantic Accuracy Scores

Figure 2 illustrates the evaluation patterns of three raters (Domain Expert, ChatGPT, Gemini) regarding meaning transfer in the "Semantic Accuracy" dimension. The findings demonstrate that this dimension reveals the highest methodological divergence among the three raters. While the Domain Expert and ChatGPT exhibited partial convergence by prioritizing the general flow of meaning and main idea coherence in texts, Gemini adopted a more stringent and rule-based evaluation model that foregrounded principles of complete fidelity to the source text and conceptual integrity.

Example 1 - Madagascan (F) student (Task Fidelity Divergence): This text represents the example where the most pronounced inter-rater conflict occurred. The Domain Expert and Gemini determined that the student had not fulfilled the translation task, and both assigned a score of 1 (Very Poor). The Domain Expert's note stated, "Text was not translated. Each paragraph was summarized"; Gemini's evidence was "This is not a translation; 95% of the academic content in the source text is lost." In contrast, ChatGPT disregarded this task fidelity violation and rewarded the student's summarization success, assigning a score of 4 (Good) ("Three paragraphs correctly summarize the main ideas..."). This situation demonstrates that AI models interpret task definition differently; ChatGPT prioritizes functionality, while Gemini emphasizes formal fidelity.

Example 2 - Albanian (F) student: While the Domain Expert and ChatGPT evaluated this translation with a score of 5 (Excellent), Gemini assigned only 2 (Poor) points. The Domain Expert commented "Meaning is very well conveyed"; ChatGPT similarly assessed "The text holistically conveys accurate meaning"; however, Gemini assigned a low score with the explanation "The text is more of an incomplete summary than a translation. Key concepts such as 'cognitive flexibility', 'problem solving', 'analysis', and 'multitasking' have been omitted." This comparison demonstrates that Gemini prioritizes conceptual integrity, while the other two raters prioritize communicative adequacy.

Example 3 - Somali (F) student (Critical Error Assessment): In this text, the translation of "In a world where Bitcoin usage is increasing" instead of "In a globalizing world" was identified as an error by all three raters; however, the severity of the error was assessed differently. Gemini evaluated this situation as a critical error, stating "meaning and context are completely lost," and assigned 1 point. ChatGPT assigned 2 points, while the Domain Expert assigned 3 points, stating "Adequate but context is weak." This situation demonstrates that Gemini adopts a zero-tolerance approach to critical errors, while the other two raters adopt a flexible evaluation style that considers holistic meaning preservation.

Example 4 - Afghan (F) student: The Domain Expert and ChatGPT assigned 3 points due to the excessive number of "(.....)" gaps in the text; however, Gemini interpreted the reversal of the source text's expression "is supported by scientific findings" to "This subject does not encompass scientific findings" as a semantic contradiction and evaluated it with 1 point. This example indicates that Gemini classifies contextual contradictions as critical errors and establishes a stricter tolerance threshold for semantic deviations.

The semantic accuracy dimension demonstrates that the criteria used by AI models in meaning transfer are fundamentally different from each other. While ChatGPT and the Domain Expert employ a more holistic scoring approach based on the

preservation of the main idea and overall semantic coherence of the text, Gemini exhibits a more systematic yet stringent model in terms of source text fidelity, conceptual completeness, and critical error sensitivity. This difference indicates that the definition of "semantic accuracy" in AI-based translation assessments has not yet been standardized and cannot fully reflect the cognitive flexibility of human raters.

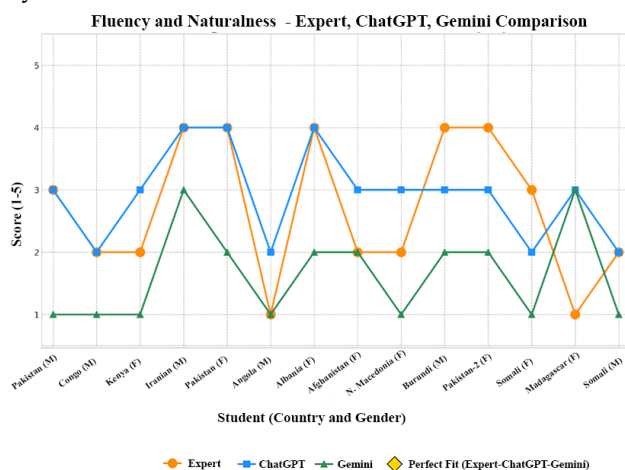


Figure 3. Fluency and Naturalness Dimension Scoring

Figure 3 illustrates the patterns among the evaluations of three raters (Domain Expert, ChatGPT, Gemini) regarding the "Fluency and Naturalness" dimension. The findings reveal two distinct tendencies in this dimension:

- (1) High-level perceptual convergence between the Domain Expert and ChatGPT regarding the natural flow of the text,
- (2) Gemini's adoption of a more stringent evaluation approach that methodologically diverges from the other two raters and associates "fluency" not only with formal smoothness but also with the reflection of the source text's academic register.

Example 1 - Pakistani (M) student: The Domain Expert and ChatGPT assigned this text a score of 3 (Moderate). Both raters provided similar justifications by referring to the same unnatural expressions:

Domain Expert Evidence: "Sentences are weak in terms of naturalness and fluency characteristics: kafama (akıllı) daha geliştirmek içindir..."

ChatGPT Evidence: "Some sentences are far from natural flow and sound artificial in Turkish. Expressions like 'sampati kurmak, kafama (akıllı)...' distort meaning."

These points of convergence demonstrate that the two raters evaluate the concept of "naturalness" through similar linguistic indicators and employ a common reference framework in their perception of fluency. Similar convergence was additionally observed in the (4-Good) scores assigned to texts by Iranian (M) and Pakistani (F) students.

Example 2 - Gemini's systematic divergence: Gemini's (green line) scores are generally lower. The reason for this difference is that Gemini associates "fluency" not only with the surface-level smoothness of sentences but also with the preservation of the original text's academic tone.

For instance, Gemini assigned 3 points to the Iranian (M) text that the Domain Expert and ChatGPT evaluated as "generally fluent" (Score 4).

Gemini Evidence: "Existing sentences are short, simple, and comprehensible. However, the entire text remains too 'simplicistic'; the fluent and academic language of the original text has not been reflected."

Similarly, having identified the phenomenon of "word-for-word translation" in the Pakistani (M) student's text ("Sentences are very mechanical and give the impression of word-for-word translation."), Gemini evaluated this situation as a critical error disrupting fluency and assigned a score of 1 (Very Poor).

Example 3 - Madagascan (F) student (Task Fidelity Divergence): This text presents a notable example of methodological transition among raters. Having agreed with the Domain Expert (Score 1) in the "Semantic Accuracy" dimension, Gemini this time assigned a score similar to ChatGPT (Score 3) in the "Fluency" dimension.

Domain Expert Evidence: "Text was not translated; only a summary was written."

ChatGPT Evidence: "Sentences are very simple, but fluent within themselves."

Gemini Evidence: "Although the text is of a summary nature, sentence structure is clear."

This example demonstrates that both AI models completely disregarded the principle of task fidelity and focused solely on the formal flow of the text.

The "Fluency and Naturalness" dimension serves as an important indicator revealing the extent to which human and AI-based evaluations overlap. While the Domain Expert and ChatGPT evaluate fluency along the axes of linguistic naturalness and readability, Gemini associates this dimension with the transfer of academic tone, structural complexity, and formality in lexical choice. Consequently, the manner in which AI models measure fluency operates independently of task context (translation/summary distinction), indicating that they are not able to adequately account for the contextual dimensions of linguistic performance.

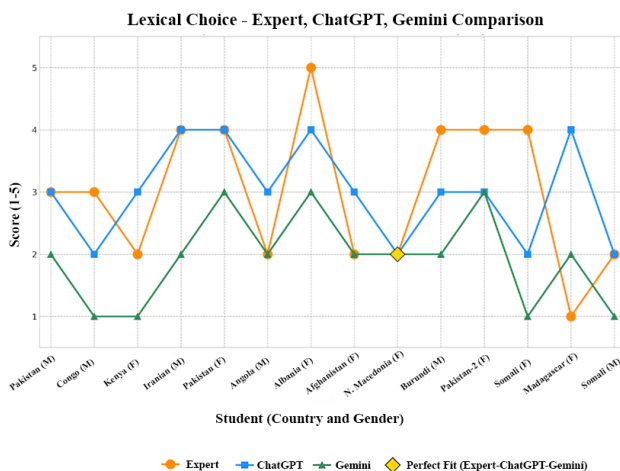


Figure 4. Lexical Choice Dimension Scoring

Figure 4 demonstrates that inter-rater evaluations in the "Lexical Choice" dimension simultaneously exhibit examples of both perfect agreement and methodological conflict. This dimension contains the only instance among 14 students and 5 sub-dimensions (totaling 70 evaluation points) where all three raters assigned the same score ("North Macedonia (F)"); conversely, it reveals substantial philosophical divergences in the "Somali (F)" and "Madagascan (F)" texts.

Example 1 - North Macedonian (F) student (Perfect Agreement Example): All three raters evaluated this text with a score of 2 (Poor). However, they

reached the same conclusion through different justifications:

Domain Expert: Emphasized that academic concepts in the source text were conveyed with incorrect words through the expression "'Bir dil öğrenerek daha akıllı bir kişi olabilirsiniz...'"

ChatGPT: Focused on formal and orthographic errors, stating "Words like 'Biyininizi', 'profesioirel' do not exist in Turkish."

Gemini: Identified terminological errors with examples such as "'Fen bilimler' (instead of Eğitim bilimleri), 'Diğer anda' (instead of Öte yandan)."

This situation demonstrates that raters may converge on the same conclusion even when following different diagnostic pathways, and that weak lexical choice might be consistently identified at the perceptual level.

Example 2 - Somali (F) student (Critical Error Divergence): This text illustrates how differently raters perceive "critical error" regarding lexical choice. Scores were distributed across a wide range: 4 (Expert), 2 (ChatGPT), and 1 (Gemini).

Gemini: Evaluated this error as fatal, stating "For an academic text, choosing the word 'Bitcoin' is the greatest error, demonstrating that the fundamental context was not understood at all" (Score: 1).

ChatGPT: Associated the error with contextual deficiency through the statement "Mixed English-Turkish usage such as 'Dünya pazarlama / ekonomi...' is present," and assigned 2 points.

Domain Expert: Despite the observation "Instead of 'Küreselleşen dünyada', the expression 'Bitcoin...' was used," assigned 4 points. However, this scoring exhibits serious internal inconsistency with the "not adequate" statement in their own evidence column.

Example 3 - Madagascan (F) student (Task Fidelity Divergence): This text demonstrates how evaluation of lexical choice independent of task context produces different results among raters.

Domain Expert (Score 1): Invalidated the text for not fulfilling the translation task, stating "Text was not translated."

ChatGPT (Score 4): Disregarded task fidelity and evaluated only the word choice within the summary text itself, noting "Lexical choice is generally appropriate."

Gemini (Score 2): Unlike ChatGPT, compared the summary text's words with the source text's academic terminology and assigned 2 points with the justification "None of the source text's rich academic terminology has been utilized."

This situation demonstrates that AI models employ different reference frameworks even when evaluating a "summary" text: ChatGPT prioritizes internal consistency, while Gemini bases evaluation on comparative terminological adequacy with the source.

The "Lexical Choice" dimension exhibits a hybrid pattern where the three raters employ different cognitive strategies for evaluation yet can reach the same conclusion in some cases. ChatGPT's more text-internal consistency-focused evaluations and Gemini's source text fidelity and academic terminology-focused assessments demonstrate that AI models prioritize different criteria compared to human experts in the lexical choice dimension. These findings reveal that the "lexical choice" criterion, particularly in translation-based assessment applications, needs to be redefined according to contextual meaning and task fidelity variables.

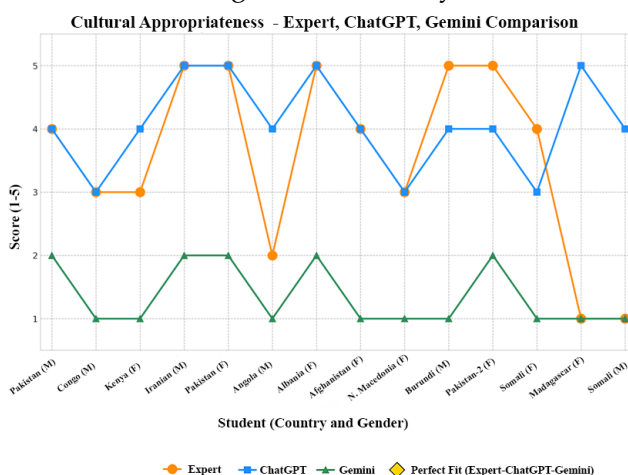


Figure 5. Comparative Analysis of Cultural Appropriateness Scores

Figure 5 illustrates the most profound methodological divergence among raters in the dimension of "Cultural Appropriateness." Unlike the previous four dimensions, this dimension is grounded not only in the level of error detection but also in a philosophical interpretation difference regarding the definition of the rubric items. Upon examining the "Evidence" columns of the raters, it becomes evident that each rater interprets the criterion of "Cultural Appropriateness" in three different manners: thematic/universality, academic style conveyance, and task fidelity.

Thematic Assessment (Domain expert and ChatGPT)

The Domain expert (orange) and ChatGPT (blue) lines exhibit a high correlation in the range of 3-5 points. Both raters interpret the concept of "cultural appropriateness" through the lens of the significance of the translated text for Turkish readers and adherence to universal themes.

ChatGPT Evidence (Iran E, Score 5): "Cultural transmission is very close to Turkish; the meaning is compatible on a universal level."

Domain expert Evidence (Pakistan K, Score 5): "Cultural context is appropriate."

These examples indicate that both raters associate cultural appropriateness at a content level, specifically relating to universal themes such as "the benefits of language learning" and "intercultural interaction."

Stylistic Assessment (Gemini)

Gemini (green line), on the other hand, has consistently assigned scores that are 1-2 points lower for the same texts. The reason for this lies in Gemini's definition of the concept of "culture" as the conveyance of academic culture. Thus, cultural appropriateness is sought not in the content of the text but at the formal and discursive levels (formality, terminology, academic tone).

Gemini Evidence (Pakistan E, Score 2): "The culture of the source text is academic and formal. The

translation fails to maintain this formality, completely distancing itself from the context with the use of informal language such as ‘head.’”

This difference in approach arises from Gemini’s view that academic tone and formal consistency are integral parts of cultural transmission. Consequently, according to Gemini, a thematically suitable but informally structured text is not considered culturally “appropriate.”

Divergence in Task Fidelity

The most pronounced conflict in the dimension of cultural appropriateness has been observed in texts with violations of task fidelity. The examples of “Madagascar (K)” and “Somali-2 (E)” notably represent this conflict.

Example - Madagascar (K) Student: This text shows the most extreme score disparity among the 210 evaluation points (Expert: 1, ChatGPT: 5, Gemini: 1).

Domain expert (Score 1): “The text has not been translated,” deeming the evaluation invalid due to a violation of the task.

Gemini (Score 1): “The academic culture of the text has been completely destroyed; the formal tone has been lost with an excessively simplified summary.”

ChatGPT (Score 5): Ignoring the task violation, it awarded the thematic coherence of the summary, stating that “There are no issues in the Turkish context; the listing of benefits is understandable.”

Example - Somali-2 (E) Student: A similar pattern can be observed in this text as well (Expert: 1, ChatGPT: 4, Gemini: 1).

Domain expert : “Insufficient.”

Gemini: “The formal, objective, and academic tone has been entirely eradicated.”

ChatGPT: “The emphasis on culture and empathy is suitable for the Turkish reader.”

This table illustrates that ChatGPT prioritizes thematic coherence, while Gemini and the Domain expert prioritize adherence to task definition and stylistic integrity.

The dimension of “Cultural Appropriateness” has revealed that the criterion definitions in the rubric are understood differently by the three raters across three distinct levels:

Domain expert and ChatGPT: Evaluated cultural appropriateness from thematic and communicative perspectives.

Gemini: Interpreted culture through formal and academic style dimensions.

These results indicate that abstract criteria such as cultural appropriateness are susceptible to issues of consistency in AI-supported evaluations. AI models struggle to differentiate the “semantic,” “formal,” and “contextual” dimensions of culture, thereby failing to fully reflect the intuitive and sociocultural sensitivity of human experts.

Discussion and Conclusion

In this study, no statistically reliable alignment was found between AI-based raters (ChatGPT and Gemini) and the domain expert in the evaluation of translation texts from C2-level students (Overall $\alpha = .392$). In this context, the failure to exceed the $\alpha \geq .667$ threshold, which is accepted in social sciences (Krippendorff, 2004), indicates that inter-rater consistency is at a “low” level. This finding suggests that AI models do not possess the level of reliability required to replace human expert judgment in scoring. However, beyond the quantitative findings, qualitative analysis indicates that this low alignment is not coincidental; rather, it stems from three distinct systematic divergences, which are explained below.

Criterion Interpretation Divergence: “Academic Style” and “Thematic Universality”

The lowest reliability values among the rubric dimensions were recorded for “Cultural Appropriateness” ($\alpha = .311$) and “Semantic Accuracy” ($\alpha = .288$). This situation aligns with the difficulties AI models encounter when evaluating abstract and interpretation-dependent criteria (Tang et al., 2024). This study demonstrates that AI systems are

capable of provide relatively consistent scores at the linguistic idea and structure level in written products; however, they fail to reflect the intuitive judgment of human raters regarding contextual, cultural, and syntactic nuances. In this regard, the domain expert and ChatGPT evaluated the text in terms of meaningful transmission to Turkish and thematic universality, while Gemini interpreted the same criterion in terms of formally conveying the academic style of the source text; this led to differing evaluations of the same metric by two raters.

Error Severity Divergence: "Form-Focused" vs. "Communicative Competence"

The analyses revealed distinct "rater profiles" in the scoring behaviors of the AI models. For instance, Gemini adopted an approach centered on formal accuracy and adherence to rules, showing lower tolerance for meaning errors. This orientation has been supported by a tendency to assign low scores for contextually critical errors. In contrast, ChatGPT prioritized the overall flow and coherence of the text, following a more communicative evaluation line. This difference points to basic issues regarding validity and reliability in AI-based automated or semi-automated scoring systems (Doewes & Pechenizkiy, 2021).

Methodological Divergence: Task Fidelity vs. Superficial Quality?

The most profound divergence among raters emerged in instances where students paraphrased instead of translating. While the domain expert and Gemini categorized this as a task violation, scoring it low, ChatGPT described the same example as a "superficially successful summary," assigning a higher score. This situation demonstrates that AI models focus solely on the surface of the text without adequately considering the analytical structures of the rubric. From this perspective, it cannot be claimed that AI models fully emulate human intuition and evaluation context (Uyar & Büyükahıska, 2025).

In conclusion, AI models have the ability of producing relatively consistent results in superficial linguistic accuracy and fluency but face reliability

issues in deeper cognitive dimensions, such as meaning, style, and cultural appropriateness. The evaluations from the domain expert contained a more holistic "task-oriented" judgment, while the AI models remained focused on formal accuracy (Gemini) or internal consistency (ChatGPT). Therefore, it concludes that AI-based evaluation systems may be used as supportive raters at this stage but are unable to replace human experts in final judgments. This result suggests that future studies should focus on directed training (prompt calibration) and hybrid human-AI scoring systems to enhance the sensitivity of AI models to rubric criteria. Furthermore, applications conducted at different language levels (A2-C2) and across various task types are anticipated to comprehensively test the scoring stability of AI.

Limitations

Sample Size and Generalizability: The study's findings are based on a specific group of C2-level students and their translation texts. A limited sample size may hinder the generalizability of the results to broader populations or different educational contexts.

Rater Diversity: The study primarily focused on two AI-based raters (ChatGPT and Gemini) and one human expert. The lack of diversity in raters may limit the scope of the findings, as incorporating additional human raters with varied backgrounds or expertise could yield different results.

Contextual Factors: The evaluation of translation texts can be influenced by various contextual factors, including the specific content of the texts, the cultural background of the students, and the evaluative criteria used. These factors may not have been fully accounted for in the study, which could impact the reliability of the findings.

Declarations

Funding: No funding was received for conducting this study.

Conflicts of Interest: The author declares no conflict of interest.

Ethical Approval: The study was conducted with the approval decision numbered 21/114 dated 24.10.2025 of the Social and Human Sciences Ethics Committee of a state university

Informed Consent: Informed consent was obtained from all subjects involved in the study..

Data Availability: The datasets generated and analyzed during the current study are available from the corresponding author on reasonable request

AI Disclosure: No artificial intelligence-based tools or applications were used in the conception, analysis, writing, or preparation of figures for this study. All content was generated by the author in accordance with scientific research methods and academic ethical standards.

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Appendix A

Rubric

1 = Very Poor | 2 = Poor | 3 = Fair | 4 = Good | 5 = Excellent

Dimension	Definition	Score (1-5)	Explanation / Evidence (example from the text, short note)
Grammatical Accuracy	Compliance of the translation with Turkish grammar rules (suffixes, tense, syntax).		
Semantic Accuracy	The extent to which the meaning of the source text is accurately and completely conveyed.		
Fluency and Naturalness	The degree to which sentences are constructed naturally and read smoothly in Turkish.		
Word Choice	Appropriateness of vocabulary and terminology in context.		
Cultural Appropriateness	The extent to which cultural nuances are properly conveyed in Turkish.		

Appendix B

Text to be Translated

The Individual and Societal Contributions of Foreign Language Learning

In a globalizing world, knowing a foreign language plays a critical role in both individuals' personal development and professional success. Learning a foreign language is not only about acquiring an additional means of communication but also about understanding different cultures, developing empathy, and enhancing cognitive flexibility. Language learning improves an individual's thinking skills, strengthening their abilities in problem-solving, analysis, and multitasking.

Research within the field of educational sciences has shown that foreign language learning has positive effects on brain development. In particular, language education begun at an early age positively influences native language proficiency and enhances overall linguistic awareness. Moreover, studies indicate that language learning in adulthood can delay cognitive aging and help preserve memory capacity.

At the societal level, individuals who know foreign languages serve as bridges in intercultural interactions, fostering social cohesion and facilitating international collaboration. Economically, multilingual individuals gain a competitive advantage in the global market and have greater employment opportunities across different countries.

RESEARCH ARTICLE

Seeking Validation in Digital Tourism: Social Desirability and Travel Sharing

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Abstract

Information and communication technology (ICT) developments have fundamentally transformed the tourism industry, significantly influencing travel planning and experience-sharing behaviors in particular. Social media platforms enable individuals to meet their needs for identity construction and self-expression through content sharing. These sharing motivations are largely shaped by drivers such as the pursuit of social approval and the desire to be liked. This study examines the effects of social approval and the desire to be liked on the online sharing of travel experiences. Data obtained from 408 participants reveal that both factors have a significant impact on experience-sharing behaviors (social approval: $R^2 = 0.926$; desire to be liked: $R^2 = 0.905$). In addition, sharing motivations were found to differ across gender, income level, educational attainment, and generations. In particular, women, younger generations, and individuals with higher income and education levels are more likely to share their travel experiences. The findings provide important insights for understanding the dynamics of online self-presentation and for developing digital tourism marketing strategies. The study underscores approval-seeking patterns that shape individuals' digital content-sharing behaviors.

Keywords: social approval, social desirability, social networking, travel information

Öz

Bilgi ve iletişim teknolojilerindeki gelişmeler, turizm endüstrisini köklü biçimde dönüştürmüştür; özellikle seyahat planlama ve deneyim paylaşımı davranışlarını önemli ölçüde etkilemiştir. Sosyal medya platformları, bireylerin kimlik inşası ve ifadesine yönelik ihtiyaçlarını içerik paylaşımı yoluyla karşılamalarına olanak tanımaktadır. Bu paylaşım motivasyonları ise çoğunlukla toplumsal onay ve sosyal beğenilme arzusu gibi güdülerle şekillenmektedir. Bu çalışma, sosyal onay ve sosyal beğenilme isteğinin seyahat deneyimlerinin çevrim içi paylaşımı üzerindeki etkilerini incelemektedir. 408 katılımcıdan elde edilen veriler, her iki faktörün de deneyim paylaşım davranışları üzerinde anlamlı bir etkisi olduğunu ortaya koymuştur (sosyal onay: $R^2 = 0.926$; sosyal beğenilme: $R^2 = 0.905$). Ayrıca, paylaşım motivasyonlarının cinsiyet, gelir düzeyi, eğitim seviyesi ve kuşaklar arasında farklılık gösterdiği saptanmıştır. Özellikle kadınlar, genç kuşaklar ve daha yüksek gelir ile eğitim düzeyine sahip bireylerin seyahat deneyimlerini paylaşma olasılıkları daha yüksektir. Elde edilen bulgular, çevrim içi benlik sunumu dinamiklerini anlamada ve dijital turizm pazarlama stratejilerinin geliştirilmesinde önemli ipuçları sunmaktadır. Çalışma, bireylerin dijital içerik paylaşımında onay arayışına dayalı davranış biçimlerinin altını çizmektedir.

Anahtar Kelimeler: Toplumsal Onay, Sosyal Beğenilme Eğilimi, Sosyal Ağ Kurma, Seyahat Bilgisi.

Introduction

Advancements in Internet technology have not only optimized information accessibility but also led to a significant increase in user engagement. In this context, social media platforms can be considered one of the most significant innovations that the Internet offers to users. Social media is defined as digital platforms that meet users' informational needs, facilitate interactive communication, and provide opportunities for socialization.

The integration of multimedia content constitutes one of the fundamental factors contributing to the increased utilization intensity of these platforms. The contemporary rise in internet penetration has established social media as a central element of daily life. This phenomenon transforms traditional communication paradigms and optimizes users' time allocation on digital platforms. Innovations in information and communication technologies maintain a symbiotic relationship with the tourism industry. The number of tourism stakeholders in the social media ecosystem exhibits exponential growth. Consumers establish virtual tourism communities to facilitate experience sharing. Tourism consumers disseminate their travel experiences through various social media platforms via audiovisual materials and evaluations. These contents play a crucial role in potential tourism consumers' decision-making processes and shape their travel preferences.

People, as social beings, have an inherent need for validation and recognition. Social media platforms play a significant role in fulfilling this need through shared content and received interactions. While stress and disappointment experienced due to insufficient engagement with one's posts are considered normal phenomena, systematic posting and pursuit of interaction aimed at preventing such situations are classified as obsessive behavior (Batu and Güler-İplikçi, 2018). There is a necessity for research examining the effects of social media usage on individual behaviors, interpersonal relationships, and personality structure. Social desirability and the need for social approval represent an individual's desire for acceptance from their environment.

Individuals who share content on social media platforms exhibit a fundamental need for approval and recognition from their social environment, independent of their personality traits. To better comprehend the motivations of individuals who share their travel experiences on social media, it is imperative to examine the multifaceted effects of this phenomenon. Given the limited research in the domain of social desirability and need for approval, this study aims to make significant contributions to the existing literature. Furthermore, it is crucial to investigate the relationship between various variables to evaluate social sharing motivations more comprehensively within the context of travel experiences. This research aims to examine the relationship between social desirability, need for approval, and the motivation to share travel experiences on social media. The study analyzes the differentiation of these variables according to demographic factors and their interrelationships.

While general studies on social approval and desirability exist, there is a lack of empirical research examining the impact of these motives specifically on travel experience sharing motivations among Turkish tourism consumers. This study aims to fill this gap.

Conceptual Framework

The Concept of Social Approval Need

Humans are characterized as beings inherently oriented towards social interaction and subject to societal approval mechanisms (Hofmann and Dibartolo, 2014). The phenomenon of social approval can be conceptualized within the framework of an individual's intrinsic need for social acceptance and validation, avoidance behaviors stemming from the anxiety of disapproval, and the significance attributed to collective evaluations (Leite and Beretvas, 2005). In the literature, the theoretical framework of the need for social approval is shaped around the concepts of desirability (Crowne and Marlowe, 1960) and appreciation (Fehr and Falk, 2002). Crowne and Marlowe (1960) approached the concept of social approval from the perspective of social desirability. While indi-

viduals experience positive affect as a result of appreciation obtained through social approval mechanisms, they experience shame in the absence of approval (Fehr and Falk, 2002). Hebert et al. (1997) conceptualized the need for social approval as the behavioral manifestation of the pursuit of appreciation. Various theoretical approaches exist regarding the need for social approval. Karaşar and Öğülmüş (2016) posit that this need is a phenomenon shaped by cultural determinants and leaves significant imprints on our life experiences. Leite and Beretvas (2005) address the concept in the context of an individual's pursuit of social approval and tendency to avoid disapproval.

The need for social approval is a psychosocial phenomenon characterized by individuals exhibiting adaptive behavioral patterns in social interactions, attributing significance to others' expectations, desires, and evaluations, and subsequently modifying their behavioral repertoire accordingly. This psychological construct not only potentially triggers a tendency to conform to collective expectations and demands rather than maintaining autonomous self-perception but also serves a functional role in establishing interpersonal bonds and maintaining social interactions (Karaşar and Öğülmüş, 2016). Empirical findings indicate that the need for social approval manifests more prominently in collectivistic cultural structures compared to individualistic cultures (Twenge & Im, 2007; Middleton & Jones, 2000). This phenomenon is associated with elevated anxiety levels regarding others' evaluations among these individuals (Twenge and Im, 2007). The presence and significance of the need for social approval can be observed across various domains of life. While this psychological construct facilitates social cohesion and interpersonal proximity, it simultaneously leads individuals to live according to societal expectations rather than self-determination. However, systematic research findings regarding the prevalence and cultural determinants of the need for social approval specific to Turkey are not yet available (Karaşar, 2014).

The need for social approval functions as a fundamental psychological factor that shapes individuals' behavioral patterns, playing a determinant role in their processes of seeking social acceptance

and recognition. Individuals exhibit various behavioral tendencies motivated by the fulfillment of this psychological need and the desire to construct a positive social image. These tendencies include patterns such as: inability to provide negative responses, prosocial behavioral inclination, displaying behaviors that conform to social norms but conflict with authentic self for the purpose of gaining social popularity, social adaptation, and behavioral modification aimed at obtaining others' approval (Değirmenci and Demirli, 2019). There is a significant correlation between the need for social approval and perfectionism (Karaşar and Öğülmüş, 2016). Research in the literature demonstrates that individuals with perfectionist tendencies exhibit higher levels of anxiety regarding others' evaluations and greater needs for approval compared to their counterparts (Antony and Swinson, 2009). Another psychological construct associated with the need for social approval is social anxiety (Karaşar and Öğülmüş, 2016). Studies indicate that individuals with high levels of need for social approval display a marked tendency to optimize their image in others' perspectives and may experience social anxiety in response to the possibility of failing to create or maintain this image (Chiba et al., 2009). In this context, it can be concluded that individuals with high needs for social approval experience intense anxiety regarding creating and maintaining a positive impression in interpersonal relationships.

The Concept of Social Desirability

Based on a comprehensive literature review, it has been determined that the concepts of social desirability and social approval are used synonymously, particularly in international research, and encompass similar characteristic features. Within this context, these concepts have been treated as equivalent in the present study. Social desirability is defined as an individual's tendency to present themselves as more qualified and competent to society than they actually are, influenced by environmental factors. Similarly, social approval refers to an individual's effort to gain social acceptance. Humans, as social beings, are shaped within a specific

cultural and social environment from birth and develop according to the parameters of this cultural structure. As individuals, who are in continuous evolution and transformation, interact with different cultural and social environments, they experience processes of adaptation and social integration. One of the primary factors affecting social desirability is the social environment that the individual aspires to be part of. Individuals exert considerable effort to attract attention and gain acceptance in their targeted social environment, demonstrating a tendency to prove their personal characteristics. Social desirability, as Kozan (1983) indicates, reflects an individual's internal state. Individuals may endeavor to create a positive impression on others to adapt to their social environments, establish a favorable image, and maintain effective communication. According to Haran and Aydin (1995), social desirability can be conceptualized as individuals' efforts to demonstrate that their characteristics are socially desired and appreciated qualities.

The concept of social desirability refers to participants' tendency to provide responses that align with social expectations in scale applications. This phenomenon stems from individuals' inclination to demonstrate possession of desirable behaviors and characteristics in accordance with societal norms during self-evaluation processes (Akin, 2001). Research indicates that responses provided in self-report scales are influenced by variables external to the construct being measured. Among these variables, the most notable is individuals' tendency to demonstrate socially acceptable characteristics, which has been conceptualized in the literature as the social desirability effect. This situation is considered a potential threat to the validity of measurement instruments (Haran and Aydin, 1995). Within Randall and Fernandes's (1991) theoretical framework, social desirability is examined as a two-dimensional construct comprising personal characteristics and item-related properties. From the perspective of personal characteristics, it is observed that individuals with high social approval motivation tend to avoid responses that might damage their self-image or provide re-

sponses conforming to social norms rather than reflecting their actual circumstances (Dönmez and Akbulut, 2016).

Paulhus (1984) conceptualized social desirability as a reflection of personality and examined this construct along two fundamental dimensions: "self-deception" and "impression management." In the self-deception dimension, individuals sincerely believe in the existence of their positive attributes, whereas in the impression management dimension, individuals strategically present themselves in various ways. The theoretical framework developed by Philips and Clancy (1972) conceptualized the foundation of social desirability along two primary axes: social acceptance and attention-seeking. The social acceptance factor categorizes behavioral patterns that individuals exhibit to optimize their social integration. The attention-seeking dimension explicates the mechanism through which individuals satisfy their need for social desirability through feedback received after gaining visibility in social contexts (Erzen et al., 2021).

Motivational Factors in Travel Information Sharing Behavior

Contemporary tourists predominantly prefer digital platforms in their information-seeking processes during travel planning. During destination selection and holiday planning, tourists initiate their information search in digital channels and tend to interact with tourism enterprises that maintain a strong presence on online platforms (Machaz, 2010). Within the context of consumer-oriented development of information technologies, the emergence of social media platforms and consumers' rapid adaptation to these platforms presents itself as a noteworthy phenomenon (Çobanoğlu, 2010). The analysis of individuals' motivational factors in sharing travel experiences is critically important for comprehending travelers' socio-cultural and environmental characteristics in depth and providing strategic recommendations to marketing professionals (Oliveria et al., 2020). The concept of motivation represents an individual's impetus to act, which can be categorized within the framework of internal and external dynamics (Ghaisani, Handayani and Munajat, 2017). Internal

motivation suggests that behavior is executed through an individual's self-will, while external motivation posits that it is shaped by the drive to gain rewards or avoid sanctions (Vries et al., 2017).

Travelers' content sharing motivations are addressed through various theoretical frameworks in the literature. While some researchers examine these motivations through the internal-external dichotomy, others evaluate them from a multidimensional perspective, including recreational, identity construction, and reward-based aspects (Chavez, Ruiz, Curras and Hernandez, 2020; Munar and Jacobsen, 2014). One of the common findings of empirical studies is the dominant role of recreational motivation in social media sharing. Additionally, the desire to contribute to other travelers through information sharing and the motivation to develop social networks are prominent. Socialization, identity construction, and sharing behavior as a status indicator also occupy a significant place in travelers' motivational repertoire (Arslan and Şimşek, 2022).

Social media platforms have precipitated a paradigm shift in the sharing of travel experiences by providing tourism consumers with interactive communication opportunities. The tourism industry has attained a more effective position in reaching target audiences by optimizing marketing strategies through digital platforms. This transformation has rendered social media integration a strategic imperative for businesses within the sector. Social media platforms utilized in tourism consumers' decision-making processes serve as catalysts in shaping accommodation preferences (Rathore, Joshi, and Ilavarasan, 2017). In the evolutionary process within the digital ecosystem, social networking sites have undergone a significant paradigm shift (Enders et al., 2008). These platforms are positioned among the dominant elements of the contemporary internet ecosystem (Kasavana et al., 2010). Social networking platforms such as Facebook, Twitter, MySpace, Friendster, and Bebo have demonstrated exponential growth in terms of user adoption. Numerous social networking platforms provide services with technological infrastructures supporting multidisciplinary areas of interest (Boyd and Ellison, 2007). For users of these

platforms, digital interaction has become an integral part of daily life. Users fulfill their socialization needs in the virtual environment and experience an alternative social reality through these platforms (Ganley and Lampe, 2009, as cited in Grabner-Krauter, 2009).

Methodology

Research Significance and Objectives

The primary objective of this research is to examine the relationship between social desirability and need for approval among individuals who have undertaken tourist travel, and their motivation to share travel experiences on social media. The subsidiary objectives include analyzing the causality of these individuals' social desirability, need for approval, and their motivation to share travel experiences on social networking sites, as well as determining whether these variables differ according to participants' demographic characteristics (Generation, gender, education level, and income level). The research findings are anticipated to contribute to the relevant literature and provide recommendations for sector stakeholders to improve their existing processes. In this context, the findings are expected to play a significant role in both academic circles and practical applications.

Research Methodology

In this study, a quantitative research methodology was employed, and the study was designed using a causal research model. A literature review was conducted to identify appropriate scales for the research. The decision was made to utilize pre-designed and validated scales. Three distinct scales were employed to test the desired variables: a 15-item scale developed by Evren et al. (2021) to measure social desirability, a 25-item scale developed by Karaşar and Ögülmüş (2016) to measure social approval, and a 25-item scale developed by Huang, Basu, and Hsu (2010) to measure motivation for sharing travel experiences on social media. The final version of the scale was refined considering factors such as cultural differences, under the guidance of expert tourism academics.

The survey instrument consists of four sections. The first section contains statements measuring social desirability levels. The second section includes statements designed to measure social approval needs. The third section comprises statements measuring motivation for sharing on social platforms. The fourth section consists of questions aimed at determining participants' demographic characteristics. The scale items employed in the study were designed in a 5-point Likert-type format. This scale was graduated as follows: 1 (Strongly disagree), 2 (Disagree), 3 (Neutral), 4 (Agree), and 5 (Strongly agree).

Due to temporal and financial constraints, it was deemed appropriate to conduct the research on a specific sample. Non-probability convenience sampling method was employed for research implementation and sample determination. The scales were administered online to voluntary participants at five-star establishments in Kuşadası between 2024-2025. The scale was administered on a voluntary basis to guests aged 18 and above staying at five-star accommodation establishments in Kuşadası. Analyses were conducted with data obtained from 408 participants. The required ethical committee approval for data collection was obtained from Doğuş University with protocol number 2022/87

Data Analysis

The analysis of data obtained from the study commenced with normality testing, followed by validity and reliability assessments. Upon confirming the dataset's suitability, regression analysis, T-test, ANOVA, and frequency analyses were conducted. All aforementioned statistical analyses were performed utilizing the IBM SPSS statistical software package.

Analyses of Normal Distribution, Reliability, and Validity

Based on the descriptive statistics conducted for normal distribution analysis of the scale evaluating social media sharing motivations of guests staying in five-star accommodation facilities, the arithmetic mean (2.7891) and median (2.2800) values were

found to be convergent. The skewness coefficient was calculated as -.577 and the kurtosis coefficient as -1.278, with these values being observed within the acceptable range (+1.5 / -1.5). In the findings obtained from the social approval needs scale, the arithmetic mean (2.7882) and median (2.2880) values were convergent; the skewness (.605) and kurtosis (-1.192) coefficients were determined to be within the acceptable range (+1.5 / -1.5). Similarly, in the social desirability scale, the arithmetic mean (2.7982) and median (2.3333) values were found to be convergent; the skewness (.624) and kurtosis (-1.094) coefficients were positioned within the acceptable range (+1.5 / -1.5).

Considering the criterion that skewness and kurtosis coefficients, which are the most prominent indicators of normal distribution, should be within the range of +1.50 to -1.50 (Tabachnick & Fidell, 2013), the obtained values falling within this range support the applicability of parametric tests in relational analyses.

In the reliability analysis of the scales, Cronbach's Alpha coefficients were examined. The obtained Cronbach's Alpha values exceeded the threshold value of 0.70, which is considered sufficient for scale reliability in the relevant literature (Büyüköztürk, 2013; Nunnally, 1978), confirming that all scales possess internal consistency. The analysis results are presented in detail in Table 1.

Table 1: Reliability Analysis

Scale	Cronbach's Alpha	Number of Items
Social Media Sharing Motivation	0.99	25
Social Approval Need	0.991	25
Social Desirability	0.983	15

Factor analysis and Varimax rotation method were employed to transform the data into a more explanatory and meaningful form. Subsequently, the item distribution in the dimensions of motivation for sharing on social networking sites, need for social approval, and social desirability scales has differentiated from their original forms. Upon examination of the variance and eigenvalue coefficients of the scales, their factorial explanatory power was found to be at a very high level. The results of the factor analysis are presented in Table 2.

Table 2: Factor Analysis (KMO & Variance Explained)

Scale	KMO Sample Adequacy	Explained Variance (%)
Social Media Sharing Motivation	0.991	81.36
Social Approval Need	0.94	82.97
Social Desirability	0.983	80.97

Based on the Kaiser-Meyer-Olkin and Bartlett's Test of Sphericity analyses, the motivation coefficient for sharing on social media platforms was determined to be 0.991, the need for social approval coefficient was 0.940, and the social desirability coefficient was 0.983. The statistical significance of the scales ($p < 0.001$) statistically validates the usability of the dataset within the scope of the research.

Analysis of Research Data and Findings

This section presents the correlational and descriptive analysis findings. The primary objective of the research is to examine the effects and relationships between social desirability and need for approval variables on the motivation to share travel experiences on social media platforms. These variables will also be analyzed within the context of demographic parameters. The research model developed and hypotheses to be tested are presented below.

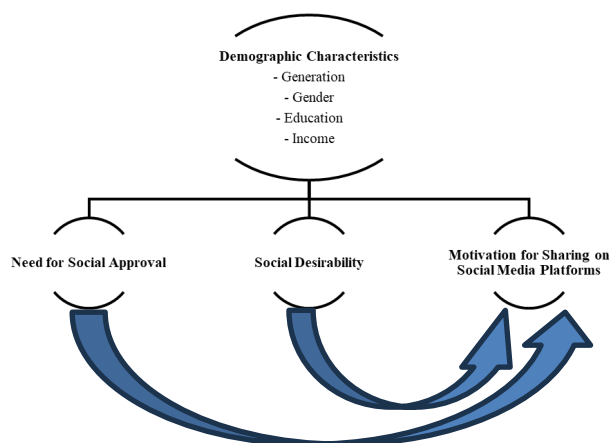


Figure 1: Research Model

Primary Hypothesis H1a: Participants' social desirability levels positively influence their motivation to share travel experiences on social media platforms.

Primary Hypothesis H1b: Participants' need for social approval positively influences their motivation to share travel experiences on social media platforms.

Primary Hypothesis H2: Participants' motivation to share travel experiences on social media platforms varies according to their demographic characteristics.

Sub-hypotheses:

H2a: Participants' motivation to share travel experiences on social media platforms differs across generational cohorts.

H2b: Participants' motivation to share travel experiences on social media platforms varies based on gender.

H2c: Participants' motivation to share travel experiences on social media platforms differs according to educational attainment.

H2d: Participants' motivation to share travel experiences on social media platforms varies based on income levels.

Primary Hypothesis H3: Participants' social desirability levels vary according to their demographic characteristics.

Sub-hypotheses:

H3a: Participants' social desirability levels differ across generational cohorts.

H3b: Participants' social desirability levels vary based on gender.

H3c: Participants' social desirability levels differ according to educational attainment.

H3d: Participants' social desirability levels vary based on income levels.

Primary Hypothesis H4: Participants' need for social approval varies according to their demographic characteristics.

Sub-hypotheses:

H4a: Participants' need for social approval differs across generational cohorts.

H4b: Participants' need for social approval varies based on gender.

H4c: Participants' need for social approval differs according to educational attainment.

H4d: Participants' need for social approval varies based on income levels.

The testing of hypotheses and interpretation of analyses are presented below.

Table 3. Regression Model (Key Results)

Independent Variable	Dependent Variable	R-Square	Beta Coefficient	P-Value
Social Desirability	Travel Sharing Motivation	0.905	0.96	0.0
Social Approval Need	Travel Sharing Motivation	0.926	0.958	0.0

In the regression analysis, the correlation between social desirability conditions and motivation to share travel experiences on social media platforms was found to be 0.951 (95%). The impact of social desirability conditions on the motivation to share travel experiences on social media platforms was determined to be 0.905 (90%). Consequently, hypothesis H1a was accepted.

The regression analysis revealed that the correlation between the need for social approval and motivation to share travel experiences on social media platforms was 0.962 (96%). The impact of social approval needs on the motivation to share travel experiences on social media platforms was determined to be 0.925 (92%). Therefore, hypothesis H1b was accepted. When examining correlation values, 0 indicates no relationship, while +1 indicates a complete relationship (Karakus et al., 2016). The results of 90% and 92% in the analysis demonstrate the existence of a significant and strong relationship between the variables.

For the sake of clarity and brevity, detailed outputs of all statistical tests conducted in this study have not been included in the main body of the text. However, these results are securely archived and can be made available upon request. The table presented below offers a concise summary of the ANOVA analyses performed, highlighting the key patterns and statistically significant differences observed across demographic groups.

The ANOVA homogeneity analysis was conducted based on the generational variable of participants, and it was determined that the data did not exhibit a homogeneous distribution ($P = 0.001$). The significance value obtained from the analysis ($P = 0.000$) was found to be consistent with the generally accepted significance threshold of $P < 0.05$ in social sciences. In light of these findings, hypothesis H2a was statistically supported. According to the Dunnett C - Post Hoc test, which is utilized in

non-homogeneous difference analyses, it was determined that Generation Y demonstrated significantly lower rates of sharing memories on social media platforms compared to Generations X and Z.

Table 4. ANOVA and t-Test Results: Effects of Demographic Variables on Travel Sharing Motivation, Social Approval, and Social Desirability

Variable	Statistic	p-Value	Interpretation
Generations - Sharing Motivation	$F(2, 405) = 37.02$	$< .001$	Significant difference observed
Gender - Sharing Motivation	$t(406) = 5.28$	$< .001$	Females exhibit higher motivation
Education - Sharing Motivation	$F(3, 404) = 38.79$	$< .001$	Postgraduates show higher motivation
Income - Sharing Motivation	$F(4, 403) = 18.94$	$< .001$	Higher income group shows stronger motivation
Generations - Need for Social Approval	$F(2, 405) = 39.68$	$< .001$	Generation Y exhibits lower need
Gender - Need for Social Approval	$t(406) = 5.70$	$< .001$	Females show significantly lower need
Education - Need for Social Approval	$F(3, 404) = 36.58$	$< .001$	Higher education level corresponds to higher need
Income - Need for Social Approval	$F(4, 403) = 19.37$	$< .001$	Higher income associated with greater need
Generations - Social Desirability	$F(2, 405) = 37.43$	$< .001$	Generation Y shows lower desirability
Gender - Social Desirability	$t(406) = 5.53$	$< .001$	Females exhibit lower desirability
Education - Social Desirability	$F(3, 404) = 36.58$	$< .001$	Bachelor's and above demonstrate higher desirability
Income - Social Desirability	$F(4, 403) = 19.96$	$< .001$	Higher income group shows greater desirability

Upon examination of the T-test analysis, it was observed that the Levene value (0.034) did not meet the expected threshold for homogeneity ($P > 0.05$). In the significance analysis, the Sig value ($P = 0.000$) met the required coefficient ($P < 0.05$). Consequently, hypothesis H2b was accepted. The analysis revealed that females demonstrated significantly higher motivation to share on social media platforms compared to males

In the analyses conducted within the scope of the research, the homogeneity coefficient (0.000) obtained according to participants' educational status did not meet the statistically significant homogeneity threshold ($p > 0.05$). In the analysis performed for significance difference detection, the significance value ($p = 0.000$) was found to be below the critical threshold ($p < 0.05$). In light of these findings, hypothesis H2c was accepted. For detailed examination of inter-group differences, Dunnett's C - Post Hoc analysis, which is preferred in heterogeneous variance conditions, was applied. Analysis results revealed a statistically significant and distinct difference between participants with Master's degree and above and participants at other educational levels. These individuals demonstrated higher sharing motivation compared to others.

Based on the analyses conducted within the research framework, it was determined that the homogeneity assumption was not met in the assessment according to participants' income status ($p = 0.000 > 0.05$). Moreover, when examining the significance level, the obtained value ($p = 0.000$) was observed to be below the generally accepted threshold in social sciences ($p < 0.05$). In light of these findings, hypothesis H2d was supported. For detailed examination of inter-group differences, Dunnett's C - Post Hoc analysis, which is preferred in heterogeneous variance conditions, was applied. Analysis results revealed statistically significant and distinct differences between participants who perceived their income levels as very good, good, and moderate compared to those who perceived them as poor, and also between those who perceived their income as very good and those who perceived it as very poor. Individuals with very high income levels demonstrated this attitude at a higher rate than those with very poor income levels.

The ANOVA homogeneity analysis was conducted based on the generational variable of participants, and it was determined that the data did not exhibit a homogeneous distribution ($P = 0.000$). The significance value obtained from the analysis ($P = 0.000$) was found to be consistent with the generally accepted significance threshold in social sci-

ences of $P < 0.05$. In light of these findings, hypothesis H3a was statistically supported. According to the Dunnett C - Post Hoc test, which is used in non-homogeneous difference analyses, Generation Y was found to have significantly lower social approval need attitudes compared to Generations X and Z.

Upon examination of the T-test analysis, the Levene value (0.007) was found to not meet the expected value for homogeneity ($P > 0.05$). In the significance analysis, the Sig value ($P = 0.000$) met the required coefficient ($P < 0.05$). Accordingly, hypothesis H3b was accepted. The analysis revealed that females demonstrated significantly lower levels of social approval needs compared to males.

In the analyses conducted within the scope of the research, the homogeneity coefficient (0.000) obtained according to the participants' educational status did not meet the statistically significant homogeneity threshold ($p > 0.05$). The significance value ($p = 0.000$) obtained from the analysis performed for detecting significance differences was found to be below the critical threshold ($p < 0.05$). In light of these findings, hypothesis H3c was accepted. To examine intergroup differences in detail, Dunnett's C - Post Hoc analysis, which is preferred in cases of heterogeneous variance, was applied. The analysis results revealed a statistically significant and distinct difference between participants with Master's degree and higher education levels and those with high school education or less, compared to participants at other educational levels. These individuals demonstrated a higher level of need for social approval than others.

According to the analyses conducted within the research framework, it was determined that the homogeneity assumption was not met in the evaluation based on participants' income status ($p = 0.000 > 0.05$). Furthermore, when examining the significance level, the obtained value ($p = 0.000$) was observed to be below the generally accepted threshold in social sciences ($p < 0.05$). In light of these findings, hypothesis H3d was supported. To examine intergroup differences in detail, Dunnett's C - Post Hoc analysis, which is preferred in cases of heterogeneous variance, was applied. The analysis results indicate that individuals with very

high income levels demonstrate a higher need for social approval compared to others.

The ANOVA homogeneity analysis was conducted based on the generational variable of participants, and it was determined that the data did not exhibit a homogeneous distribution ($P = 0.000$). The significance value obtained from the analysis ($P = 0.000$) was found to be consistent with the generally accepted significance threshold in social sciences of $P < 0.05$. In light of these findings, hypothesis H4a was statistically supported. According to the Dunnett C - Post Hoc test, which is employed in non-homogeneous difference analyses, Generation Y exhibited significantly lower social desirability levels compared to Generations X and Z.

The T-test analysis revealed that the Levene value (0.012) did not meet the expected threshold for homogeneity ($P > 0.05$). In the significance analysis, the Sig value ($P = 0.000$) met the required coefficient ($P < 0.05$). Consequently, hypothesis H4b was accepted. The analysis demonstrated that females exhibited significantly lower social desirability levels compared to males.

In the analyses conducted within the scope of the research, the homogeneity coefficient (0.000) obtained according to participants' educational status did not meet the statistically significant homogeneity threshold ($p > 0.05$). In the analysis conducted for significance difference detection, the significance value ($p = 0.000$) was found to be below the critical threshold ($p < 0.05$). Based on these findings, hypothesis H4c was accepted. To examine intergroup differences in detail, Dunnett's C - Post Hoc analysis, which is preferred in heterogeneous variance conditions, was applied. The analysis results revealed a statistically significant and distinct difference between participants with a Bachelor's degree and those with high school education or less compared to participants with other educational levels. These individuals demonstrated higher social desirability levels than those with associate degrees but lower levels than other educational groups.

Based on the analyses conducted within the scope of the research, it was determined that the homogeneity assumption was not met in the assessment according to participants' income status ($p = 0.000 > 0.05$). Furthermore, when examining

the significance level, it was observed that the obtained value ($p = 0.000$) was below the generally accepted threshold value in social sciences ($p < 0.05$). In light of these findings, it was concluded that hypothesis H4b was supported. To examine intergroup differences in detail, Dunnett's C - Post Hoc analysis, which is preferred in cases of heterogeneous variance, was applied. The analysis results indicate that individuals with very high income levels demonstrate higher levels of social desirability compared to others.

Discussion and Conclusion

Discussion

This study aimed to examine the influence of individuals' "need for social approval" and "social desirability levels" on their motivations to share travel experiences on social media. The findings demonstrate that both variables have a significant impact on travel experience sharing motivation.

The unusually high R^2 values observed in the study (above 0.90) may be attributed to the strong alignment between the measurement scales and the behavioral tendencies of participants. In the context of social media behavior research, particularly when examining internal psychological drivers like social approval and desirability, such high explanatory power is not uncommon. These constructs have been shown to deeply influence online self-presentation and content sharing behaviors, especially in digitally active populations. This supports previous findings that models involving identity expression and social interaction motives tend to produce high predictive validity (Tegar et al., 2025).

One of the most notable findings of the study is the strong correlation between "social desirability" and "travel experience sharing motivation." Specifically, individuals with high social desirability levels tend to share their travel experiences more frequently on social media. This finding aligns with previous studies demonstrating that individuals utilize social media platforms for "self-presentation" and "ideal self-image construction" (Gonzales & Hancock, 2011; Rui & Stefanone, 2013). Individ-

uals with high social desirability levels may be inclined to share content to enhance their positive perception within society (Chou & Edge, 2012).

Furthermore, a significant and strong relationship was identified between "need for social approval" and travel experience sharing motivation. The primary reason for individuals with high need for social approval being more willing to share travel experiences may be their desire for "recognition and appreciation through likes, comments, and interactions" from their social network. This finding corresponds with previous research establishing a direct relationship between social media usage and "need for social validation and acceptance" (Nadkarni & Hofmann, 2012; Utz et al., 2012).

Another significant aspect of the findings pertains to the role of "demographic variables" in social media sharing motivation. "Generational differences" emerge as a particularly prominent factor in this context. The study revealed that "Generation Y and Z" demonstrate a higher propensity for sharing travel experiences compared to Generation X. This finding is consistent with previous research indicating that younger generations are more integrated with digital platforms and utilize social media more extensively as a "means of self-expression and socialization" (De Vries, et al., 2017; Sheldon & Bryant, 2016).

Regarding gender variables, females were found to be more predisposed to sharing experiences compared to males. Literature has demonstrated that females engage more frequently in social media interactions and utilize these platforms more regularly (Muscanell & Guadagno, 2012). Female social media usage is generally considered to be oriented toward "relationship building, strengthening connections, and identity construction."

Educational attainment and income levels were also found to influence social media sharing motivation. Individuals with higher educational levels demonstrated greater willingness to share travel experiences. This may be attributed to higher-educated individuals' more conscious utilization of digital platforms for "knowledge sharing and experience transfer." Additionally, individuals with higher income levels were observed to share travel

experiences more frequently. This may be due to their ability to travel more frequently to diverse destinations, thus possessing more content to share.

These findings present significant strategic implications for the tourism sector. Particularly for tourism enterprises developing social media-focused marketing strategies, "understanding how consumers utilize social validation mechanisms will provide a substantial advantage." Travel brands can encourage users to share more content through "interactive and rewarding campaigns" that appeal to the need for social approval and social desirability tendencies.

The findings of this study provide valuable insights into how social approval motives influence individuals' travel sharing behaviors in digital platforms. The results highlight that social validation remains a powerful driver of online self-presentation during travel, shaping not only what travelers share but also how they construct their digital identities. However, this study is not without limitations. First, as the research sample included only individuals who travel and actively share their experiences on social media, the motivations of those who travel but refrain from sharing remain unexplored. Future studies should therefore focus on understanding the underlying reasons why certain travelers prefer delayed or no sharing of their travel experiences, in order to provide a more holistic view of digital travel behavior. Second, the data were collected exclusively from the Kuşadası destination, which may limit the generalizability of the findings to other destinations with different cultural, demographic, or digital engagement dynamics. Finally, the use of a convenience sampling method restricts the representativeness of the sample and may introduce potential bias. This limitation should be taken into account when interpreting and applying the results. Despite these constraints, the study contributes meaningfully to the growing literature on tourism marketing and digital consumer behavior by emphasizing the social-psychological dimensions of online sharing. Addressing these limitations in future research could further strengthen theoretical understanding and enhance managerial insights

for destination marketers and social media strategists.

Critical Discussion of High Statistical Values

The uncharacteristically high R^2 values (above 0.90) and high Cronbach's Alpha coefficients observed in this study warrant a more detailed discussion, as requested by the reviewer. In the social sciences literature, high R^2 values should be treated with caution, especially in models examining behavioral and psychological motivations. However, research by Ozili (2023:p.12) indicates that an R^2 value between 0.50 and 0.99 is acceptable in social science research, particularly when the explanatory variables are statistically significant. In the present study, the high explanatory power of strong internal psychological drivers, such as social approval and social desirability, on direct behavioral outcomes like online self-presentation and content sharing, theoretically supports these high R^2 values. This suggests that the constructs under investigation profoundly influence digital behavior, and the model possesses high predictive validity.

Conversely, high Cronbach's Alpha coefficients, particularly those exceeding 0.95, which indicate the internal consistency of the scales, may suggest a risk of redundancy in the scale items, meaning they measure the same concept in very similar ways (UVA,2015). While this finding confirms that the scales used are highly consistent in measuring the intended construct, it is suggested that future studies consider making the scale items more economical or revising them to more clearly differentiate between dimensions.

Comparative and Critical Findings

One of the most noteworthy findings of the study is the strong correlation between "social desirability" and "travel experience sharing motivation." The finding that individuals with high social desirability levels share their travel experiences more frequently on social media aligns with previous studies showing that individuals use social media platforms for "self-presentation" and "ideal self-image construction" (Gonzales and Hancock, 2011;

Rui and Stefanone, 2013) . These individuals are motivated to share content to reinforce their positive social perception (Chou and Edge, 2012).

Furthermore, a strong and significant relationship was identified between the "need for social approval" and the motivation to share travel experiences. This suggests that individuals with a high need for social approval are driven by a desire for "recognition and appreciation through likes, comments, and interactions" from their social network (Nadkarni and Hofmann, 2012; Utz et al., 2015).

These findings take on a more critical dimension when discussed within the context of Turkey's collectivist cultural structure. As noted by Karaşar and Öğülmüş (2016:p.86), the need for social approval emerges as a more pronounced behavioral driver in collectivist cultures compared to individualistic ones. In this context, the fact that the search for social desirability and approval among the Turkish tourism consumer sample examined has a higher explanatory power compared to similar studies in Western literature underscores the influence of cultural determinants on online behavior.

The role of demographic variables in sharing motivation is also significant. Generations Y and Z, females, and individuals with higher education and income levels were found to have a higher propensity for sharing. This finding is consistent with the literature indicating that younger generations are more integrated with digital platforms and use social media more intensively as a "means of self-expression and socialization" (De Vries, et al., 2017; Sheldon and Bryant, 2016). The tendency of women to use social media for relationship building and strengthening connections (Muscanell and Guadagno, 2012) also supports this finding.

These findings offer concrete and strategic managerial implications for the tourism sector. Tourism businesses and destination marketers can optimize their marketing strategies by understanding how consumers utilize social validation mechanisms:

- Targeted Content Strategy: For the audience with high sharing motivation (Gen Y/Z, females, high-income group), content that appeals to the social desirability motive

(aesthetically striking, "Insta-worthy" experiences, luxury, or exclusive moments) should be produced.

- **Active Management of User-Generated Content (UGC):** Brands should rapidly and regularly repost/regram content (photos, videos, stories) shared by users on their own accounts, thereby directly satisfying the users' need for social approval. This serves as the most tangible reward mechanism for users.
- **Engagement-Focused Campaigns:** Reward-based competitions that encourage social desirability and the search for approval, such as "most-liked photo" or "most creative comment," should be organized. Rewards can be tangible, such as a discount on the next trip or a special experience (e.g., a free room upgrade)
- **Reputation Management and Advocacy:** Although individuals with a high need for social approval tend to avoid sharing negative experiences, businesses should encourage the sharing of positive experiences and respond quickly and empathetically to potential negative feedback. This will strengthen the destination's digital reputation and is a critical reputation management strategy for tourist destinations like Kuşadası.

Conclusion

This study has elucidated the effects of "need for social approval and social desirability levels" on individuals' motivations to share travel experiences on social media platforms. The results indicate that "individuals with high need for social approval and social desirability levels share more frequently" and primarily do so "to receive social recognition, approval, and establish connections with their network."

Moreover, demographic variables were found to influence this motivation. Specifically, "younger generations (Generation Y and Z), females, and individuals with higher education and income levels" were identified as being more inclined to share travel experiences. These data provide "significant

strategic insights for the tourism and digital marketing sectors."

From a theoretical perspective, the study contributes to research on digital consumer behavior and online identity construction. In particular, it supports existing theories regarding how social media serves as a "tool for self-presentation and social validation."

From a practical standpoint, it offers valuable insights for "tourism enterprises and social media marketers." Understanding how consumers utilize social approval mechanisms can assist brands in "developing more effective campaigns, better reaching their target audiences, and increasing user engagement." For instance, implementing "reward systems that encourage social media sharing" or organizing "competitions that enhance social desirability needs" could be effective strategies for tourism brands.

In conclusion, this study presents significant findings regarding the psychological and social dimensions of social media usage motivations. It has demonstrated how factors such as need for social approval and social desirability shape individuals' digital content sharing tendencies and provides a theoretical framework for future studies in this field.

Declarations

Funding: No funding was received for conducting this study.

Conflicts of Interest: The author declares no conflict of interest.

Ethical Approval: Ethical approval for data collection was obtained from the Doğuş University Social and Human Sciences Ethics Committee with protocol number 2022/87. The study was carried out in accordance with institutional and national research ethics standards.

Informed Consent: Participation in the study was voluntary, and informed consent was obtained from all individuals involved in the survey.

Data Availability: The data supporting the findings of this study, based on responses from 408 participants staying at five-star accommodation establishments in Kuşadası, are available from the corresponding author upon reasonable request.

AI Disclosure: No artificial intelligence-based tools or applications were used in the conception, analysis, writing, or preparation of figures for this study. All content was generated by the author in accordance with scientific research methods and academic ethical standards.

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RESEARCH ARTICLE

The Impact of Choice Overload and Decision Fatigue on Cart Abandonment in Online Shopping

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Abstract

This study examines decision-making processes that challenge individuals' cognitive and emotional limits in a digitalized consumption environment from a multidimensional perspective. It is hypothesized that the overload of choices faced by consumers in online shopping is linked to increased decision fatigue, and that this fatigue is associated with a higher likelihood of cart abandonment. The research examines individuals' internal cognitive responses to environmental stimuli and their behavioral consequences within the Stimulus-Organism-Response (S-O-R) model. In the model, choice overload is considered an external stimulus, decision fatigue an internal organismal response, and cart abandonment a behavioral outcome. In this quantitative study, data were collected through an online survey of 321 participants from Türkiye who had experienced cart abandonment in the last three months. The analysis used partial least squares (PLS-SEM), beginning with an assessment of the measurement model's validity and reliability, followed by the evaluation of hypotheses through the structural model. The findings show that decision fatigue plays a significant mediating role in the relationship between choice overload and cart abandonment behavior. This research offers theoretical and practical contributions in terms of consumer welfare and user experience design by revealing the invisible mental pressures of digital consumption behaviors.

Keywords: choice overload, decision fatigue, online shopping cart abandonment, S-O-R model

Öz

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Bu çalışma, dijitalleşen tüketim ortamında bireylerin bilişsel ve duygusal sınırlarını zorlayan karar süreçlerini çok boyutlu bir bakış açısıyla ele almaktadır. Çevrimiçi alışverişte tüketicilerin karşılaştığı aşırı seçenek yükünün, zihinsel kaynaklarını tüketerek karar yorgunluğuna yol açtığı; bunun da alışveriş sürecinin tamamlanmamasıyla, yani sepeti terk etme davranışıyla sonuçlandığı varsayılmaktadır. Araştırma, bireyin çevresel uyarıcılara verdiği içsel bilişsel tepkileri ve davranışsal sonuçlarını S-O-R (Uyarıcı-Organizma-Tepki) modeli çerçevesinde ele almaktadır. Modelde, aşırı seçenek yükü dışsal bir uyarıcı; karar yorgunluğu içsel bir organizmal tepki; sepeti terk etme ise davranışsal bir çıktı olarak değerlendirilmiştir. Nicel araştırma yönteminin benimsendiği çalışmada, veriler çevrimiçi anket yoluyla Türkiye'de yaşayan ve son üç ay içinde sepeti terk etme deneyimi yaşamış 321 katılımcıdan toplanmıştır. Analiz sürecinde yapısal eşitlik modellemesi (PLS-SEM) metodu kullanılmış; önce ölçüm modelinin geçerliliği ve güvenilirliği test edilmiş, ardından yapısal model üzerinden hipotezler değerlendirilmiştir. Bulgular, karar yorgunluğunun aşırı seçenek yükü ile sepeti terk etme davranışı arasındaki ilişkide anlamlı bir aracı rol üstlendiğini göstermiştir. Araştırma, dijital tüketim davranışlarında görünmeyen zihinsel baskıları açığa çıkararak tüketici refahı ve kullanıcı deneyimi tasarımı açısından hem teorik hem uygulamalı katkılar sunmaktadır.

Anahtar Kelimeler: aşırı seçenek yükü, karar yorgunluğu, çevrimiçi alışveriş sepetini terk etme, S-O-R modeli

Introduction

Today, due to the extensive usage of digital platforms, consumers experience mental exhaustion from the abundance of information and options, which complicates their rational decision-making processes and negatively affects their purchasing behavior (Eppler & Mengis, 2004; Malhotra, 1982). In particular, the variety of products in the online shopping environment, far from increasing consumer welfare, can aggravate the mental burden and make the decision process more complex and tiring (Schwartz, 2004; Iyengar & Lepper, 2000; Wang et al., 2023). This situation raises important discussions about the quality of the digital consumption experience both at the individual and social levels (Eppler & Mengis, 2004).

Despite the belief that greater diversity could boost customer satisfaction by giving them more choices, the literature suggests that individuals who encounter a large number of options have difficulty in making decisions, their satisfaction levels decrease, and they may postpone their decisions and leave the process halfway through (Schwartz, 2004; Iyengar & Lepper, 2000). Researchers define the accumulation of mental effort spent on making decisions and its transformation into burnout as decision fatigue, which may lead consumers to abandon their online shopping carts before completing their purchases (Baumeister et al., 1998; Vohs et al., 2008).

The structural features of online shopping reinforce such cognitive overload. The inability to physically evaluate products, switching between multiple tabs for price comparison, reviewing user reviews, and following promotions distract consumers and rapidly deplete their mental resources. Moreover, algorithmic recommendation systems and filtering tools, despite their intent to aid decisions, can paradoxically increase cognitive strain by requiring consumers to invest even more mental effort (Wang et al., 2023).

Although there is growing academic interest in online consumer behavior, studies examining the combined effects of choice overload and decision fatigue on cart abandonment behavior are quite limited. Most studies in the existing literature either explain cart abandonment only by technical or

economic causes or focus on psychological concepts in isolation. However, the increasing complexity of digital shopping environments necessitates a holistic understanding of how cognitive and emotional burnout mechanisms shape consumer behavior. Researchers have not yet clarified sufficiently how the mental overload caused by variety clutter leads to cart abandonment behavior through decision fatigue. The main problem of this study is the need for a holistic model to demonstrate this relationship empirically. This research aims to fill this literature gap and provides a novel framework to explain how psychological pressure translates into behavioral consequences in the digital consumption process.

Thus, using a holistic model as a framework, this study attempts to investigate the relationships between choice overload, decision fatigue, and cart abandonment regarding online shopping. In this study, these concepts, which are often assessed separately in the literature, are integrated using the Stimulus-Organism-Response (S-O-R) model and examined with causal integrity. The main hypotheses of the study are that (1) choice overload in online shopping increases decision fatigue, (2) decision fatigue triggers cart abandonment tendency, and (3) decision fatigue mediates the relationship between these two factors. In addition to its theoretical contributions, this approach has important implications for the user-friendly design of digital platforms and consumer welfare by making visible the overlooked psychological burdens in online shopping experiences.

Conceptual Framework

Choice Overload

In modern consumer behavior, the phenomenon whereby individuals encounter a great number of choices poses challenges to their decision-making processes. This situation is defined by the concept of "choice overload." This concept is especially experienced in online shopping environments and may make it difficult for customers to decide or avoid the decision process due to the variety of products and abundance of information (Iyengar & Lepper, 2000). In this context, increasing the

number of choices may reduce consumers' motivation to make decisions by triggering mental fatigue and dissatisfaction instead of improving decision quality (Schwartz, 2004).

Iyengar and Lepper (2000) found that fewer options led to greater engagement and higher purchase rates, whereas too many choices hindered decision-making. This finding suggests that providing more choice is not always beneficial. Schwartz (2004) stated that an abundance of choice negatively affects overall life satisfaction by increasing regret, high expectations, and self-worth questioning. Therefore, the abundance of choices increases both cognitive and emotional burden for the consumer.

In online environments, especially personalized systems with a large number of recommendations provided by algorithms complicate users' decision-making processes and can lead to mental exhaustion when combined with information overload (Eppler & Mengis, 2004; Malhotra, 1982). Consumers' limited information processing capacity may result in postponement or complete abandonment of the decision process, especially when similar products require detailed comparisons.

Different concepts in the literature have also explained this decision-making difficulty. For example, Mitchell et al. (2005) associates this situation with the concept of "consumer confusion" and argues that it arises when consumers are exposed to too much and/or conflicting information, leading to difficulty in making optimal purchasing decisions. Similarly, Walsh et al. (2007) introduce the concept of "overload confusion" and emphasize that excessive flow of information and abundance of choices surpass what consumers can mentally handle, resulting in indecision and cart abandonment. The concept of information overload, which has been discussed in previous studies (Malhotra, 1982; Eppler & Mengis, 2004), has been identified as a key contributor to choice overload, especially in the digital context.

Park and Lee (2009) stated that choice confusion may vary according to product categories and that the complexity of decision-making increases, especially in experience-based products (e.g., clothing, cosmetics). In these categories, consumer evaluations and digital reviews can further prolong the

decision process, which may lead to decision fatigue and the finalization of the shopping process.

As a result, concepts such as choice overload, consumer confusion, overload confusion, and information overload refer to phenomena that overlap with each other but are addressed in different aspects in the academic literature. Taking these concepts into consideration, the study uses "choice overload" as an umbrella concept to explain the mental burnout experienced within the digital shopping environment. In terms of conceptual integrity, choice overload is a construct that encompasses both the burden on cognitive capacity and the psychological effects that reduce the willingness to make decisions.

In addition, choice overload is an important factor that undermines not only decision quality but also the willingness to make a decision (Iyengar & Lepper, 2000; Schwartz, 2004). Therefore, important strategies to reduce online cart abandonment rates include e-commerce platforms that optimize product presentations, guide users with decision support systems, and avoid information overload.

Decision Fatigue

The decision-making process is a complex mental activity during which individuals use their cognitive and emotional resources intensively. Due to the prolonged exertion of these cognitive resources, individuals experience mental fatigue, which eventually impairs their ability to make sound decisions. The concept of decision fatigue in the literature explains this circumstance. Decision fatigue is defined as an individual's reduced mental capacity as a result of making a large number of consecutive decisions and therefore tending to make less careful, superficial, or impulsive choices (Baumeister et al., 1998; Pignatiello et al., 2020).

This phenomenon is rooted in the "Ego Depletion Theory" developed by Baumeister et al. (1998), which suggests that cognitive processes such as self-control and decision-making depend on a limited energy source. Accordingly, when this resource is depleted, individuals show lower cognitive effort in their subsequent decisions, and this leads to a decrease in decision quality. Individuals

who experience decision fatigue are reported to be unable to make healthy comparisons between alternatives, may stick to previously preferred strategies, or may postpone making a decision altogether (Pignatiello et al., 2020).

Focusing on the measurability of this concept, Hickman et al. (2018) developed the Decisional Fatigue Scale (DFS). The scale addresses three core dimensions of decision fatigue: altered emotional regulation, increased mental effort, and impulsive decision-making tendency. The study found that fatigue is more pronounced in individuals who make decisions under uncertainty and high responsibility.

In internet-based buying scenarios, decision fatigue is associated with mental exhaustion resulting from prolonged engagement with online platforms and the need to choose between a large number of products, making constant comparisons. Wang et al. (2023) demonstrate that the extensive array of product choices available on e-commerce platforms correlates with decision fatigue among consumers, thereby heightening the inclination to employ simplification strategies (e.g., selecting the foremost option) during the decision-making process. In this context, decision fatigue may lead individuals to make more superficial but faster choices that require less effort.

According to the literature, decision fatigue is influenced not only by external environmental conditions but also by internal factors stemming from cognitive burnout (Pignatiello et al., 2020; Baumeister et al., 1998). In this context, the cognitive load from examining and selecting products during online shopping may lead consumers to abandon their carts without completing their purchases.

However, there are also cases where product variety does not always have negative effects. For example, in an empirical study conducted by Dülgeroğlu (2019) in Türkiye, the researcher observed that increased product variety in the context of computer products created positive emotions in consumers and increased purchase intentions. This finding suggests that excess choice does not necessarily lead to decision fatigue or indecision and that variety can be perceived positively depending on product type, target audience, and

contextual factors. Accordingly, it is important to recognize that the impact of variety complexity may vary by product category and consumer profile, and e-commerce strategies should be structured in line with this flexibility.

Consequently, decision fatigue is considered an important cognitive factor that shapes consumer behavior in online shopping. In this study, decision fatigue is considered the "organism" component of the S-O-R model and used as the main theoretical construct to explain the indirect effect of choice confusion (stimulus) on cart abandonment (response).

Online Shopping Cart Abandonment

Online shopping cart abandonment behavior is defined as "*consumers' placement of item(s) in their online shopping cart without purchasing any item(s) during that online shopping session*" (Kukar-Kinney & Close, 2010). Cart abandonment behavior is usually the result of a two-stage process: (1) adding the item(s) to the cart and (2) not performing the purchase step. This behavior is associated not only with economic but also with cognitive, emotional, and even motivational factors (Mittal, 2023; Erdil, 2018). Some studies emphasize that this behavior may be a planned strategy (e.g., keeping products in the cart to compare prices) or a result of internal conflicts (e.g., inability to make decisions or low satisfaction) (Wilson & Nodoro, 2023; Kukar-Kinney & Close, 2010).

In particular, it is observed that consumers who shop online for hedonic purposes use the cart mostly to have fun, explore, or relieve boredom; however, they do not intend to purchase (Kukar-Kinney & Close, 2010). Therefore, interactive and entertaining user interfaces may lead consumers to spend time browsing rather than purchasing, with the cart serving as a cognitive or emotional space for exploration (Kukar-Kinney & Close, 2010).

Alternatively, using the cart as a tool for organizational and research purposes is also a factor that increases cart abandonment. Consumers often add products to the cart to compare prices, track products, or list products for future purchase (Huang et al., 2018; Wang et al., 2022). This usage causes the cart to function as a "temporary list" or a "wish

list", thus not resulting in a direct purchase behavior.

Perceived difficulties in the transaction process (e.g., long forms, payment problems, technical glitches) may cause consumers to abandon the transaction (Egeln & Joseph, 2012; Erdil, 2018). However, Wilson and Nodoro's (2023) study found that the perception of transaction difficulty does not directly explain cart abandonment in a significant way and that such technical barriers can be tolerated, especially among young consumers.

Moreover, psychological factors such as indecision, cognitive conflict, perceived risk, and lack of digital satisfaction have been identified as contributing factors to cart abandonment (Huang et al., 2018; Roy, 2024). Especially in individuals with decision fatigue, the inability to complete the process is considered a result of mental burnout (Baumeister et al., 1998).

Some studies conducted in Türkiye also shed light on the reasons for this behavior. Öztürk and Şahin (2020), who examined the relationship between consumers' decision-making styles and virtual shopping cart abandonment behavior, found that consumers with a "variety confusion" style have a higher tendency to abandon their shopping carts. Similarly, Temel (2023) found that choice overload, emotional ambivalence, and hesitation at checkout, experienced during online shopping, trigger cart abandonment. These studies reveal that cart abandonment is not only a technical or economic behavior but also a multidimensional behavior shaped by cognitive and emotional processes.

In conclusion, cart abandonment behavior in online shopping goes beyond a transaction deficiency; it is a multidimensional and dynamic consumer decision problem. Understanding this behavior requires consideration of cognitive and emotional processes in addition to technical factors. Therefore, strategies to improve the user experience should consider not only "save the cart" campaigns but also solutions that balance the number of choices, simple interfaces, personalized reminders, and decision support.

S-O-R Model

The S-O-R model (Mehrabian & Russell, 1974; Donovan & Rossiter, 1982), commonly used to explain consumer behavior, provides a holistic framework for understanding the impact of environmental stimuli on the internal states of individuals and its behavioral consequences. At its core, the model suggests that the individual does not react directly to environmental factors; on the contrary, these stimuli are transformed into behaviors through a series of cognitive and emotional evaluation processes in the organism (Mehrabian & Russell, 1974).

The present study conceptualizes the S-O-R model as follows:

- **Stimulus (S - Stimulus):** The choice confusion encountered in the online shopping environment, i.e., the excess of alternatives and information overload, is considered a cognitive stimulus in the consumer's decision process.
- **Organism (O - Organism):** The decision fatigue caused by the choice confusion on the consumer is considered the internal reaction of the organism. At this stage, the consumer may feel that their cognitive resources are diminishing and that they are mentally worn out.
- **Response (R - Response):** As a result of cognitive fatigue, the consumer's termination of the shopping process and abandonment of the shopping cart is defined as the observed behavioral response.

The S-O-R model provides an effective theoretical structure for understanding the indirect effects of factors such as information density, product variety, and decision complexity on consumer behavior, especially in online shopping environments (Donovan & Rossiter, 1982; Eroğlu et al., 2001). As a matter of fact, online stores tend to offer unlimited products to consumers, which may create a mental burden due to excessive choice instead of providing a better experience (Iyengar & Lepper, 2000; Schwartz, 2004). In this context, choice over-

load resulting from excessive variety acts as a stimulus that triggers decision fatigue (Wang et al., 2023).

Decision fatigue refers to a cognitive state in which the consumer's mental capacity decreases, experiences burnout in the decision-making effort, and therefore avoids the decision-making process (Baumeister et al., 1998; Pignatiello et al., 2020). In this case, the consumer either turns to superficial decision-making strategies or abandons the process altogether. Cart abandonment represents a behavioral outcome resulting from this mental fatigue.

The S-O-R model in this study provides both a theoretical aspect and a structural basis for explaining the relationship between variables. The model suggests that choice overload as an environmental factor can lead to decision fatigue, which is a cognitive outcome in the organism, and this can lead to cart abandonment behavior, which is a behavioral outcome. This approach emphasizes that consumer behavior is not only about responses to stimuli but also about the individual's internal processes.

Methodology of the Study

Purpose, Model and Hypotheses

The primary goal of this study is to examine the impact of choice overload on online shopping cart abandonment behavior through decision fatigue, bringing together the disciplines of psychology and marketing. Although today's e-commerce platforms aim to increase consumers' freedom of choice by offering a wide variety of product options, this diversity increases cognitive load and may lead to mental burnout instead of facilitating consumers' decision-making process. This study aims to reveal the impact of this burnout on decision-making motivation and how it ultimately disrupts purchase behavior from an interdisciplinary perspective.

The research is theoretically based on the S-O-R model framework. In this context: "Choice overload" is modeled as a stimulus externally presented to the consumer (S), "Decision fatigue" is

modeled as the consumer's internal cognitive response process (O), "Online shopping cart abandonment" behavior is modeled as the observed behavioral output (R).

The following model represents the theoretical construct of the research:

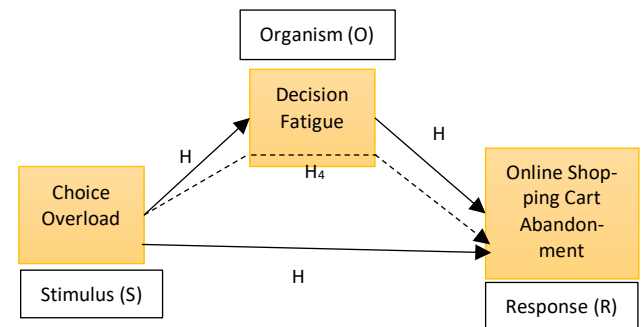


Figure 1. Conceptual Framework

In line with this structure, both direct effects and mediation relationships are examined in the study.

H1: Choice overload positively predicts decision fatigue.

Information overload and abundance of alternatives increase the effort of individuals to compare options, which predicts cognitive burnout (Malhotra, 1982; Eppler & Mengis, 2004). Wang et al. (2023) empirically demonstrated that information abundance and product variety increase decision fatigue in an online shopping environment. Therefore, it is predicted that choice overload functions as a stimulus triggering decision fatigue.

H2: Decision fatigue positively predicts cart abandonment behavior.

Decision fatigue is defined as a decrease in decision quality and a tendency to avoid making decisions as a result of the depletion of an individual's mental energy in the process of making successive decisions (Baumeister et al., 1998). Consumers may become mentally exhausted when they are exposed to continuous information processing and alternative evaluation processes in online shopping, leading to behaviors such as decision postponement, transaction abandonment, and cart abandonment (Pignatiello et al., 2020). Ding (2017) found that users who experience mental fatigue

are significantly more likely to exhibit cart abandonment behavior. Therefore, it is predicted that decision

H₃: Choice overload positively predicts cart abandonment behavior.

Choice overload may cause consumers to experience intense emotions such as indecision, fear of regret, and dissatisfaction during the decision-making process (Schwartz, 2004). These cognitive and emotional pressures may cause consumers to give up on the purchase before they have made a final decision (Walsh et al., 2007). Kukar-Kinney and Close (2010) found that information and choice confusion are associated with cart abandonment, while Wang et al. (2022) reported that choice confusion is related to shopping incompleteness. Therefore, it suggests that an abundance of options could directly lead to cart abandonment behavior.

H₄: Decision fatigue mediates the relationship between choice overload and cart abandonment behavior.

In line with the S-O-R model, Choice overload (S) functions as an environmental stimulus that is related to increased decision fatigue (O), which is further associated with cart abandonment (R) as a behavioral response (Donovan and Rossiter, 1982; Eroğlu et al., 2001). Wang et al.'s (2022) review suggests that information overload and diversity are not directly associated with cart abandonment but may be linked to it indirectly through mental burnout. Therefore, this study suggests that decision fatigue mediates the relationship between choice overload and cart abandonment.

These hypotheses form the foundation of the research model. Their evaluation is expected to provide valuable insights into the emotional and cognitive aspects of consumer behavior.

Participants

The study's population comprises individuals who live in Türkiye and shop online. The study only included individuals who had shopped online in the last three months but abandoned their carts.

Purposeful (judgmental) sampling method was used for selecting the participants. In line with this method, the aim was to reach participants who

were best qualified to address the research questions. The suitability of the participants for the research criteria was checked with the filter questions at the beginning of the survey form.

Data were collected through social media platforms, e-mail groups, and online communities. It was ensured that the participants participated in the study voluntarily. Every participant was free to withdraw from the study at any moment. The data were collected over a 15-day period in May 2025.

The study sample consisted of individuals aged 18 and over with different demographic characteristics residing in Turkey. Sample size adequacy was assessed using the "10-times rule" (Barclay, Higgins, & Thompson, 1995) for PLS-SEM, which suggests that the minimum sample should be 10 times the number of indicators pointing to the most complex construct. In this model, the most complex construct has 6 predictors, indicating a minimum requirement of 60 participants. With a final sample size of 321, this threshold is exceeded.

Data collection tool and scales used in the study

An online structured questionnaire created through Google Forms served as the instrument for data collection in this research. The questionnaire was divided into three parts: filtering questions, scale items, and questions on demographic information. Ethical approval for this study was granted by the Anadolu University Research and Publication Ethics Committee, based on the meeting held on 14.05.2025 with protocol number 891404. During the data collection process, participants were asked to provide informed consent at the beginning of the survey. No personally identifiable information was requested, in order to ensure anonymity and confidentiality. The data were stored in a secure digital environment accessible only to the researcher. Participants who were deemed unsuitable were excluded through the filter questions at the beginning of the survey, and the study was conducted with minimal risk.

To measure the choice overload that consumers experience due to the variety of products in the online shopping process, the 4-item Choice Confusion Experiencing Scale developed by Sproles and Kendall (1986) and adapted into Turkish by Öztürk

and Şahin (2020) was used. The scale was adapted to online shopping experiences in line with the context of the study.

The 9-item Decision Fatigue Scale, developed by Hickman et al. (2018) and adapted into Turkish by Sariaçalı and Kırpık (2022), was used to assess the participants' mental exhaustion during the decision-making process. The scale was adapted and applied to the online shopping context.

In order to measure the tendency to abandon the cart, a 4-item scale developed by Kukar-Kinney and Close (2010) and adapted into Turkish by Öztürk and Şahin (2020) was used. This scale was used to understand why and how often the participants terminated the purchasing process after adding products to the shopping cart.

A 5-point Likert-type rating system was used for all scale items (strongly disagree to strongly agree). In addition, demographic information such as age, gender, education, and income level was collected.

Data Analysis Method

The data gathered for this research were assessed using quantitative research techniques and analyzed through the structural equation modeling (SEM) method. In the modeling process, the Partial Least Squares Structural Equation Modeling (PLS-SEM) method was preferred because it accommodates small- to medium-sized samples and can work with reflective structures. The analyses were conducted using ADANCO 2.4.1 software in accordance with this method.

A two-stage analysis strategy was used to assess the study model. The first step involved testing the measurement model's validity and reliability criteria. To this end, the following were investigated: each construct's external loadings, Average Variance Extracted (AVE), discriminant validity (HTMT ratios and the Fornell-Larcker criterion), and composite reliability. All constructs were modeled as reflective and defined as latent variables (mode A consistent).

The structural model was assessed in the second phase. In this context, path coefficients, explained variance values (R^2), effect sizes (Cohen's

f^2), and indirect effects were analyzed. The significance of indirect effects was tested at a 95% confidence interval using the bootstrap method (999 samples). By doing so, the role of the mediating variable "decision fatigue" in the relationship between "choice confusion" and "cart abandonment behavior" was tested.

Results

The participants' demographic details are summarized in Table 1.

Table 1. Demographic Characteristics of the Participants

Baseline characteristic N (321)	%	Baseline characteristic N (321)	%
Gender		Age	
Female	77,6	Between 18-25	6,5
Male	22,4	Between 26-30	10,4
Personal Income		Between 31- 35	21,5
No income	8,4	Between 36- 40	30,8
Between 0-25000 ₺	5,6	Between 41- 45	17,8
Between 25001 - 50000 ₺	19,6	Between 46- 50	6,5
Between 50001 - 75000 ₺	40,2	51 and above	6,5
Between 75001 - 100000 ₺	15,0	Graduation status	
100000 ₺ and above	3,7	High school or lower degree	5,6
Prefer not to say	7,5	Associate degree	6,5
		Bachelor's degree	32,7
		Graduate degree (Master's/Ph.D.)	55,2

Of the 362 responses collected through Google Forms, 321 that passed the filtering questions constituted the research sample. 77.6% of the participants were female, and 22.4% were male. In terms of education level, 32.7% of the participants had a bachelor's degree, 55.1% had a graduate degree, 6.5% had an associate's degree, and 5.6% had a high school or a lower degree. In terms of income distribution, 40.2% of the participants declared an income between 50,001 and 75,000 ₺, 19.6% between 25,001 and 50,000 ₺, and 15% between 75,001 and 100,000 ₺. 8.4% stated that they had no income, 3.7% had an income of 100,000 ₺ and above, and 7.5% did not mention their income information. In terms of age distribution, 30.8% of participants were aged 36-40, 21.5% were 31-35, 17.8% were 41-45, 10.4% were 26-30 and 6.5% fell into each of the 18-25, 46-50 and 51-and-above age groups. These

data indicate that the sample consists of well-educated, middle-income individuals who are active on digital platforms.

Evaluation of the Measurement Model

The measuring model's validity and reliability in the study were assessed using the ADANCO program. First, the outer loadings of each construct were assessed, indicating that certain items exhibited loadings lower than 0.70 (DF8 = 0.6832, DF9 = 0.3610, DF10 = 0.6123). As suggested in the PLS-SEM literature (Hair et al., 2019), these items were removed from the analysis to enhance the quality of the measurement model.

Although these items were statistically excluded, conceptual relevance was considered. DF8, DF9, and DF10¹ reflected peripheral dimensions of decision fatigue, such as indecision (DF8), impulsive decision-making (DF9), and emotional interference (DF10). In contrast, the retained items (DF1–DF6) represent the core psychological constructs of decision fatigue, including mental depletion, reduced concentration, and diminished decision-making capacity. These six items demonstrated strong internal consistency and convergent validity, supporting the conceptual and psychometric adequacy of the refined scale.

After the items were removed, all factor loadings exceeded 0.70. Details regarding factor loadings, Cronbach's alpha, CR, and AVE values are shown in Table 2.

Table 2. Factor Loadings and Reliability Indicators

Factor	Indicators	Factor Loadings	Cronbach Alpha	CR	AVE
Choice Overload	CO1–CO2–CO3–CO4	0.73–0.80	0.8557	0.8564	0.5987
Decision Fatigue	DF1–DF2–DF3–DF4–DF5–DF6	0.71–0.83	0.8977	0.8988	0.5976
OSCA	OSCA1–OSCA2–OSCA3	0.75–0.80	0.8259	0.8266	0.6139

The Standardized Root Mean Square Residual (SRMR) value was used to assess the research model's overall fit quality. With the removal of the

items, the SRMR value was calculated as 0.0642. Since this value is < 0.08, it shows that the model fits with the data sufficiently (Hair et al., 2019). The SRMR value is summarized in Table 3.

Table 3. Goodness of Fit Values

Indicator	Value
SRMR	0.0642

In addition, the combined reliability (CR) and average variance explained (AVE) values of the model are within acceptable limits (CR > 0.70, AVE > 0.50) (Hair et al., 2010). Discriminant validity was tested by applying the Fornell-Larcker criterion along with HTMT ratios. As shown in Tables 4 and 5, discriminant validity was achieved between the constructs as a result of both methods.

Table 4. Fornell-Larcker Discriminant Validity

Factor	Decision Fatigue	CO	OSCA
Decision Fatigue	√0.5976		
Choice Overload	0.5904	√0.5987	
OSCA	0.1137	0.0432	√0.6139

The Fornell-Larcker approach suggests that a construct demonstrates discriminant validity when the square root of its AVE is higher than its correlations with all other constructs (Fornell & Larcker, 1981; Hair et al., 2010). All three constructs met this requirement in the model, and discriminant validity was confirmed by the Fornell-Larcker criterion.

Table 5. Heterotrait-Monotrait Ratio (HTMT)

Factor	Decision Fatigue	CO	OSCA
Decision Fatigue	-		
Choice Overload	0.7632	-	
OSCA	0.3377	0.2243	-

As illustrated in Table 5, all of the HTMT values were below the recommended threshold value of 0.85 (Henseler et al., 2015). These findings support that the discriminant validity between the constructs is sufficient.

As part of the multicollinearity test, variance inflation factors (VIF) were evaluated. According to Hair et al. (2017), the VIF value shouldn't exceed 5. The VIF values of all indicators are below 5 (maximum VIF = 4.12). This finding suggests that the

¹ Although the item labels extended to DF10, the original Hickman Decision Fatigue Scale included 9 items only, as DF7 was removed by the

scale developers during initial validation and was never part of the dataset.

model does not experience multicollinearity issues; that is, the indicators are not excessively independent from each other but have an acceptable level of correlation. Therefore, it is recognized that there is no multicollinearity problem that would negatively affect the model's predictive ability.

Moreover, when the cross-loading values are examined, it becomes evident that each indicator reaches the highest loading value only in the construct to which it belongs. This reveals that the measurement model achieves discriminant validity. The outer weights are positive and evenly distributed, indicating that all of the indicators contribute significantly to the model.

The internal consistency of the scales employed in the study was evaluated using the Cronbach's Alpha coefficient. The analysis indicated that all subscales' reliability coefficients were above .70, demonstrating the scales' high level of reliability (Hair et al., 2017).

Structural model and testing of hypotheses

Drawing on the findings derived from structural equation modeling, the significance levels, the path coefficients, and the t-values generated from evaluations conducted on 999 samples through the bootstrap method to assess the hypotheses are detailed below. Figure 2 displays the conceptual model and path coefficients. The hypothesis test results are shown in Table 6.

H1: Choice Overload (CO) → Decision Fatigue (DF) path $\beta = 0.7957$, $t = 26.66$, $p < 0.001$; effect size (Cohen's f^2) was found as 1.725. This result indicates that online decision-making difficulties significantly increase decision fatigue. The unusually high f^2 value is attributable to the fact that decision fatigue is explained solely by choice overload in the model, with no other predictor included, leading to a very large share of variance explained ($R^2 = 0.63$).

H2: DF → OSCA path $\beta = 0.4136$, $t = 3.7951$, $p < 0.001$; Cohen's f^2 value is 0.070. Decision fatigue has a positive impact on shopping cart abandonment behavior.

H3: $\beta = -0.1065$, $t = -0.9215$, $p = 0.3570$ in the CO → OSCA path, and there is no statistical significance in this relationship. Therefore, hypothesis H3 is rejected.

H4: When the indirect effect in the direction of CO → DF → OSCA is analyzed, $\beta = 0.3291$, $t = 3.6086$, $p < 0.001$. This result suggests that online decision difficulty has an indirect but significant effect on shopping cart abandonment through the mediating effect of decision fatigue.

Additionally, R^2 values were used to assess the model's explanatory power:

$R^2 = 0.6331$ for the Decision Fatigue variable, which indicates that online decision-making difficulties explain 63.31% of the variance in decision fatigue. A considerable amount of explanatory power is provided by this rate.

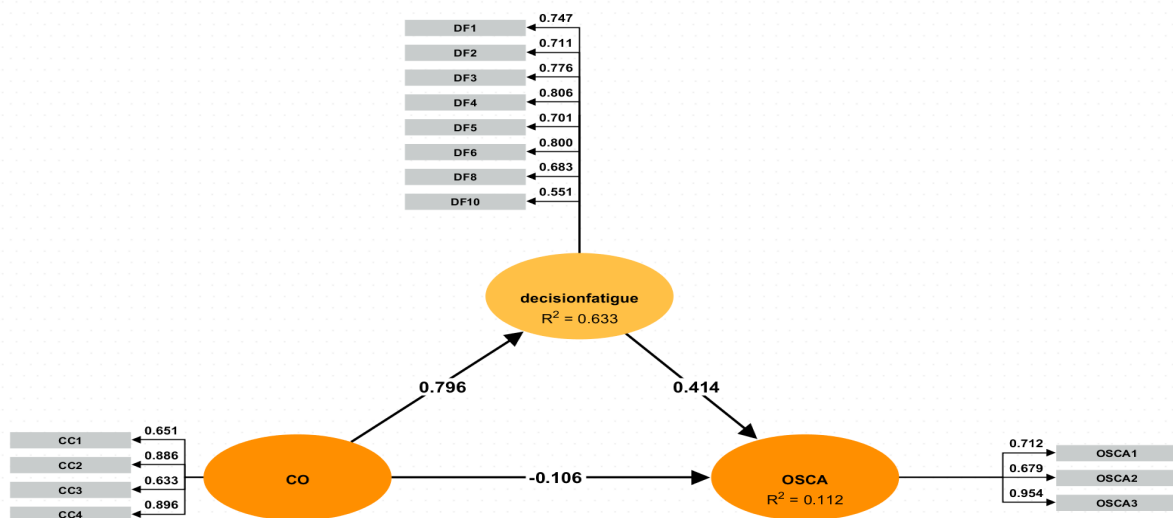


Figure 2. The Conceptual Model and Path Coefficients

$R^2 = 0.1123$ was calculated for the variable OSCA (abandoning the shopping cart). This shows that decision fatigue and decision difficulty variables together explain 11.23% of the cart abandonment behavior. Although this rate is low, it is statistically significant, and especially in psychological and sociological studies examining human behavior, low R^2 values are normal, and this should not be interpreted as a sign of model inadequacy. This is because the main purpose of models in social sciences is often to examine relationships between independent and outcome variables rather than predicting behavior with high accuracy (Garson, 2016; Moksony, 1999). Therefore, even R^2 values above 0.10 are considered acceptable in social sciences (Ozili, 2023; Cohen, 1988). As a matter of fact, Ozili (2023) stated that low R^2 values are also considered valid in empirical models in social sciences, provided that the explanatory variables are significant.

By following the guidelines from Cohen (1988), to measure the relative effect size of the exogenous construct on the endogenous construct, the f^2 values of 0.02 may be considered as a small effect, 0.15 is considered a medium effect, and above 0.35 is a large effect. Accordingly, the path from CO to DF demonstrated a large effect ($f^2 = 1.725$), while the path from DF to OSCA showed a small effect ($f^2 = 0.070$), and the direct effect of CO on OSCA was negligible ($f^2 = 0.004$). The result is shown in Table 6.

Discussion, Conclusions, and Recommendations

Discussion

This study examined the psychological mechanism behind online shopping cart abandonment (OSCA) behavior, specifically the interaction of the variables choice overload, decision fatigue, and online shopping cart abandonment, within the Stimulus-Organism-Response (S-O-R) paradigm. The findings indicate strong support for the central mechanism of decision fatigue while challenging the direct role of choice confusion.

The Effect of Choice Overload on Decision Fatigue

(H₁ Supported): Support for H₁ indicates that choice overload significantly increases decision fatigue. This aligns with prior studies (e.g., Iyengar & Lepper, 2000; Schwartz, 2004), which suggest that an excessive number of options can overwhelm individuals and exceed their cognitive limits. As consumers face more alternatives in online shopping, the mental effort required to evaluate these options increases, leading to cognitive exhaustion (Malhotra, 1982; Eppler & Mengis, 2004). This finding reinforces the conceptualization of decision fatigue as a psychological depletion triggered by overchoice.

The Effect of Decision Fatigue on Online Shopping Cart Abandonment Behavior

(H₂ Supported): Support for H₂ confirms that decision fatigue directly

Table 6. Structural Model Results and Hypothesis Evaluation

Hypothesis	Path	β	t-value	p-value	Cohen's f^2	Result
H ₁	CO → DF	0.795	26.660	< 0.001	1.725	Accepted
H ₂	DF → OSCA	0.413	3.795	< 0.001	0.070	Accepted
H ₃	CO → OSCA	-0.106	-0.921	0.3570	0.004	Rejected
H ₄	CO → DF → OSCA (indirect)	0.329	3.608	< 0.001	—	Accepted

As a result, in the structural model, hypotheses H₁, H₂ and H₄ were supported and only hypothesis H₃ was rejected.

increases online shopping cart abandonment. This finding reflects the idea that cognitive exhaustion impairs self-regulation and encourages avoidance behaviors. Consistent with prior research (e.g., Baumeister et al., 1998; Pignatiello et al., 2020; Ding (2017), individuals under decision fatigue tend to delay or withdraw from decisions.

In online shopping contexts, abandoning the cart emerges as a coping response to mental overload and reduced decision quality.

The Effect of Choice Overload on Basket Abandonment Behavior (H₃ Rejected): The rejection of Hypothesis H₃, namely the finding that Choice Overload (CO) does not have a direct positive effect on the online shopping cart abandonment rate, confirms the existence of complex mediating mechanisms underlying consumer behavior. (Wang et al. 2022; Chopra et al. 2024). This result contradicts the direct effect assumptions proposed in studies such as Kukar-Kinney and Close (2010) and suggests that there are more complex mental processes behind the surface-observed reasons for shopping behaviors. The S-O-R theory provides an excellent theoretical framework for explaining this indirect relationship. This model highlights how environmental factors (stimulus) trigger an individual's cognitive and emotional responses (organism) and how these internal states ultimately translate into avoidance or approach behavior (response). (Mehrabian & Russell, 1974). In this context, an excessive presentation of options serves as a stimulus (Malhotra, 1982; Araslı & Yıldırım, 2021). This stimulus does not directly increase OSCA on its own but instead triggers a series of cognitive and emotional responses within the organism. Information overload refers to a situation where a person is confronted with more information than they can perceive and effectively process (Malhatro, 1982). This situation leads to the depletion of limited cognitive resources in the decision-making process, which requires cognitive effort (Baumeister et al. 1998; Hickman et al. 2017). This exhaustion is called decision fatigue, which results in self-regulation failure and decreased decision-making quality as a result of an individual's repeated decision-making actions (Baumeister et al., 1998; Hickman et al., 201). According to the S-O-R model, individuals who become cognitively exhausted and cognitively stingy tend to accept the status quo or simplify decisions to conserve energy (Baumeister et al. 1998). This preference for a passive role result in avoiding the purchase action (i.e., abandoning the cart) to end the conflict. The rejection of Hypothesis 3 strongly supports the notion that this

avoidance behavior (OSCA) is an indirect result arising not from the excessive choice itself (stimulus), but from the internal tension and fatigue it creates. This finding indicates that consumers' cognitive and emotional motivations play a central role in explaining shopping cart abandonment behavior because positive emotions were found to increase purchase intention, while negative emotions decrease it. (Tang et al. 2017)

The Mediating Role of Decision Fatigue (H₄ Supported): Support for H₄ reveals that decision fatigue mediates the effect of choice overload on cart abandonment, confirming the S-O-R framework. Rather than a direct link, the effect of excessive choice leads to cognitive strain, which then drives cart abandonment. This highlights that internal psychological states—specifically mental depletion—act as a bridge between external stimuli and consumer response. The finding aligns with the concept of "overload confusion" (Walsh et al., 2007), showing that cognitive overload disrupts decision completion in online environments.

Conclusion and Recommendations

Summary of Key Findings: This study investigated the psychological relationships between choice overload, decision fatigue, and cart abandonment behavior in online shopping. The findings confirmed that decision fatigue plays a strong mediating role in choice overload, leading to cart abandonment behavior (H₄). It was found that choice overload does not have a direct significant effect on cart abandonment behavior (H₃).

Contribution to Theory: Even though the findings corroborate much of the existing literature, the research fills gaps in the literature and opens new areas of discussion in some aspects. First, the relationship between choice overload and online shopping cart abandonment is indirect, occurring through decision fatigue. This result contradicts the direct effect assumptions proposed in studies such as Kukar-Kinney and Close (2010) and suggests that there are more complex mental processes behind the surface-observed reasons for shopping

behaviors. In this respect, the study offers a new explanatory framework to the field.

Secondly, the study conceptualized decision fatigue as a "mediating variable". However, many studies in the literature treat this variable as an outcome variable (Olsen et al. 2017; Pignatiello et al. 2018). This approach reveals that decision fatigue is not only an individual affective state but also a strategic turning point in the consumer decision chain.

Third, while decision fatigue has generally been studied in areas such as health (Pignatiello et al., 2020), managerial and judgmental decisions (Danziger et al., 2011), or academic preferences (Natal & Saltzman, 2022), this research brings an interdisciplinary perspective to the marketing and user experience literature by bringing the concept to the context of digital consumption. This model, which brings together the fields of consumption psychology and digital marketing, is distinctive in that it simultaneously targets an individual's internal cognitive processes and external environmental stimuli.

This study contributes to both local and international literature by integrating previously scattered findings, such as choice-related hesitation and emotional conflict, into a unified explanatory framework. It extends earlier fragmented observations within the Turkish context by modeling the mediating role of decision fatigue between choice overload and cart abandonment.

As a result, this research offers an approach to understanding online shopping behavior that goes beyond traditional rational models and makes visible the psychological burden of the decision-making situations. This study supports the phenomenon of decision fatigue, often viewed as an abstract idea in the literature, and reveals the cognitive struggle behind consumer decisions in the digital age. This makes the study an interdisciplinary contribution that examines both the mental processes that are associated with behavioral consequences and the behavioral outcomes themselves.

Managerial Contributions: From an implementation perspective, the study suggests that e-commerce platforms should design cognitively simplified experiences to reduce not only product

presentation and technical infrastructure but also the decision-making burden of users. Accordingly, simplified interfaces, smart filtering systems without distractions, and micro-interactions such as "buy later" or "are you undecided?" can become ethical design elements that will increase purchase rates and support the mental well-being of the consumer.

Limitations and Future Research Recommendations

This research has certain limitations. To begin with, the data collected pertains only to individuals living in Turkey who have experienced cart abandonment while shopping online in the past three months. This might limit the extent to which the findings can be applied. Furthermore, the data gathering was conducted using a self-report technique and an online survey, depending on the participants' memories of their personal experiences. This may lead to possible response biases. Software restrictions prevented the execution of certain advanced predictive studies (e.g., blindfolding-Q²), even if the measurement model was tested using PLS-SEM.

Future research could make cross-cultural comparisons by testing similar models in different cultural contexts. Furthermore, the effects of choice redundancy and decision fatigue on cart abandonment can be examined and compared separately for different product categories. The decision fatigue variable can be modeled together with factors such as time pressure and digital distraction to create more complex constructs. We can also consider the influence of algorithmic prompts on consumer decision processes in online shopping environments. In particular, how digital interventions such as personalized recommendation systems, product rankings, and filtering algorithms of e-commerce platforms affect consumers' decision fatigue levels can be examined. In this context, understanding whether algorithms simplify or complicate the decision process is important for both user experience design and ethical consumer guidance. A more in-depth analysis of this process through qualitative research is also suggested.

Declarations

Funding: No funding was received for conducting this study.

Conflicts of Interest: The author declares no conflict of interest.

Ethical Approval: Ethics committee permission for this study was obtained with the decision of Anadolu University Research and Publication Ethics Committee meeting decision dated 14.05.2025 and protocol number 891404.

Informed Consent: Participation in the study was voluntary, and informed consent was obtained from all individuals involved in the survey.

Data Availability: The data supporting the findings of this study, collected from 321 participants residing in Türkiye, are available from the corresponding author upon reasonable request.

AI Disclosure: No artificial intelligence-based tools or applications were used in the conception, analysis, writing, or preparation of figures for this study. All content was generated by the author in accordance with scientific research methods and academic ethical standards.

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RESEARCH ARTICLE

The Moderating Role of Self-Efficacy in The Effect of Rational and Intuitive Decision-Making Styles on Power Demand

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Abstract

Decision-making styles serve as a critical indicator for understanding employee attitudes in the face of uncertainty and challenging situations. In today's competitive, dynamic, and rapidly evolving business environment, decision-making styles are no longer confined to individual tendencies but have become key determinants of organizational performance, adaptive capacity, and strategic effectiveness. The retail sector is among the industries where these dynamics are most clearly reflected, as customer expectations evolve rapidly, immediate action is often required, and competition remains intense. In this context, decision-making styles of employees not only influence operational processes but also directly affect their intra-organizational interactions, leadership behaviors, motivation levels, organizational commitment, and power demand. The aim of this research is to examine the effect of rational and intuitive decision-making styles on employees' increased power demand and to explore the moderating role of self-efficacy within this relationship. In line with this, the research was conducted using data collected from employees working in the retail sector, and analyses were carried out through structural equation modeling. The findings reveal that both rational and intuitive decision-making styles have significant and positive effects on increased power demand, while self-efficacy plays a moderating role in this relationship. These results underscore the importance of individual cognitive tendencies and psychological resources in shaping employee behavior, offering both theoretical and practical contributions to the empowerment of human resources in the retail industry.

Keywords: Rational decision-making, intuitive decision-making, power demand, self-efficacy, retail sector.

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Öz

Karar verme biçimleri, çalışanların belirsizlikler ve karmaşık iş durumları karşısında sergiledikleri tutumları anlamada önemli bir göstergedir. Günümüzün rekabetçi, dinamik ve hızla değişen iş ortamında, çalışanların karar verme yaklaşımları yalnızca bireysel bir eğilim olmanın ötesine geçerek örgütsel performansın, uyum kapasitesinin ve stratejik etkinliğin belirleyici unsurlarından biri haline gelmiştir. Perakende sektörü müşteri beklentilerinin hızlı değiştiği, anlık tepki vermeyi gerektiren ve yoğun rekabetin yaşandığı bir sektör olması nedeniyle bu dinamiklerin en yoğun gözlemlendiği alanlardan biridir. Bu sektörde görev yapan çalışanların karar verme biçimleri, yalnızca operasyonel süreçleri değil, aynı zamanda örgüt içi etkileşimleri, liderlik davranışlarını, motivasyon düzeylerini, örgütsel bağlılıklarını ve güç arayışlarını da doğrudan etkilemektedir. Bu araştırmanın amacı, akılcı ve sezgisel karar verme stillerinin çalışanların daha fazla güç talebi üzerindeki etkilerini incelemeyi ve öz-yeterliliğin bu ilişkideki düzenleyici rolünü ortaya koymaktır. Bu nedenle çalışma, perakende sektöründe görev yapan çalışanlardan elde edilen veriler kullanılarak gerçekleştirilmiş, analizler yapısal eşitlik modellemesi aracılığıyla yürütülmüştür. Bulgular, hem akılcı hem de sezgisel karar verme stillerinin daha fazla güç talebi üzerinde anlamlı ve pozitif etkiler yarattığını, öz-yeterliliğin ise bu ilişkide düzenleyici bir rol üstlendiğini göstermiştir. Elde edilen sonuçlar, bireysel bilişsel eğilimlerin ve psikolojik kaynakların çalışan davranışlarını şekillendirmedeki önemine dikkat çekerek, perakende sektöründe insan kaynaklarının güçlendirilmesine yönelik teorik ve pratik katkılar sunmaktadır.

Anahtar Kelimeler: Akılcı karar verme, sezgisel karar verme, güç talebi, öz-yeterlilik, perakende sektörü.

Introduction

Throughout life, individuals face situations requiring careful decision-making. These decisions may involve daily needs and desires, as well as social, economic, educational, or political matters. To ensure life satisfaction and foster meaningful societal development, individuals must make better, more effective decisions (Samancı & Mazlumoglu, 2023, p.669). Decision-making is a fundamental cognitive skill and functional process enabling individuals to identify and select the most appropriate option. In this process, the decision-maker compares options according to their values, preferences, and priorities. The goal is to choose the best alternative based on specific criteria (Crivelli et al., 2024, p.1; Litvaj et al., 2022, p.2). Regardless of type or nature, decision-making always involves evaluating alternatives to achieve a goal. In today's dynamic world, decision-making has become increasingly complex, shaped by cognitive and motivational factors; balancing rational analysis with intuitive judgment is now central to making effective decisions (Bavolar et al., 2024, p.9).

As the global economy grows increasingly digital and competitive, retail has evolved into a multifaceted field in which customer satisfaction intersects with real-time decisions and long-term strategy. Driven by technological innovations, data practices, and shifting consumer behavior, this transformation has made decision-making in the sector more complex than ever. Employees' decision-making styles now critically influence not only operational efficiency but also organizational sustainability, leadership development, and career motivation. The multidimensional nature of retail decision-making demands holistic consideration of cognitive awareness, psychological resilience, and organizational alignment (Phillips et al., 1984, p.497). These factors are pivotal in adapting to rapid industry changes and underscore the importance of decision-making styles.

Decision-making typically follows two core styles: rational and intuitive. Rational decision-making involves systematic thinking, data analysis, and logic, while intuitive decision-making draws on experience, instinct, and rapid judgment

(Işıkgöz, 2025, p.1046). Both styles influence organizations differently and play a key role in shaping leadership behavior, task performance, and strategic impact.

In fast-paced industries like retail, decision-making styles affect more than performance; they also shape individuals' desire to expand their influence within the organization, i.e. power demand. Power demand refers to the desire for greater authority, responsibility, and decision-making power, closely tied to status-seeking and drive for social impact (Anderson & Galinsky, 2006, p.512; Maner & Mead, 2010, p.483; Sturm & Antonakis, 2023, p.137). Central to this dynamic is self-efficacy; one's belief in their ability to successfully complete a task (Bandura, 1997; Newman et al., 2023, p.404). Research shows that individuals with high self-efficacy are more likely to make effective decisions under uncertainty, pursue leadership roles, and seek power with greater determination (Stajkovic & Luthans, 1998, p.3). Self-efficacy contributes not only to personal achievement but also regulates initiative-taking and managerial responsibility in decision-making (Ferreira-Neto, 2023, p.4).

This research makes two original contributions to decision-making literature. First, it addresses a notable gap by examining decision-making styles in relation to power demand, whereas prior research has largely focused on performance, job satisfaction, or stress. Second, it proposes a holistic model integrating Bandura's social cognitive theory with McClelland's need for power framework, linking cognitive and motivational processes through the moderating role of self-efficacy. Thus, the research offers a fresh perspective on how decision-making styles shape power demand among retail employees, contributing to both theoretical insight and practical application.

Conceptual Framework

Rational and Intuitive Decision-Making Styles

Decision making refers to the process by which individuals select the most suitable option among alternatives when facing problems or opportunities. Byrnes conceptualizes it as a four-stage process:

goal setting, e.g., spending time with friends; identifying alternatives, e.g., playing sports; evaluating and ranking options, e.g., playing sports is preferable to going out; and finally, choosing the highest-ranked option. This framework highlights that decision making is not merely a linear sequence of logical steps; rather, but a dynamic and iterative cognitive process (Byrnes, 2002, pp.208–209).

In daily life, individuals frequently engage in decision-making, often without conscious awareness. These decisions are not always guided by rational thought; emotional, social, and environmental influences may lead individuals to suboptimal choices. Therefore, decision-making is a fundamental skill that affects quality of life. Phillips et al., explain this phenomenon through dual-process cognition theory, which posits two distinct information-processing mechanisms: one fast, intuitive, automatic, and effortless; the other slower, deliberate, analytical, and cognitively demanding (Evans & Stanovich, 2013, p.225). Within this framework, decision-making is not merely choosing among options but a multidimensional mental activity involving processes such as information gathering, evaluation, problem solving, memory retrieval, and judgment (Reyna & Brainerd, 2011, p.181). This definition emphasizes that decision-making is not merely analytical, but also dynamic, iterative, and cognitively structured. Under cognitive overload and uncertainty, decision quality is shaped by psychological traits and information-processing styles. Accordingly, research aimed at understanding decision-making behavior remains essential (Byrnes, 2002, p.212).

Harren (1979) categorizes decision-making styles into three types: dependent, rational, and intuitive. Dependent decision-makers delegate responsibility to others, whereas rational and intuitive decision-makers assume personal accountability. Rational decision-makers follow a deliberate, logical process, whereas intuitive ones rely on swift, instinctive judgments they deem reliable (Scott & Bruce, 1995, p.820). Phillips et al. (1984) observe that both rational and dependent decision-makers confront problems rather than avoid them; however, dependent individuals show lower confidence in their problem-solving capabilities. Conversely, those using intuitive or rational strategies

approach problems with greater confidence but reduced personal responsibility. These findings support the acknowledgement of a fourth style: decision avoidance (Phillips et al., 1984, p.497).

According to the theoretical framework, decision-making is a learned, habitual response to situations that require evaluative judgment. Decision-making style is not a personality trait; it reflects a context-dependent tendency to respond in specific ways. Literature on decision-making styles acknowledges that, alongside individual differences, situational factors also shape decision-making styles. The General Decision-Making Styles (GDMS) model developed by Scott and Bruce (1995) foundational in this field. It comprises five distinct styles: rational, based on systematic information search and logical evaluation; intuitive, incorporating instinct and emotion; dependent, relying on others' guidance; avoidant, involving delay or evasion; and spontaneous, reflecting rapid, impulsive decisions (Scott & Bruce, 1995, pp.818–831).

In recent years, as decision-making styles have been addressed more systematically, a two-dimensional scale by Hamilton, Shih, and Mohammed (2016) has gained significant ground. It classifies decision-making styles into two main categories: rational and intuitive (Hamilton et al., 2016, pp.411–412).

The Rational Decision-Making Style is grounded in systematic analysis and logical evaluation. Decision-makers carefully weigh probabilities, risks, and potential outcomes through a deliberate, structured process involving thorough consideration of available options. This style typically requires high cognitive effort, an information-seeking attitude, and a tendency to avoid risk. It is especially effective in situations with low uncertainty and accessible information.

The Intuitive Decision-Making Style draws on emotions, instincts, and prior experiences. According to Hamilton et al. (2016), it involves rapid judgments, instinctive responses, and cognitive efficiency. It offers advantages in time-sensitive situations but may increase the likelihood of flawed decisions when information is limited. Emotional intelligence and experience play a pivotal role in this decision-making style.

Hamilton et al. (2016) emphasize that decision-making cannot be reduced to a single style. Many individuals employ both styles depending on situational demands. They argue that decision-making is shaped by environmental factors, cognitive traits, and temporal constraints, offering a more flexible and holistic perspective.

In short, decision-making styles depend not only on individual traits but also on situational and environmental factors, highlighting their multidimensional, dynamic, and flexible nature.

Power Demand

Power is defined as an individual's capacity to influence their environment and is directly linked to affecting others' attitudes, behaviors, and decisions (Robbins & Judge, 2012, p.243). In organizations, power refers to an employee's ability to influence work processes, assume responsibility, make independent decisions, and actively implement them. Within this framework, power is not merely a managerial privilege, but also a psychological need that affects employee motivation and job satisfaction (Hackman & Oldham, 1975, p.159).

Employees' perception of power, and their demand for it, is shaped by their sense of meaning at work, control over tasks, and active participation in decision-making. Key factors that increase power demand include the support of autonomy, delegation of discretionary authority, and recognition of personal contributions.

Power demand refers to an individual's desire to influence others, participate in decision-making, and attain higher status within the social hierarchy. It encompasses not only efforts to maintain status, but also cognitive and motivational tendencies aimed at acquiring greater power and authority (Anderson & Galinsky, 2006, p.511). It also reflects the pursuit of workplace effectiveness and personal potential.

Power demand, as the aspiration to influence, participate in decision-making, and rise within the organizational hierarchy, extends beyond preserving the status quo. It reflects deeper motivation to realize one's potential and enhance workplace impact. This is embodied in "greater power demand," which manifests as a desire for increased

responsibility, creative contribution, and initiative (Hackman & Lawler, 1971, p.262). Importantly, this demand is not limited to personal ambition; it directly affects strategic outcomes such as organizational innovation, adaptability, and competitive advantage (Çavuş, 2008, p.241). When employees perceive their roles as extending beyond assigned duties and actively contribute, power demand can drive organizational success. In this light, power demand emerges as a cornerstone of both individual growth and organizational agility.

In the retail sector, power demand extends beyond operational duties. It involves active engagement in customer relationships, problem-solving, service quality, and input on product placement or promotional strategies. Such involvement deepens employee commitment and enables organizations to respond swiftly to evolving customer needs (Hackman and Oldham, 1975, p.160). When this demand is unmet, employees may feel undervalued and disengaged, resulting in lower job satisfaction. By contrast, when employees are empowered to create meaning, share ideas, and propose innovative solutions, both organizational productivity and service quality rise (Spector, 1985, p.120; Ivancevich & McMahon, 1977, p.553).

In today's retail industry, shifting customer expectations, the need for sustainable service quality, and intense competition require employees to assume greater authority and responsibility. Field employees, such as sales consultants, cashiers, and product managers, hold positions that directly shape customer experience. Therefore, their desire to have greater influence at work and contribute meaningfully brings power demand to the forefront of the industry.

The need for self-actualization at the top of Maslow's hierarchy of needs, along with Alderfer's concept of growth needs, provides the theoretical framework for understanding employees' increasing demand for empowerment. In sectors like retail, where adapting to rapidly shifting customer expectations is essential, individuals' desire for self-fulfillment and value creation stands out as a key psychological driver of power demand (Hackman & Lawler, 1971, p.262).

Self-Efficacy

Self-efficacy refers to an individual's belief in their ability to succeed in a specific task or situation. First introduced by Albert Bandura, this concept lies at the heart of social cognitive theory and is regarded as one of the most powerful internal factors influencing behavior, emotional state, and motivation. According to Bandura, individuals act not merely based on their actual knowledge or skill level, but on their belief in how effectively they can apply those abilities (Bandura, 1977, p.191). Thus, self-efficacy concerns not so much a person's true capacity as their expectations about how well they can utilize it.

The development of self-efficacy is shaped by four primary sources. Foremost among these are direct experiences of success, which reinforce self-efficacy through the successful completion of similar tasks in the past. Such experiences enhance an individual's sense of control, thereby increasing their expectation of success in future tasks. The second source, modeling or observational learning, involves witnessing the successful performance of others who are perceived as similar, fostering the belief that "I can do it too." This can be especially influential in new tasks where the individual lacks prior experience. The third source, verbal persuasion, involves motivational and encouraging feedback provided by significant individuals within one's social environment, such as teachers or supervisors. These affirmations help individuals form positive expectations about their own capabilities. Finally, physiological and emotional states also influence perceptions of self-efficacy. For instance, high levels of anxiety, stress, or physical fatigue may lead to negative predictions about one's performance (Schunk, 1991, pp.209–211). Together, these four sources highlight that self-efficacy is not a fixed personality trait, but rather a dynamic construct shaped by experience, environmental feedback, and cognitive appraisal.

Individuals with high self-efficacy be more determined in tackling challenging tasks, more resilient in the face of failure, and more persistent in pursuing their goals. They also demonstrate greater success in areas such as stress management, performance, and problem-solving (Stajkovic & Luthans, 1998, p.242). In contrast, those with low self-efficacy often exaggerate obstacles,

avoid difficult tasks, and give up easily (Judge & Bono, 2001, p.83). Thus, self-efficacy is a key psychological determinant that shapes how individuals respond to adversity.

Self-efficacy has been identified as a key determinant not only in individual motivation and performance, but also in a wide range of organizational outcomes, including learning behaviors (Saks et al., 2007), organizational citizenship (Walumbwa et al., 2011), innovation (Tierney & Farmer, 2002), and leadership behaviors (Luthans et al., 2005). In this context, self-efficacy is regarded as a powerful cognitive motivator that encourages individuals to take initiative, contribute beyond formal duties, share knowledge, and demonstrate leadership. With these qualities, self-efficacy stands out as a strategic variable for sustaining both individual psychological empowerment and organizational effectiveness.

Self-efficacy is recognized as a key determinant on individuals' decision-making processes. Those with high self-efficacy engage more actively in decision-making and are willing to make choices even under conditions of uncertainty (Tierney & Farmer, 2002, p.1141). These individuals can employ not only rational information processing but also experiential and intuitive forms of evaluation effectively. In selecting decision-making styles, the sense of confidence—namely, self-efficacy—emerges as one of the primary determinants.

Self-efficacy also directly influences individuals' tendency to seek greater power and responsibility within organizational structures. Power demand can be defined as the desire for increased authority, decision-making rights, and control in the workplace. The literature indicates that individuals with high self-efficacy pursue power in order to exert greater influence, enhance their capacity to guide others, and participate more actively in decision-making processes (Fast et al., 2011, p.1142). Their heightened engagement in work roles, increased visibility in organizational decision mechanisms, and greater inclination toward managerial responsibilities contribute to power-oriented behaviors. These individuals not only fulfill their assigned tasks but also seek a voice in managerial domains and position themselves as candidates for leadership roles.

Building on this theoretical foundation, the current research titled *“The Moderating Role of Self-Efficacy in the Effect of Rational and Intuitive Decision-Making Styles on Power Demand”* conceptualizes self-efficacy as a moderating variable that shapes the impact of decision-making styles on power demand. Within this framework, individuals with high self-efficacy are anticipated to show a stronger tendency to seek greater power and responsibility, regardless of whether they adopt a rational or intuitive decision-making style.

In this context, self-efficacy serves as a critical factor not only in shaping an individual’s decision-making style, but also in transforming those decisions into behaviors that enhance organizational impact. Given that decision-making processes are shaped not only by rational mechanisms but also by perceptions of personal competence, the moderating role of self-efficacy in this relationship holds significance both theoretically and practically.

Methodology / Research Method

Purpose and Significance of the Research

The retail sector, one of the most dynamic areas in today’s business landscape, stands out due to its intense competitive environment, rapidly evolving customer expectations, and the necessity for swift decision-making. Within this fast-paced environment, the decision-making styles adopted by employees play a pivotal role not only in shaping operational processes but also influencing psychological resilience and job performance. Rational (analytical) and intuitive (experiential) decision-making approaches particularly affect employee perceptions of workload, levels of burnout, and power demand. The rational decision-making style, grounded in systematic thinking, data analysis, and logical evaluation, enhances strategic consistency. In contrast, the intuitive style based on experience and instinct offers effective solutions in contexts such as customer interactions and crisis management, where rapid responses are crucial. However, the impact of these two decision-making styles on power demand depends on employees’

levels of self-efficacy. Employees with high self-efficacy manage challenges more effectively, whereas those with lower self-efficacy may experience heightened stress and burnout. In this context, the primary aim of the research is to examine the effect of rational and intuitive decision-making styles on power demand among retail employees, and to reveal the moderating role of self-efficacy in this relationship. The research analyzes how cognitively demanding rational decision-making processes and error-prone intuitive tendencies shape employees’ perceptions of power demand, and how self-efficacy modulates these effects.

This research seeks to address a significant gap in the literature by offering a deeper understanding of the psychological and behavioral dimensions of decision-making styles among the employees in retail sector. Existing research has typically explored the relationship between decision-making styles and power demand within general workplace contexts, without adequately focusing on the moderating role of self-efficacy in retail environments—where human interaction is intense and constant adaptation is required. The results hold promise for guiding the development of training and human resource strategies aimed at reducing experiences of stress and burnout among employees. Furthermore, by offering recommendations to increase self-efficacy in order to improve job satisfaction and productivity, the research is intended to make a meaningful contribution to both academic literature and practical applications in the retail industry. Ultimately, this research will guide the development of innovative and holistic approaches in human resource management, employee training, and workplace psychology.

Population and Sample

The population of this research consists of employees working in the retail sector in Istanbul. According to data from the Turkish Statistical Institute (TURKSTAT), there are approximately 3.6 million businesses operating in Türkiye. When producers and suppliers are included, around 2.3 million of these are connected to the retail sector, employing roughly 10.2 million people—representing 58% of the country’s total workforce of about 17.5 million.

Given that a significant share of retail businesses and employees are concentrated in Istanbul, the city offers both strong representational power and practical advantages for data collection. The retail sector, with its high level of customer interaction and demand for rapid decision-making, provides a particularly suitable context for examining decision-making styles and the relationship between self-efficacy and power demand in business. To determine the appropriate sample size, a power analysis was conducted using the G*POWER 3.1 program, with a statistical power of $1-\beta = 0.95$ and a significance level of $\alpha = 0.05$. The analysis indicated a minimum sample size of 115 participants; ultimately, data were collected from 328 respondents. Participants were reached through social media platforms such as Facebook, Instagram, WhatsApp groups, YouTube, and Twitter, as well as through professional chambers and associations. A random sampling method was employed. While these channels enhanced the statistical validity of the research and strengthened the sample's representativeness, the reliance on digital and institutional networks limited access to certain employee groups. As a result, the generalizability of the findings to the entire retail sector in Istanbul—and by extension, across Türkiye is somewhat constrained.

Hypotheses and Research Model

The main hypothesis of the research is that self-efficacy plays a moderating role in the impact of rational and intuitive decision-making styles on increased power demand.

H₁: *There is a statistically significant relationship between rational and intuitive decision-making and increased power demand.*

H₂: *There is a statistically significant relationship between rational and intuitive decision-making and self-efficacy.*

H₃: *Self-efficacy has a moderating role in the effect of rational and intuitive decision-making styles on increased power demand.*

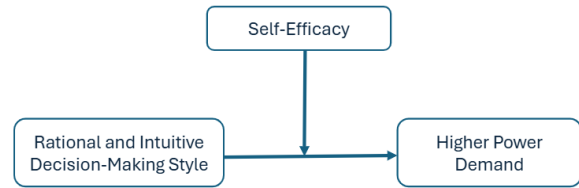


Figure 1. The Research Model

Data Collection Tools

The research includes multiple-choice questions covering demographic and general characteristics (gender, age, marital status, educational background, perceived income level, current position, work experience, and total duration of professional experience), along with items related to the three scales addressed.

Rational and Intuitive Decision-Making Style

Scale: To identify individuals' decision-making tendencies, the Rational and Intuitive Decision-Making Styles Scale was used in the research. The scale is based on the original form developed by Hamilton, Shih, and Mohammed (2016). Its Turkish adaptation and validity-reliability tests have been conducted by İme, Soyer, and Keskinoglu (2020). The scale aims to measure individuals' rational (analytical) and intuitive (emotional/automatic) tendencies in decision-making processes and consists of 10 items. Participants responded to each statement using a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). In the research by İme, Soyer, and Keskinoglu, the internal consistency coefficients of the Turkish version of the scale were reported as 0.82 for the rational decision-making dimension and 0.79 for the intuitive decision-making dimension.

Higher Power Demand Scale:

In this research, the Higher Power Demand Scale was employed to assess individuals' levels of power-seeking within the workplace. Developed by Orçanlı (2021), this original measurement tool aims to capture individuals' tendencies to seek greater power, control, and influence when dissatisfied with the authority and impact afforded by their current roles. The scale comprises five items, and participants were asked to respond using a five-point Likert scale (1 =

Strongly Disagree, 5 = Strongly Agree). In the original validation research, the scale's internal consistency coefficient (Cronbach's Alpha) was reported as 0.86. The theoretical foundation of the scale draws inspiration from psychological well-being and job attitude measures developed by Warr, Cook, and Wall (1979), which emphasize individuals' needs for autonomy, participation, and control in the workplace. This framework suggests that the desire for greater power is not solely related to status but also reflects a deeper motivation to fulfill psychological needs.

Self-Efficacy Scale: One of the tools used for data collection in this research is the Self-Efficacy Scale, which was adapted into Turkish and tested for validity and reliability by Yıldırım and İlhan (2010). The scale is designed to assess individuals' general self-efficacy beliefs and consists of 10 items rated on a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

The data collection tools used in the research were selected to ensure the reliable and valid measurement of key variables, and to support their evaluation on a conceptually and metrically sound basis.

Findings

For the reliability analysis of the research data, Absolute Strict Parallel (strict), Parallel, Split-Half, and Cronbach's Alpha analyses are employed. Exceeding the 70% threshold for these criteria indicates that the results are considered reliable (Sart et al., 2018:120). In this research, the reliability coefficients are determined as follows: Parallel = 0.916, Cronbach's Alpha = 0.916, Strict = 0.918, and Split-Half = 0.914–0.920.

The gender distribution of participants shows that 60.1% (n=197) are male and 39.9% (n=131) are female. In terms of age, 29.3% (n=96) are under 25, 48.8% (n=160) fall within the 26–35 age range; 17.7% (n=58) are between 36–45, and 4.3% (n=14) are aged 45 and above. Regarding marital status, 36.6% (n=120) are married, while 63.4% (n=208) are single.

Educational background reveals that 0.6% (n=2) have completed primary school, 1.5% (n=5) middle

school, 8.5% (n=28) high school, 54.0% (n=177) hold an associate degree, 26.5% (n=87) a bachelor's degree, and 8.8% (n=29) a postgraduate degree.

Table 1. Distribution of Participants According to Sociodemographic Characteristics (N=328)

Sociodemographic Characteristics		n	(%)
Gender	Male	197	60.1
	Female	131	39.9
Age	25 and below	96	29.3
	26-35 years	160	48.8
	36-45 years	58	17.7
	45 and above	14	4.3
Marital Status	Married	120	36.6
	Single	208	63.4
Educational Status	Primary school	2	0.6
	Middle school	5	1.5
	High school	28	8.5
	Associate Degree	177	54.0
	Bachelor's Degree	87	26.5
	Postgraduate Degree	29	8.8
Monthly Income Perception	Income is less than expenses	66	20.1
	Income equals expenses	173	52.7
	Income is more than expense	89	27.1
Sociodemographic Characteristics		n	(%)
Professional Position	Manager/Unit Manager	112	34.1
	Employee	216	65.9
Work Experience	0-5 years	108	32.9
	6-10 years	83	25.3
	11-15 years	87	26.5
	16-20 years	31	9.5
	21 years and above	19	5.8
	0-5 years	111	33.8
Total Professional Experience	6-10 years	120	36.6
	11-15 years	40	12.2
	16-20 years	37	11.3
	21 years and above	20	6.1

When the perceived monthly income of the participants is examined, it is seen that 20.1% (n=66) report earning less than their expenses, 52.7% (n=173) report income equal to expenses, and 27.1% (n=89) report earning more than they spend. In terms of job position, 34.1% (n=112) serve as managers or unit supervisors, while 65.9% (n=216) work as employees.

Work experience data show that 32.9% (n=108) have 0–5 years of experience, 25.3% (n=83) have 6–10 years, 26.5% (n=87) have 11–15 years, 9.5% (n=31) have 16–20 years, and 5.8% (n=19) have 21

years or more. Total professional experience is distributed as follows: 33.8% (n=111) have 0–5 years, 36.6% (n=120) have 6–10 years, 12.2% (n=40) have 11–15 years, 11.3% (n=37) have 16–20 years, and 6.1% (n=20) have 21 years or more.

To identify the factor structure in the study, explanatory factor analysis is conducted using the Principal Component Analysis method and the Oblimin rotation technique.

Table 2. Exploratory Factor Analysis Results

Rational and Intuitive Decision-Making Style Scale	Percentage of Variance Explained	Cronbach-Alpha (CA)	Answer Average
Rational Decision-Making	%35.87	0.909	4.344
Intuitive Decision-Making	%30.21	0.907	3.271
KMO= 0.902; Bartlett $\chi^2=5734.22$ and $p= 0.000$; Percentage of Variance Explained: %66.08			
Higher Power Demand Scale	Percentage of Variance Explained	Cronbach-Alpha (CA)	Answer Average
Higher Power Demand	%68.63	0.910	5.746
KMO= 0.903; Bartlett $\chi^2=6909.47$ and $p= 0.000$; Percentage of Variance Explained: %68.63			
Self-Efficacy Scale	Percentage of Variance Explained	Cronbach-Alpha (CA)	Answer Average
Initiation Sub-Dimension	%28.11	0.911	1.772
Resilience Sub-Dimension	%22.46	0.905	3.777
Persistence–Perseverance Sub-Dimension	%19.05	0.902	2.444
KMO= 0.910; Bartlett $\chi^2=7103.82$ and $p= 0.000$; Percentage of Variance Explained: %69.62			

Within the factor structure, two factors are identified for the rational and intuitive decision-making style, one factor for the higher power demand scale, and three factors for the self-efficacy scale, each with eigenvalues greater than 1. For all three scales examined, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy exceeds the threshold of 0.70, indicating a high level of adequacy. Additionally, Bartlett’s test of sphericity yields statistically significant results at $p < 0.01$. According to the anti-image correlation matrix, the cross-correlation coefficients between items are found to be above the critical value of 0.5. Furthermore, since none of the items in the extraction column are below the 0.20 threshold across the three scales, no items are excluded from the analysis. Factor loadings range from 0.66 to 0.84 for the rational and intuitive decision-making style scale, from 0.56 to 0.77 for the higher power demand scale, and from 0.65 to 0.80 for the self-efficacy scale.

Following this stage, Confirmatory Factor Analysis (CFA) is conducted to validate the factor structure.

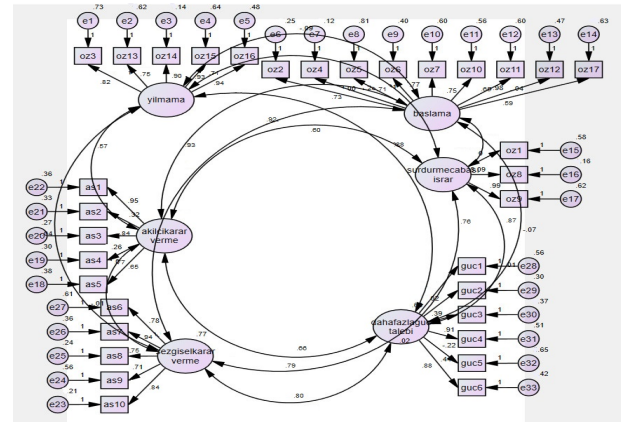


Figure 2. Confirmatory Factor Analysis Result

As a result of the Confirmatory Factor Analysis (CFA), the goodness-of-fit indices indicate that the factor structures of the three scales under examination are confirmed, and these results are presented in Table 3.

Table 3. CFA Goodness of Fit Results

Measurement Statistics	(Fit Good Fit)	Acceptable Fit	Research Model Value	Fit Status
General Model Fit				
X^2 / sd	≤ 3	$\leq 4-5$	2.88	Good fit
Comparative Fit Statistics				
NFI	≥ 0.95	0.94-0.90	0.960	Good fit
TLI (NNFI)	≥ 0.95	0.94-0.90	0.972	Good fit
IFI	≥ 0.95	0.94-0.90	0.978	Good fit
CFI	≥ 0.97	≥ 0.95	0.965	Acceptable fit
RMSEA	≤ 0.05	0.06-0.08	0.014	Good fit
Absolute Fit Indices				
GFI	≥ 0.90	0.89-0.85	0.929	Good fit
AGFI	≥ 0.90	0.89-0.85	0.934	Good fit
Residual-Based Fit Index				
RMR	≤ 0.05	0.06-0.08	0.025	Good fit

In Table 3, the value of X^2/df is found to be 2.88, which meets the criterion of being below 3, indicating a “good fit.” The NFI value of 0.960 falls within the 0.94–0.90 range, suggesting an “acceptable fit.” TLI (NNFI) = 0.972, IFI = 0.978, and RMSEA = 0.014 each meet the 0.95 or 0.05 thresholds, indicating

“good fit.” Similarly, CFI = 0.965 meets the 0.95 criterion, denoting an “acceptable fit.” GFI = 0.929, AGFI = 0.934, and RMR = 0.025 also meet the respective 0.90 or 0.05 benchmarks, supporting a “good fit.” These results confirm the factor structure of the three scales examined in the analysis.

To determine the relationships between main dimensions and sub-dimensions, a correlation analysis is conducted.

efficacy subdimension at 30.4% ($r = 0.304$, $p = 0.007$), and with the overall dimension of the higher power demand scale at 42.1% ($r = 0.421$, $p = 0.011$).

Following the confirmation of the factor structure through confirmatory factor analysis, structural equation modeling is conducted. In this research, the moderating role of self-efficacy in the effect of rational and intuitive decision-making styles on higher power demand is investigated.

Table 4. Relationship Analysis of Rational and Intuitive Decision-Making Styles with Self-Efficacy and Power Demand

		Initiation Sub-Dimension	Resilience Sub-Dimension	Persistence-Perseverance Sub-Dimension	Self-Efficacy Dimension	Higher Power Demand Dimension
Rational Sub-Dimension	<i>r</i>	0.344*	0.330*	0.337*	0.364*	0.485*
	<i>p</i>	0.008	0.002	0.004	0.009	0.038
Intuitive Sub-Dimension	<i>r</i>	0.217*	0.261*	0.211	0.306*	0.352*
	<i>p</i>	0.000	0.000	0.003	0.006	0.002
Rational and Intuitive Decision-Making Styles Dimension	<i>r</i>	0.369*	0.285*	0.317*	0.304*	0.421*
	<i>p</i>	0.000	0.000	0.009	0.007	0.011

* Significant relationship for $p < 0.05$

The rational subdimension has a statistically significant positive correlation with the initiation subdimension at 34.4% ($r = 0.344$, $p = 0.008$), with the resilience subdimension at 33.0% ($r = 0.330$, $p = 0.002$), with the persistence-perseverance subdimension at 33.7% ($r = 0.337$, $p = 0.004$), with the self-efficacy subdimension at 36.4% ($r = 0.364$, $p = 0.009$), and with the overall dimension of the higher power demand scale at 48.5% ($r = 0.485$, $p = 0.038$).

The intuitive subdimension has a statistically significant positive correlation with the initiation subdimension at 21.7% ($r = 0.217$, $p = 0.000$), with the resilience subdimension at 26.1% ($r = 0.261$, $p = 0.000$), with the persistence-perseverance subdimension at 21.1% ($r = 0.211$, $p = 0.003$), with the self-efficacy subdimension at 30.6% ($r = 0.306$, $p = 0.006$), and with the overall dimension of the higher power demand scale at 35.2% ($r = 0.352$, $p = 0.002$).

The overall dimension of the rational and intuitive decision-making styles scale has a statistically significant positive correlation with the initiation subdimension at 36.9% ($r = 0.369$, $p = 0.008$), with the resilience subdimension at 28.5% ($r = 0.285$, $p = 0.000$), with the persistence-perseverance subdimension at 31.7% ($r = 0.317$, $p = 0.009$), with the self-

A moderating effect refers to how one variable alters the impact of another. It also indicates the presence of a third variable that influences the relationship between a dependent and an independent variable. This third variable may increase or decrease the effect on the dependent variable by modifying or regulating the influence of another variable. Investigating moderation allows researchers to better understand and explain the impact of a given variable.

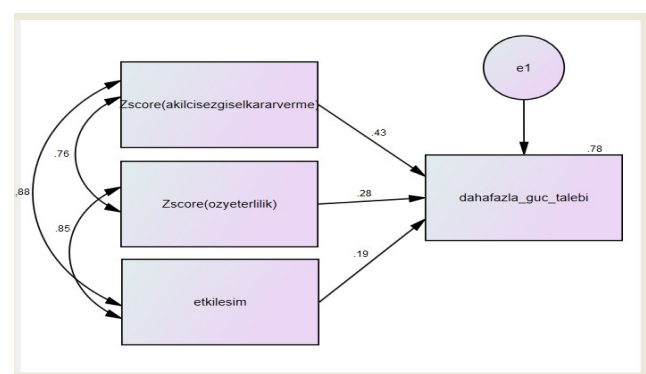


Figure 3. Structural Equation Model Estimation

The first step in examining the moderating effect is to obtain the standardized values of the independent variables. In this research, the standardization process is carried out using SPSS version 27.0. To include the moderator variable in the model under the label “interaction,” an interaction

variable must be created by multiplying the independent variable with the moderator variable (self-efficacy).

Table 5. Goodness Of Fit Results For Sem Estimates

Measurement (Fit Statistics)	Good Fit	Acceptable Fit	Research Model Value	Fit Status
General Model Fit				
χ^2 / sd	≤ 3	$\leq 4-5$	2.12	Good fit
Comparative Fit Statistics				
NFI	≥ 0.95	0.94-0.90	0.971	Good fit
TLI (NNFI)	≥ 0.95	0.94-0.90	0.988	Good fit
IFI	≥ 0.95	0.94-0.90	0.930	Acceptable fit
CFI	≥ 0.97	≥ 0.95	0.989	Good fit
RMSEA	≤ 0.05	0.06-0.08	0.034	Good fit
Absolute Fit Indices				
GFI	≥ 0.90	0.89-0.85	0.929	Good fit
AGFI	≥ 0.90	0.89-0.85	0.944	Good fit
Residual-Based Fit Index				
RMR	≤ 0.05	0.06-0.08	0.027	Good fit

In Table 5, the value of χ^2/df is 2.12, which meets the criterion of being below 3, indicating a “good fit.” NFI = 0.971 meets the 0.95 threshold, indicating “good fit”; TLI (NNFI) = 0.988 also meets the 0.95 criterion, indicating “good fit”; IFI = 0.930 falls within the 0.94–0.90 range, indicating “acceptable fit”; CFI = 0.989 meets the 0.97 threshold, indicating “good fit”; RMSEA = 0.034 meets the 0.05 criterion, indicating “good fit”; GFI = 0.929 and AGFI = 0.944 both meet the 0.90 threshold, indicating “good fit”; and RMR = 0.027 meets the 0.05 criterion, also indicating “good fit.” Based on the goodness-of-fit criteria for the Structural Equation Modeling (SEM) estimation, the estimated coefficients are deemed suitable for interpretation.

Table 6. SEM Prediction Results

Structural relationship	Direction	Estimated coefficient	St. Error	t-statistic	p	Result
ASKV→DGT	+	0.431	0.114	3.781	0.000*	Significant Relationship
OZY→DGT	+	0.280	0.061	4.590	0.000*	Significant Relationship
Interaction →DGT	+	0.192	0.037	5.189	0.000*	Significant Relationship

* Significant relationship for 0.05

Since the interaction term is significant, it is confirmed that the moderator variable alters the relationship between the dependent variable and the independent variable. It is seen that self-efficacy modifies the relationship between rational and intuitive decision-making styles and higher power demand. Self-efficacy may either amplify or diminish the effect of rational and intuitive decision-making styles on higher power demand. To illustrate the nature of this increase or decrease, a graphical interface developed by Dawson and Richter (2006) was used. Figure 4 presents the effect level graph of the moderator variable. The relevant program was downloaded from www.jeremydawson.co.uk/slopes.htm.

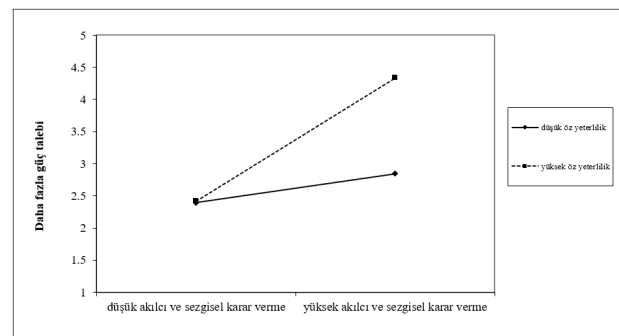


Figure 4. Moderator Effect Level Graph

As illustrated in Figure 4, among individuals with low levels of self-efficacy, high level of rational and intuitive decision-making ability does not lead to a substantial increase in power demand. In contrast, for individuals with high self-efficacy, when rational and intuitive decision-making ability is high, the level of power demand increases significantly. In this case, the moderating effect is observed specifically among individuals with high self-efficacy. When self-efficacy is low, the moderating effect does not result in notable changes.

The research findings reveal that rational and intuitive decision-making styles are significantly associated with individuals' tendency to demand greater power (H_1 is supported). This suggests that active participation in decision-making processes leads individuals to seek more responsibility within the organization. Similarly, Lange et al. (2022) demonstrate the impact of decision-making autonomy on performance and the pursuit of influence, emphasizing that decision participation

unsupported by self-efficacy is ineffective, particularly in uncertain environments.

The second hypothesis (H_2), which predicts a significant relationship between rational and intuitive decision-making and self-efficacy, is also confirmed by the findings. It is observed that individuals who exert cognitive effort in decision-making processes are unable to manage these processes effectively or fully demonstrate their potential if their level of self-efficacy is low. This finding aligns with Bandura's (1997) theory of self-efficacy. Likewise, Lim et al. (2023) examine the influence of self-efficacy levels on participation in decision-making and innovative behaviors among retail sector employees, identifying a strong positive relationship.

The third hypothesis (H_3) is also supported, indicating that self-efficacy plays a moderating role in the effect of decision-making styles on power demand. Among individuals with low self-efficacy, active participation in decision-making does not translate into increased power demand; however, among those with high self-efficacy, this effect becomes more pronounced. This finding suggests that decision-making behavior is not solely linked to cognitive skills but also to individuals' confidence and perceived competence. Especially in performance-driven and high-interaction sectors, employees' sense of confidence plays a decisive role in their willingness to demand power (Lange et al., 2022; Lim et al., 2023).

Discussion and Conclusion

This research examines the moderating role of self-efficacy in the relationship between rational and intuitive decision-making styles and employees' tendency to demand greater power in organizations. Findings show both styles significantly increase power-seeking behavior, and self-efficacy plays a moderating role in this relationship. These results align with contemporary literature emphasizing the influence of cognitive tendencies and personal resources in decision-making (Joe, 2023; Wei, 2024; Zhou et al., 2023).

The rational decision-making style reflects a systematic, knowledge-based approach to thinking. Individuals with high self-efficacy utilize this

style more effectively, demonstrating greater control and confidence in decision-making (Varga & Marschalko, 2024; Zhou et al., 2023). This finding aligns with Bandura's (1997) theory of self-efficacy. Accordingly, individuals with high self-efficacy engage in rational decision-making more strategically, facilitating their pursuit of greater power within the organization.

In contrast, intuitive decision-making is grounded in experience, instinct, and emotional awareness. The findings also reveal that a tendency toward intuitive decision-making increases power demand. Individuals with high self-efficacy rely on intuition under uncertainty, leading to bolder, more decisive actions (Wei et al., 2024; Kaplan, 2024). Kaplan's (2024) research on clinical decision-making similarly found that individuals with high self-efficacy make better intuitive decisions with fewer errors. These findings suggest that self-efficacy serves as cognitive assurance enhancing intuitive decision-making effectiveness.

Yang and Delgado (2025) demonstrate that the interaction between self-efficacy and response efficacy significantly influence decision-making, processed in distinct neurocognitive regions. This highlights that both self-efficacy and perceived response efficacy affect decision-making. Accordingly, the present research supports the view that self-efficacy moderates rational and intuitive decision-making styles, shaping individuals' power-seeking behaviors.

These findings corroborate Bavolar's (2023) meta-analysis on decision-making styles, emphasizing that the relationship between decision style and outcomes depends on contextual conditions and individual factors. Research in the Turkish context yields similar results. For instance, Savaşkan and Atay (2024) report that individuals with high self-efficacy demonstrate greater flexibility and effectiveness in both rational and intuitive decision-making processes.

In conclusion, this research identifies self-efficacy as a key moderator in the relationship between decision-making styles and power demand. Individuals with high self-efficacy are more effective in both rational and intuitive decision-making, which translates into a stronger tendency to seek power in organizations. These findings underscore

the importance of leadership and training programs that enhance self-efficacy to strengthen decision-making competencies.

In retail, individuals with low self-efficacy show no significant rise in perceived power demand, despite strong rational and intuitive decision-making skills. This outcome reflects how low self-efficacy limits one's ability to take ownership and engage effectively in decision-making. In contrast, employees with high self-efficacy show significantly greater power demand when decision-making skills are strong. This finding underscores the importance of enhancing self-efficacy to improve decision-making effectiveness and better understand power demand.

Based on the research findings, the following recommendations are offered to both practitioners and future researchers in this field:

- Training programs aimed at developing decision-making skills and interventions designed to enhance employees' self-efficacy levels should be encouraged.
- Adopting participatory management practices and incorporating decision-making competence into performance evaluation systems may positively contribute to employees' power demand.
- Additionally, supporting intuitive decision-making processes through digital tools is essential.
- Future studies may test the sectoral validity of the model using samples from different industries and examine the temporal dynamics of the relationship between decision-making styles and power demand through longitudinal data analysis.
- Incorporating mediating and moderating variables such as organizational support, leadership style, and psychological safety into the model may offer a more comprehensive understanding.
- Qualitative and mixed-method research can provide valuable insights into employee experiences and reveal the contextual dimensions of decision-making processes.

Declarations

Funding: No funding was received for conducting this study.

Conflicts of Interest: The author declares no conflict of interest.

Ethical Approval: Ethical approval for this research was obtained from the İstanbul Aydın University Social and Humanities Sciences Ethics Committee/Board on September, 20, 2024. **Informed Consent:** Participation in the study was voluntary, and informed consent was obtained from all individuals involved in the survey.

Data Availability: The data supporting the findings of this study, collected from 321 participants residing in Türkiye, are available from the corresponding author upon reasonable request.

AI Disclosure: No artificial intelligence-based tools or applications were used in the conception, analysis, writing, or preparation of figures for this study. All content was generated by the author in accordance with scientific research methods and academic ethical standards.

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RESEARCH ARTICLE

Syrian Children's Resilience and Families' Social-Justice-Related Experiences: A Mixed-Methods Study

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Abstract

Guided by Bronfenbrenner's ecological theory, the research examined child and family's justice related experiences that influence Syrian preschool children's resilience. In the quantitative phase, data were collected from 156 mothers using the Strengths and Difficulties Questionnaire and the Preschool Anxiety Scale to evaluate behavioral, emotional, and anxiety-related outcomes in their children. In the qualitative phase, ten mothers who had children with high and low difficulty scores were selected for semi-structured interviews to explore the impact of language, discrimination, economic hardship, community relations, and institutional support on children's resilience. The quantitative findings showed strong associations between prosocial behavior and lower psychological distress. Qualitative analysis revealed that structural inequities, such as restricted mobility, discriminatory treatment in schools, and economic instability, often undermined children's social integration. On the other hand, supportive teachers, inclusive neighborhoods, and cultural belonging acted as protective factors. Experiences of justice fostered engagement, confidence, and emotional stability, while experiences of injustice contributed to anxiety, withdrawal, and reduced participation in learning. These findings highlight the need for culturally responsive, multi-level interventions and policies that address structural barriers, foster inclusive environments, and recognize the cultural assets of refugee families to strengthen resilience in early childhood.

Keywords: forced migration, social justice, resilience, family experiences

Öz

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Bronfenbrenner'in ekolojik kuramına temellendirilen bu araştırma, Suriyeli okul öncesi çocukların iyi oluşunu etkileyen sosyal adaletle ilgili çocuk ve aile deneyimlerini incelemektedir. Araştırmanın nicel aşamasında, 156 anneden Güçler ve Güçlükler Anketi ile Okul Öncesi Anksiyete Ölçeği kullanılarak veri toplanmış; çocukların davranışsal, duygusal ve kaygı düzeyleri değerlendirilmiştir. Nitel aşamada ise, yüksek ve düşük zorluk puanlarına sahip çocukların annelerinden seçilen on kişiyle yarı yapılandırılmış görüşmeler gerçekleştirilmiştir. Bu görüşmelerde dil, ayrımcılık, ekonomik sıkıntı, toplumsal ilişkiler ve kurumsal destek gibi etmenlerin çocukların dayanıklılığı üzerindeki etkisi incelenmiştir. Araştırmanın nicel bulguları, prososyal davranış ile düşük psikolojik sıkıntı arasında güçlü bir ilişki olduğunu göstermiştir. Nitel analizde, hareket özgürlüğünün kısıtlanması, okullarda ayrımcı tutumlar ve ekonomik istikrarsızlık gibi yapısal eşitsizliklerin çocukların toplumsal uyumunu zayıflatmış bulunmuştur. Buna karşın, destekleyici öğretmenler, kapsayıcı mahalleler ve kültürel aidiyet duygusu araştırmada koruyucu faktörler olarak öne çıkmıştır. Sosyal adaletle ilişkili deneyimler, çocuklarda katılım, özgüven ve duygusal dengelerini güçlendirirken; adaletsizlik deneyimleri kaygı, içe kapanma ve öğrenmeye katılımın azalmasına yol açmıştır. Bulgular, erken çocuklukta dayanıklılığı güçlendirmek için kültürel olarak duyarlı, çok düzeyli müdahaleler ve politikalar geliştirilmesi; yapısal engellerin kaldırılması, kapsayıcı ortamların teşvik edilmesi ve mülteci ailelerin kültürel değerlerinin tanınması gerektiğini vurgulamaktadır.

Anahtar Kelimeler: zorunlu göç, sosyal adalet, psikolojik sağlamlık, aile deneyimleri

Introduction

The twenty-first century has brought an increasing number of global crises, including armed conflict, political violence, human rights violations, and climate-related disasters. As a result, over 120 million people have been forcibly displaced from their homes worldwide as of 2024, with over half of these individuals being children (UNHCR, 2024). The consequences of forced migration for children are multifaceted, involving exposure to violence, persecution, environmental insecurity, and systemic injustice. These factors are consistently interconnected, creating an environment of multifaceted adversity, particularly for young children (Fazel et al., 2012).

The body of knowledge that comprises refugee children's mental health research has emphasized negative mental health outcomes, with a focus on justice-related risk factors across the life span (Fazel & Stein, 2003; Türken et al., 2024). In this context, refugee children face unique developmental vulnerabilities, as early childhood represents a foundational period for human development (Shonkoff et al., 2012). Children as young as three can identify social hierarchies based on race and ethnicity, and they begin to internalize societal attitudes through daily interactions (Feagin & Van Ausdale, 2001; Vincent, 2003). Refugee children, who often experience linguistic, cultural, and social dislocation, are particularly sensitive to justice-related experiences in their everyday environments. These experiences influence their self-concept, sense of belonging, and overall development, and they hinder children's social integration and sense of belonging within the host society (Kuru & Ungar, 2021).

Evidence from both high-income and low-/middle-income countries shows that discrimination is a major threat to children's mental health and developmental outcomes (Fazel et al., 2012). Racial and ethnic discrimination has been shown to limit opportunities for integration, lower self-esteem, and exacerbate mental and physical health difficulties among refugee children and their caregivers (Ford et al., 2013; Sanders-Phillips, 2009). However, the impact of structural injustice varies across families. Studies suggest that cultural background

and the political, economic, and social context of the host country can either intensify risks or function as protective factors (Mattelin et al., 2024). Cultural and linguistic similarities between countries of origin and host societies can facilitate the resettlement process, whereas greater differences may hinder adjustment (Wilcox et al., 2021). Understanding how families from diverse ethnocultural backgrounds navigate justice-related conditions in host societies is therefore essential to examining how young refugee children develop resilience within challenging circumstances (Hutchinson & Dorsett, 2012).

However, social justice cannot be understood solely as the lack of discrimination or exclusion. As Fraser (2008) and Young (2011) argue, social justice encompasses interconnected dimensions involving legal and institutional rights, recognition of cultural identities and social belonging, meaningful representation and participation in institutional processes, and equitable access to material and social resources. These dimensions provide the conceptual grounding through which refugee families' experiences should be assessed. For Syrian families in Türkiye, social justice includes access to early childhood education, culturally and linguistically responsive services, recognition of cultural assets, and institutional practices that affirm their legitimacy within the community. These factors directly shape children's developmental opportunities and their capacity for resilience.

Therefore, Bronfenbrenner's (1979) socioecological theory offers a comprehensive framework for understanding how children develop within nested environmental systems. Although the model does not directly address social justice, scholars have emphasized that factors related to justice have an impact at different ecological levels (Betancourt & Khan, 2008; Kuru, 2025; Mundy & Dryden-Peterson, 2015). At the microsystem level, children may encounter fairness or discrimination through their daily interactions with peers, teachers, and caregivers. At the mesosystem level, language barriers may restrict parents' ability to participate in school activities, limiting their representation and influencing their children's educational experiences. Exosystem influences, such as migra-

tion policies and access to linguistically appropriate services, determine families' opportunities to exercise rights and access support. Finally, macrosystem factors including public attitudes toward refugees and dominant sociopolitical narratives shape broader norms of inclusion and exclusion. Situating social justice within this ecological framework illustrates how structural inequities permeate children's everyday developmental contexts.

Integrating resilience with an ecological, social justice-based perspective highlights that children's ability to adapt and cope with challenges results from their ongoing interaction with risks and resources within these ecological contexts. Contemporary resilience research highlights that positive development depends not only on individual strengths but also on the fairness of the environments in which children grow (Masten, 2014; Ungar, 2013). When dimensions of social justice—such as rights, recognition, representation, and equitable access—are restricted through linguistic marginalization, socioeconomic precarity, or institutional exclusion, children face accumulating burdens that heighten psychological difficulties and erode their sense of belonging. In contrast, when ecological systems provide inclusive school environments, culturally attuned community interactions, responsive public services, and supportive relationships with teachers, these justice-enhancing conditions act as powerful protective factors (Betancourt & Khan, 2008; Masten et al, 2023). Considering resilience from an ecological and social justice perspective strengthens the theoretical framework of the study, providing a context for refugee children's emotional and behavioral outcomes within the broader structures that influence their daily lives.

Taken together, the primary aim of this study is to examine how social justice-related experiences influence children's resilience, integrating quantitative indicators of psychological resilience with qualitative insights from mothers. By analyzing mothers' narratives alongside quantitative assessments of children's behavioral and emotional functioning, the study captures how experiences of fairness, recognition, and inclusion or their lack affect children's outcomes. In sum, this research po-

sitions social justice as a lived, developmental necessity for Syrian refugee children in early childhood. This paper argues that equitable access to rights, recognition of cultural assets, and inclusive social policies are foundational to the development of resilience. To guide this exploration, the following research questions are proposed:

- RQ 1: Do children's prosocial behavior, psychological difficulties (SDQ), and anxiety (PAS) differ by key sociodemographic factors (e.g., gender, maternal education, language difficulties)?
- RQ 2: What is the relationship between prosocial behavior and psychological distress and anxiety in Syrian preschool children
- RQ 3: How do Syrian mothers describe their children's experiences of justice and injustice in Türkiye, and how these experiences influence children's social, emotional, and behavioral well-being?
- RQ 4: What structural, relational, and cultural factors do mothers identify as risks or protective mechanisms for their children's resilience, and how do these qualitative themes help explain the quantitative patterns found in RQ 1 and RQ 2?

Method

This study used a sequential explanatory mixed-methods design to examine how justice-related experiences shape children's resilience. Data triangulation was achieved by exploring the same phenomenon through quantitative assessments (SDQ and PAS) and qualitative interviews with mothers, strengthening the validity of the findings. Quantitative results guided the purposeful selection of participants for Phase 2, and qualitative themes were used to contextualize and deepen the interpretation of statistical patterns. Finally, both datasets were integrated during interpretation to provide a comprehensive understanding of how justice-related conditions influence children's resilience.

Study Setting and Participants

A total of 156 mothers of Syrian preschool children living in Türkiye participated in the study. Suitable candidates were identified with the help of professionals working with Syrians and members of the Syrian temporary protection community (convenience sample). Subsequently, I sought participants' help in recruiting others (snowball technique). Inclusion criteria were: (a) holding only Syrian nationality, (b) having a child aged 5 to 6 years, (c) the child being enrolled in a preschool institution, (d) the mother being literate in Arabic, (e) the mother being at least a primary school graduate to ensure that they had sufficient literacy skills to understand the survey items, (f) the ability to complete an online survey, and (g) willingness to participate in the second phase of the study, which involved interviews with mothers. Exclusion criteria were: (a) a history of severe mental health conditions (e.g., post-traumatic stress disorder, major depressive disorder) in the parent and/or the child.

Ethical approval was obtained from the Siirt University Institutional Review Board, and the study was conducted in accordance with the ethical statements of the Helsinki Declaration. Prior to initiating study procedures, written and verbal consent was obtained from all participants.

Data Collection

The mixed methods data collection was conducted in two phases: an initial quantitative phase, followed by a qualitative phase designed to elaborate on and explain the quantitative findings (Ivankova et al., 2006).

Quantitative phase (Phase 1)

A demographic information form was prepared by the researcher based on a literature review and translated into Arabic. The form contained questions including basic information such as the mother's education level, employment status, the mother's and child's age, gender, and Turkish language proficiency.

Spence Preschool Anxiety Scale : The Preschool Anxiety Scale (PAS; Al-Ghalayini, 2015; Spence et al., 2001) is a 28-item, five-point Likert-type, parent-report measure designed for preschool-age children. Each item is rated on a scale from 0 (not true at all) to 4 (very often true). The maximum scale score is 112; higher scores indicate more severe anxiety symptoms. The scale consists of five subscales: separation anxiety disorder (five items), physical injury fears (seven items), social phobia (six items), obsessive-compulsive disorder (five items), and generalized anxiety disorder (five items). The Arabic version of the Cronbach's alpha value for PAS has been reported to be 0.90, and the split-half value was 0.79. In the present study, the total scale showed similarly strong reliability, with Cronbach's alpha found to be $\alpha = .86$

Strength and Difficulties Questionnaire (SDQ):

The Strengths and Difficulties Questionnaire (SDQ) is a well-established and widely standardized measure of general mental health problems in childhood (Goodman, 1997). The parent version of the SDQ (Alyahri & Goodman, 2006) consists of 25 items. Each item is scored on a 0–2 scale (0 = not true, 1 = somewhat true, 2 = certainly true). A score is estimated for each subscale (range 0–10), with a total difficulty score for the 4 subscales (emotional, hyperactivity, conduct, and peer problems) in the range of 0–40, with the exception of prosocial behaviors (positive items). The Cronbach's α of the SDQ total score was 0.73, in the present study, all Arabic SDQ subscales showed reliability coefficients ranging from $\alpha = .78$ to $.84$.

Quantitative data collection procedure

A cross-sectional web-based survey design was used in the first phase to collect quantitative data. At the beginning of the survey, respondents were given the option to include their email or phone number for an individual interview. Once this section was completed, mothers were directed to the demographic information form and the survey questionnaires assessing the child's behavioral and emotional problems as well as anxiety-related outcomes. The survey was designed to take approximately 15 minutes to complete.

Quantitative data analysis

All the data were verified and checked in Phase 1 and then imported for statistical analysis. To examine group differences based on sociodemographic variables, independent samples t-tests were conducted for binary variables, and one-way analysis of variance (ANOVA) was performed for multicategorical variables. Frequency, constituent ratio, and mean \pm standard deviation ($\bar{x} \pm S$) were used for descriptive analysis, and bivariate correlations were conducted to test for associations between the major study variables (child's psychological difficulties, prosocial behavior, conduct problem, emotional problem, hyperactivity, peer problem and anxiety levels). The significance level was specified as $p < 0.01$.

Qualitative phase (Phase 2)

Interview Protocol

Since the aim of follow-up qualitative designs is to explore and examine the results of statistical analyses in depth (Creswell & Plano Clark, 2007; Creswell, 2009), the researcher focused on how contextual factors related to children and families can facilitate coping with exposure to injustice or how such exposure affects children's resilience. Open-ended questions were utilized to explore factors related to the social justice experiences of families in the host country. The interview addressed the general difficulties faced by families, including the causes of challenging situations and strategies for navigating them. It also covered the sense of belonging in the host community and the nature of social relationships developed in Türkiye. Further questions explored barriers to integration within key systems, including education and social, political, cultural, and economic domains. Lastly, the interview focused on the challenges children face, such as difficulties in school and how parents and children respond to these difficulties. The interview protocol was pilot tested on two mothers and revised based on the results of the pilot testing.

Qualitative data collection procedure

To participate in the qualitative study, previous participation in the cross-sectional study was mandatory. To understand how Syrian mothers and their children experienced and navigated resilience within the context of justice-related experiences, five mothers of children with high total difficulties scores on the SDQ and five mothers of children with low total difficulties scores were interviewed. All interviews were conducted by the researcher online (via Zoom). In most sessions, Arabic interpreters assisted the parents, and interviews lasted 45–60 minutes. Qualitative data collection continued until thematic saturation was reached, when no new themes emerged and the interviews no longer provided new insights. The process concluded once thematic saturation was reached (Faulkner & Trotter, 2017).

Qualitative Data analysis

Interview transcripts were analyzed using thematic analysis (Braun & Clarke, 2006, 2022), following a six-step approach in NVivo software. The researcher transcribed all interviews verbatim and checked them for accuracy. The researcher and an external collaborator with a Ph.D. in measurement and evaluation independently coded the data, compared interpretations, and refined codes through discussion. The final themes and sub-themes were developed collaboratively to ensure analytic rigor and multiple perspectives in the interpretation phase and were then translated into English for reporting. The involvement of two independent coders in the thematic analysis, followed by consensus discussions, constituted investigator triangulation (Denzin, 1978), enhancing analytic rigor and minimizing individual researcher bias.

The researcher's role and preconceptions

The researcher holds a Ph.D. in early childhood education and has conducted postdoctoral research on childhood resilience. She has studied the psychological resilience of preschool refugee children. For instance, while conducting research in refugee

camps, she closely observed Syrian children and their families. This helped her develop a deep understanding of how socio-contextual factors influence children's social and emotional development. The researcher had no prior relationship with the participating mothers or their children and met them for the first time within the scope of this study. However, living in Türkiye, which hosts the world's largest Syrian refugee population, the researcher is familiar with the challenges that refugee families encounter in daily life. Despite this familiarity, the researcher made a conscious effort to remain in the neutral researcher role, including limiting verbal and non-verbal acknowledgments as participants recalled their experiences. To ensure objectivity, an external researcher with a Ph.D. in measurement and evaluation was included in the data analysis process, thereby strengthening the study's validity and reliability.

Findings

Demographic results

A total of 156 mothers of preschool children were included in the quantitative research, whereas in the qualitative research, ten mothers were invited to be interviewed. Table 1 provides the demographic information of all the participants.

Table 1. Participant Characteristics

Variable	Phase 1 (N=156, %)	Phase 2 (N=10, %)
Gender Child		
Girl	86 (55.1 %)	4 (40 %)
Boy	70 (44.9 %)	6 (60 %)
Age Child (year)		
5	75 (48.1 %)	7 (70 %)
6	81 (51.9 %)	3 (30 %)
Age Mother (year)		
25-35	27 (17.3 %)	3 (30 %)
36-45	70 (44.9 %)	5 (50 %)
≥ 46	59 (37.8 %)	2 (20 %)
Mother's educational levels		
Primary school degree	56 (35.9 %)	4 (40 %)
Secondary school degree	53 (34.0 %)	2 (20 %)
High school degree	40 (25.6 %)	3 (30 %)
More than high school	7 (4.5 %)	1 (10 %)
Mother's employment status		
Employee	24 (15.4 %)	4 (40 %)
Unemployed	132 (84.6 %)	6 (60 %)
Difficulty with the Turkish language (Mother)		
Yes	109 (69.9 %)	6 (60 %)
No	47 (30.1 %)	4 (40 %)
Difficulty with the Turkish language (Child)		
Yes	98 (62.8 %)	5 (50 %)
No	58 (37.2 %)	5 (50 %)

Descriptive statistics and correlations between variables

The measured variable was found to be within normal limits in terms of skewness and kurtosis (Klibe, 2015; West et al., 1995). Descriptive statistics for scale scores are presented in Table 2. Descriptive analysis, independent t-tests, and one-way analysis of variance (ANOVA) were used to describe the characteristics and distributions of psychological difficulties (SDQ), PAS, and prosocial behaviors.

Table 2. Descriptive Statistics of Scale Scores (n = 156)

Latent Variables/Indicators-Child	Construct	Min-Max	Mean ± SD	Skewness	Kurtosis
Prosocial behaviors	3-9	6.64 (1.57)	-.33	-.65	
Peer problem	2-9	5.46(1.47)	.03	-.11	
Hyperactivity	2-5	3.07 (.77)	.54	.19	
Conduct problem	1-5	2.95 (.95)	.02	-.23	
Emotional problems	1-10	4.86 (2.02)	.43	-.55	
Child psychological difficulties (SDQ)	7-27	16.90 (4.01)	.22	-.58	
Preschool Anxiety Scale (PAS)	20-102	48 (16.90)	.66	.24	

Table 3 provides an overview of the sociodemographic differences in prosocial behaviors, psychological distress (SDQ), and preschool anxiety (PAS). Prosocial behaviors differed significantly by child gender, with girls scoring higher than boys ($t = 5.09, p = .000$). Both mothers' and children's Turkish language difficulties were associated with significantly lower prosocial behaviors ($p < .01$ for both comparisons). SDQ total scores showed a significant difference according to the mother's level of education ($F = 3.58, p = .015$), with children of mothers who completed only primary school showing higher psychological difficulties. SDQ scores were also significantly higher among children whose mothers reported Turkish language difficulties ($t = 4.13, p < .001$), as well as among children who themselves had difficulty with Turkish ($t = 2.92, p = .004$). PAS scores demonstrated a similar pattern, with boys showing higher anxiety levels than girls ($t = -4.23, p = .000$). Anxiety scores were also significantly higher in both the mother ($t = 7.31, p < .001$) and child ($t = 6.13, p < .001$) language-difficulty groups.

Table 3. Sociodemographic Characteristics and the Distributions of SDQ, PAS and Prosocial Behavior (n=156)

Variable	Prosocial Mean (SD)	t/F	p	SDQ Mean (SD)	t/F	p	PAS Mean (SD)	t/F	P
<i>Child Gender</i>									
Girl	7.18 (1.25)	5.09	.000	14.33 (3.14)	-7.05	.000	37.13 (12.92)	-4.23	.000
Boy	5.98 (1.68)			18.84 (4.54)			46.21 (13.79)		
<i>Child Age</i>									
5 years	6.66 (1.51)	0.14	.884	15.86 (4.28)	-1.35	.179	39.85 (14.47)	-1.16	.246
6 years	6.62 (1.63)			16.81 (4.46)			42.46 (13.58)		
<i>Mother Age</i>									
25-35	6.55 (1.60)	2.18	.115	15.81 (4.82)	1.81	.166	40.81 (15.77)	1.09	.337
36-45	6.96 (1.47)			15.75 (3.81)			39.37 (11.37)		
≥46	6.39 (1.63)			17.11 (4.64)			43.01 (15.38)		
<i>Mother Education</i>									
Primary	6.19 (1.76)	3.40	0.21	17.78 (4.78)	3.58	.015	44.05 (12.93)	1.86	.18
Secondary	7.11 (1.39)			15.56 (3.43)			37.79 (15.04)		
High school	6.60 (1.37)			15.82 (4.47)			41.65 (14.02)		
>High school	7.00 (1.63)			14.00 (4.83)			41.85 (11.46)		
<i>Mother's Employment Status</i>									
Employee	7.83 (1.20)	4.21	.000	11.16 (1.63)	-7.26	.000	36.62 (10.01)	-2.95	.004
Unemployed	6.43 (1.54)			17.30 (4.06)			42.59 (14.24)		
<i>Turkish Language Difficulty-Mother</i>									
Yes	6.32 (1.52)	-3.83	.000	17.32(4.23)	4.13	.000	46.16 (12.45)	7.31	.000
No	7.31 (1.48)			14.37 (4.07)			31.01 (11.42)		
<i>Turkish Language Difficulty-Child</i>									
Yes	6.38 (1.63)	-2.72	.007	17.13 (4.48)	2.92	.004	45.97 (13.23)	6.13	.000
No	7.08 (1.38)			15.05 (3.93)			33.15 (11.49)		

Additionally, children of unemployed mothers showed higher SDQ ($t = -7.26$, $p < .001$) and PAS scores ($t = -2.95$, $p = .004$). Pearson correlations were calculated to explore the bivariate relationships among prosocial behavior, PAS, SDQ, peer problems, hyperactivity, emotional problems, and conduct problems presented in Table 4.

Table 4. Correlation Matrix of the Major Variables

Variable	1	2	3	4	5	6	7
1. Prosocial behaviors	-						
2. Peer problem	-.521**	-					
3. Hyperactivity	-.680**	.618**	-				
4. Conduct problem	-.548**	.571**	.586**	-			
5. Emotional problems	-.660**	.532**	.597**	.653**	-		
6. Child psychological difficulties (SDQ)	-.719**	.815**	.787**	.815**	.888**	-	
7. Preschool Anxiety Scale (PAS)	-.633**	.375**	.479**	.577**	.517**	.575	-

$p < 0.01$

Prosocial behaviors were negatively associated with peer problems ($r = -.521$, $p < .01$), hyperactivity ($r = -.680$, $p < .01$), conduct problems ($r = -.548$, $p < .01$), emotional problems ($r = -.660$, $p < .01$), total psychological difficulties ($r = -.719$, $p < .01$), and preschool anxiety ($r = -.655$, $p < .01$).

Conversely, peer problems, hyperactivity, conduct problems, and emotional problems showed strong positive correlations with total psychological difficulties ($r = .815$, $.787$, $.815$, and $.888$, respectively; all $p < .01$) and moderate-to-strong positive correlations with preschool anxiety ($r = .375$ -.577, all $p < .01$).

Qualitative Findings

Analysis of ten mothers' narratives yielded three overarching themes: structural barriers to equity, adaptive and protective factors, and the impact of injustice or justice on child well-being. The Syrian

mothers described how race, language, culture, and socioeconomic conditions in the host country contributed to their children's psychological difficulties. They also shared the strategies they used to cope with these challenges.

Theme 1: Structural Barriers to Equity

This theme highlights mothers' perceptions of unequal social conditions in the host country and the ways these structural constraints shape their families' everyday lives. Mothers identified language barriers, cultural differences, and economic hardship as key factors contributing to social injustice in their daily lives. Limited proficiency in Turkish, both their own and their children's, restricted access to education, healthcare, and legal rights, which narrowed children's opportunities for participation and integration. One mother explained:

The hardest part is not knowing the language. I tried to learn it, but then I couldn't find the time. Not knowing the language, I can't go to my child's school and take care of him. Their siblings are in the older classes, and they know a little Turkish. When the preschool teacher wants to talk, they go and talk to the teacher. When you don't know the language, people at the hospital and on the street realize we are foreigners and treat us differently. That's why I usually go out with my child who knows Turkish. This really bothers me. (P2)

Even when parents recognized the importance of learning Turkish, their children's reluctance to attend school due to peer rejection created further barriers.

I enrolled my child in school so that he could learn Turkish. But he doesn't want to go. Because he doesn't know the language, the other children in the class treat him badly. His father went to talk to the teacher, but nothing changed. He doesn't want to go to school. He says that no one likes him because he is Syrian. I keep pushing him to go. (P3)

Economic instability, often linked to low-paying jobs and precarious employment, was perceived by the mothers as a structural issue rather than an individual shortcoming. Discrimination in the labour market reinforced these inequalities.

They think that because I am Syrian, I have no choice but to work for low wages. That's right. I do whatever job I can to survive here so that my children can have a better future, but I don't get paid what I deserve. They don't pay me what I deserve just because I am not a citizen, even though I do the same job as them. (P5)

Although some mothers expressed gratitude for living in a Muslim country, they also reported that their children often faced bullying in school settings, which, in some cases, led to school dropout.

We are Muslims, and this is a Muslim country. I am happy to be in Türkiye. But my children are very unhappy. Turkish children fight a lot with my children. They don't want to go to school. Two of my children have dropped out of school because of this. They say, 'You are Syrians, go back to your own country.' We hear this a lot. I am afraid that we will be sent back to our country at any moment. (P7)

Educational inequality was another area of concern. Some mothers perceived that teachers held lower expectations for Syrian children and, at times, treated them differently from their Turkish peers. This perception was reinforced by experiences of exclusion in everyday interactions with school staff.

I couldn't go to school. My father didn't send me to school because I am a girl. But I want my children to go to school. They are smart. But the teachers have no expectations. I want them to become doctors or engineers like Turkish children, but the teachers act as if it is enough for us that they are attending school. When I pick up my child from school, I want to talk to the teachers. I understand Turkish and can speak it, but they cut me off and don't want to talk to me.

I see them talking to Turkish mothers. But I trust my child, and I will be there for them as long as I live. (P4)

In some cases, restrictions on mobility reinforced a sense of confinement and exclusion from broader social life.

There is no freedom of movement; to travel from one city to another, you need to get permission. Sometimes I feel like I am in prison. The children want to see the sea, but because it is forbidden, we cannot go. (P8)

The mothers described interconnected structural barriers such as language restrictions, discrimination, limited mobility, and economic hardship that hinder their children's immediate opportunities and shape their long-term social integration and educational opportunities

Theme 2: Adaptive and Protective Factors

This theme focuses on the protective and adaptive resources that mothers perceive as supporting their children's resilience in the face of everyday challenges. Mothers described a range of strategies, both available and aspirational, that could help them and their children cope with discrimination, unequal treatment, and broader challenges in the host country. While some were able to employ protective factors, others explained barriers that prevented them from implementing approaches they believed would be effective. The most frequently cited protective factors included language proficiency, supportive peer relationships, strong family connections, stable economic resources, opportunities for social interaction, and assistance from schools and community networks. One mother emphasized how her child's ability to speak the host country's language, combined with the support of an understanding teacher, had prevented negative experiences in the school setting:

My child is able to make friends at school because she knows the language. Her teacher is very understanding, which has prevented any

problems, and we have not encountered any discrimination at school to date. She enjoys attending school. (P9)

However, many mothers noted that personal and structural limitations constrained their capacity to protect their children from harm. Family separation emerged as a particularly significant barrier, both emotionally and economically.

My husband is in Syria and cannot come here, so I struggle a lot raising my children on my own. He has done nothing wrong, but because he went to Syria once, he is no longer allowed to return. Having their father present is important for children and not having him here makes my child feel insecure. This situation causes me significant financial and emotional hardship. (P1)

Economic instability was another recurring challenge, often exacerbated by discriminatory incidents in the workplace. In some cases, the lack of stable income forced children to take on responsibilities beyond their years.

My eldest son has to work to support the household, and he often says he wants to move to another country. Because of financial hardship, I cannot meet my children's needs, and sometimes I cannot even buy food. They are aware of this situation, and like all children, they want to go out, have fun, and get toys, but I cannot provide any of these things. If our presence were accepted and we had a stable income, we would have no problems at all. (P3)

Some mothers contrasted earlier negative experiences with more recent encounters of inclusion and kindness in their neighborhoods. Moving to a new location had, in certain cases, transformed the social environment for their children.

Here, I have Turkish neighbors who treat us very well. We used to live in Kırşehir, but we moved to Ankara because of my child's health problems. In Kırşehir, people did not want their children to be friends with mine because we are

Syrian. But here, my neighbors sometimes invite my children to play with theirs so they can spend time together. This makes both me and my children very happy, and they do not feel like strangers. (P10)

Media portrayals and public hostility toward Syrians were also identified as major sources of stress. Some mothers sought to protect their children by limiting their exposure to potentially unsafe public spaces.

The unemployment here, the mistreatment from people seeing us as a burden and the way the media portrays us all negatively when a single Syrian person does something wrong are very hard to bear. If a Syrian appears in the news for doing something bad, it feels as though we are all treated as if we were guilty. Then, when they see a Syrian person on the street, some people start physically attacking them. Some Syrian children respond to this, while others like my own do not even want to go outside. I also prefer that they do not spend much time outside. They study and play at home together with their siblings, and this is how I protect them. (P4)

For some, access to healthcare services was experienced as a powerful protective factor, offering reassurance and trust in the host country's institutions.

Being able to take my child to the doctor makes me happy. One day, my child became very ill, and the hospital treated him immediately without requesting any documents. The doctor treated us very well and approached us with a warm smile. In a country where many Syrians have difficulty accessing healthcare even in Syria it was very pleasing to be treated fairly here. It made me feel more confident that my child's health would be protected. My child also saw that if something happened, someone would take care of him, and this created a feeling that we would be helped if needed. It is such a beautiful feeling that I cannot even describe it. (P6)

Cultural and religious connections also contributed to resilience, fostering a sense of belonging and shared identity.

Sharing the same religion here and the sense of religious fellowship make things easier. During religious holidays, our neighbors, for example, send us food and sometimes visit us. Just like in Syria, this gives my children a sense of belonging. During these holidays, we do not feel like strangers, and it reminds us that we are the same, giving us strength to cope with difficulties. (P9)

Overall, these narratives illustrate that adaptive and protective factors are multifaceted, combining personal skills, social relationships, institutional support, and cultural connections. When present, they can significantly buffer the harmful effects of discrimination and instability. However, their absence, often due to structural barriers, can leave families and children vulnerable to deepening inequality and isolation.

Theme 3: Injustice or Justice Impact on Child Well-being

This theme examines how children's experiences of justice and injustice within social and institutional contexts shape their emotional, social, and developmental well-being. Mothers' narratives showed that some preschool children faced discrimination and exclusion in the host country, while others received fair and supportive treatment. For some children, injustice was linked to feelings of anxiety, loss of confidence, and reduced participation in preschool activities. In contrast, children whose mothers reported that they were treated fairly by their peers, teachers, and community members were described as more engaged in learning, having stronger social connections, and experiencing a greater sense of belonging. These contrasting experiences highlight how injustice and justice within a host country's social and institutional environments can shape the psychological, social, and developmental well-being of young children. One mother detailed how her son's self-

perception changed after being mocked for his Syrian background:

When he came home after that day, he looked so down. He told me, 'I am not good like the other children.' It broke my heart because before this, he always thought he could do everything the same as his classmates. (P8)

For some children, repeated exposure to rejection or overhearing hostile remarks in public spaces created lasting emotional wounds. One mother described her daughter's reaction after overhearing a neighbor say that Syrians did not belong in the country:

One day at school a child said, 'Syrians do not belong here.' She came to me with tears in her eyes and asked why they don't want us here. From that day, she became afraid of going to preschool. (P5)

Several mothers observed that their children were excluded from playgroups, particularly in outdoor settings or during preschool activities. This exclusion limited opportunities for peer learning and reinforced feelings of being different or unwelcome.

When the other children run to play together, my son stays sitting alone at the table. At first, he tried to go to them, but they would turn their backs or walk away. Now, he doesn't even try to join. (P1)

In contrast, children who experienced justice were more likely to be included in group activities, both inside and outside of school. One mother reflected on the warmth of such gestures during cultural celebrations:

My neighbors make a special effort to invite my children to play with their own. These moments mean so much to us because they remind us that we are not strangers here, that we belong, and that our children can share in the joy and laughter like everyone else. (P2)

Injustice also affected children's learning experiences. Some mothers reported that teachers' lower expectations, whether conscious or unconscious, undermined their children's motivation to participate.

Before, she loved school and talking about the teacher... The teacher doesn't ask her to show her work anymore. When a child senses that the teacher doesn't expect much from them, they lose the will to try. (P3)

Justice, however, appeared to strengthen academic engagement. When teachers valued children's contributions and encouraged peer friendships, children became more confident and persistent. As one mother proudly shared:

His teacher is very understanding, and she treats him like every other child in the class. She praises his work and encourages him to speak up. He tells me, 'I can do it, my teacher says so. (P6)

Stress from injustice can sometimes result in visible behavioral changes and unexplained physical symptoms. Mothers reported that their children experienced irritability, sudden aggression, and stress-related ailments such as stomachaches, loss of appetite, and disrupted sleep.

On school mornings, she says her tummy hurts. At first, I thought it might be something she ate, but then I realized it only happened before preschool. When I asked her why, she said it's because of the way she is treated there because some children won't play with her, and sometimes the teacher doesn't notice when they leave her out. (P7)

In contrast, children in just environments appeared calmer, maintained healthy routines, and demonstrated greater resilience when challenges arose. One mother summarized the difference clearly:

When they are treated well, they come home with smiles, telling stories about what they did.

*Even if something small goes wrong at home,
they can handle it without breaking down.
(P10)*

Integrated Consideration of Findings

The integration of quantitative and qualitative findings shows how specific justice-related experiences contribute children's behavioral and emotional outcomes. Quantitative analyses indicated that children's language difficulties and their mothers' language difficulties were significantly associated with higher psychological difficulties (SDQ) and anxiety symptoms (PAS). Qualitative narratives explained how these statistical relationships appear in everyday life: mothers described peer rejection, miscommunication with teachers, and limited access to school or health services when language barriers were present. Thus, the qualitative data highlight the mechanism behind the elevated SDQ and PAS scores in groups experiencing language difficulties.

Prosocial behavior demonstrated negative correlations with internalizing and externalizing problems ($r = -.521$ to $-.660$, all $p < .01$). Interviews supported this pattern: children who were included by peers and treated fairly by teachers were described as more confident, socially engaged, and emotionally regulated. In contrast, children exposed to exclusion or discrimination withdrew from social interactions, echoing the quantitative association between lower prosocial behavior and higher emotional or peer problems.

The quantitative finding that maternal education was linked to SDQ scores ($F = 3.58$, $p = .015$) also aligned with mothers' accounts of structural barriers. Mothers with lower educational backgrounds reported greater challenges navigating institutional systems, accessing school resources, or advocating for their children. These contextual constraints help explain the statistical association between maternal education and children's psychological difficulties. Moreover, although mothers described employment as difficult due to low wages and discrimination, the quantitative results showed that maternal employment was associated with better child outcomes. Children of employed

mothers had significantly lower psychological difficulties ($t = -7.26$, $p < .001$) and lower anxiety levels ($t = -2.95$, $p = .004$) compared with children of unemployed mothers. Thus, even when stressful for mothers, employment appeared to function as a protective factor for children.

Finally, the strong correlations among peer problems, emotional problems, hyperactivity, and total psychological difficulties ($r = .575-.888$, $p < .01$) were reflected in mothers' descriptions of children's experiences of injustice. Repeated exposure to unfair treatment was often accompanied by anxiety, aggression, withdrawal, or physical complaints. Conversely, when institutional and interpersonal interactions were fair and supportive, children appeared calmer, showed healthier routines, and maintained stronger peer relationships—mirroring the protective associations implied in the quantitative data.

Together, the integrated findings demonstrate that quantitative patterns are meaningfully explained by mothers' lived experiences, revealing how justice-related conditions function as both risk and protective factors within children's ecological environments.

Discussion

This mixed-methods study reveals that the resilience of Syrian preschool children is shaped by a complex interaction of individual, relational, and structural factors, with justice-related experiences playing a critical role in positive outcomes. Quantitative data showed that prosocial behaviors were negatively associated with peer problems, conduct problems, hyperactivity, and emotional problems. These difficulties were strongly and positively correlated with total psychological difficulties and preschool anxiety. Language barriers reported by both mothers and children were significantly associated with higher behavioral and emotional problems. This finding supports the role of language proficiency as a primary gateway to educational success, social participation, and a sense of identity (Kuru & Ungar, 2021; Türken et al., 2024).

The qualitative findings add depth to these results, showing that language difficulties often lead to a cascade of discriminatory experiences, such as

peer rejection, decreased parental involvement in schools, and limited access to public services. Children who received support from teachers who recognized their cultural and linguistic backgrounds developed stronger peer relationships, greater resilience, and higher engagement in learning. These results are consistent with research emphasizing culturally responsive pedagogy in early childhood settings (Erdemir, 2022; Sirin & Rogers-Sirin, 2015). However, when children perceived bias or low expectations from educators, their motivation and engagement diminished, which aligns with evidence showing that discriminatory treatment undermines academic self-concept (Ellis et al., 2010; Mattelin et al., 2024).

Structural inequities extended beyond the classroom. Mothers reported economic hardship, discriminatory employment conditions, and mobility restrictions as ongoing challenges to both their children's well-being and their own capacity to provide support. These barriers were reflected in the quantitative association between lower income and greater psychological distress in children—a link identified in previous studies of refugee populations (Boyden & Mann, 2005; Hatch & Dohrenwend, 2007). Some families reported improvements after relocating to more socially inclusive neighborhoods, aligning with findings that community support and cohesion can mitigate the effects of adversity (Gapen et al., 2011; Nuttman-Shwartz et al., 2011). However, sustained exposure to negative media coverage and public discrimination appeared to reinforce feelings of exclusion, leading to social withdrawal and heightened anxiety (Panter-Brick et al., 2011; Willms, 2002).

Experiences of justice and injustice emerged as direct determinants of developmental outcomes. Injustice—manifested in peer exclusion, inequitable teacher treatment, and public hostility—was associated with increased anxiety, psychosomatic complaints, and reduced participation in learning activities. These findings are consistent with evidence that perceived discrimination acts as a chronic stressor with long-term psychological consequences (Hutchinson & Dorsett, 2012). In contrast, experiences of justice, such as being included by peers, encouraged by teachers, and treated fairly by neighbors, fostered social connectedness,

emotional stability, and sustained engagement. These results support research highlighting the role of fairness and recognition in building resilience (Masten, 2014; Ungar, 2013).

Overall, integrating the quantitative and qualitative findings shows that resilience is a dynamic process shaped by the interaction between children's resources and their environments (Bronfenbrenner & Morris, 2006; Ungar & Theron, 2019). Positive relationships have been linked to increased prosocial behaviors and reduced psychological distress, while cumulative disadvantage has been associated with heightened emotional and behavioral issues. Addressing these inequalities requires multi-level action, such as strengthening social-emotional skills, creating inclusive schools, improving language and economic opportunities, and challenging discriminatory attitudes (Richman et al., 2004). These efforts should include not only children but also their families, who experience these barriers in interconnected ways, as parents play a critical role in supporting their children's well-being and development. For example, policies that ensure equitable access to education, healthcare, and legal protections—while valuing the cultural assets of refugee families—can help foster inclusive conditions (Kirmayer et al., 2009; Reed et al., 2012).

Limitations

Several limitations should be considered when interpreting these findings. First, the cross-sectional design of the quantitative phase prevents us from drawing causal conclusions about the relationships between experiences of justice and children's outcomes. Second, the qualitative data were based only on the perspectives of mothers. Incorporating the voices of fathers, teachers, and children themselves could enrich future analyses. Additionally, despite the use of translated, validated, and reliable tools and interpreters, language barriers during the research process may have affected the depth and nuance of some responses. Future research should adopt longitudinal and participatory approaches to capture trends in resilience over time and ensure that children's perspectives are more fully represented.

Conclusion

This study showed that Syrian preschool children's resilience is shaped by more than just individual or family factors. It is also influenced by children's competencies, family and school relationships, and broader socio-contextual factors. Justice-related experiences play a decisive role in developmental outcomes. Integrating both qualitative and quantitative evidence clarifies that resilience is a dynamic process rooted in equitable access to resources, culturally affirming practices, and supportive relationships. Multi-level interventions and inclusive policies that address structural barriers while recognizing the cultural assets of refugee families are essential to sustaining and strengthening resilience. These findings highlight the need for policies that strengthen refugee children's resilience by reducing structural barriers and supporting equitable access to early education. Improving language support in preschools, enhancing culturally responsive teacher practices, and fostering inclusive community environments may help mitigate the negative effects of discrimination and promote children's social and emotional well-being.

Declarations

Funding: No funding was received for conducting this study.

Conflicts of Interest: The author declares no conflict of interest.

Ethical Approval: Ethical approval was obtained from the Siirt University Institutional Review Board, and the study was conducted in accordance with the ethical statements of the Helsinki Declaration.

Informed Consent: Participation was voluntary, and written and verbal informed consent was obtained from all participants prior to the online survey and the interviews.

Data Availability: The quantitative data (n = 156 mothers) and qualitative interview data (n = 10 mothers) supporting the findings of this study are

available from the corresponding author upon reasonable request.

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RESEARCH ARTICLE

Victim Blaming in Crimes Against Transgender People: Turkish Sample

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Abstract

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This study examined victim-blaming attitudes toward transgender individuals in Turkey by comparing perceptions of physical and sexual assault scenarios involving female, male, and transgender victims. Ninety-five participants (M = 27.81, SD = 12.45) evaluated six vignettes which depict either a physical or sexual assault with victim gender manipulated across conditions are used. Each scenario was followed by Likert-type items assessing perceived seriousness, traumatization, offender and victim responsibility, provocation, and preventability. Non-parametric analyses (Friedman and Wilcoxon signed-rank tests) revealed significant gender-based differences in perceived traumatization ($\chi^2(2, N = 95) = 51.71, p < .001$), victim responsibility ($\chi^2(2) = 8.75, p < .05$), and preventability ($\chi^2(2) = 39.74, p < .001$). Transgender victims were perceived more similarly to female victims, with lower perceived ability to prevent physical assault (Md = 2.00) compared to male victims (Md = 3.00). Male participants attributed greater responsibility and provocation to transgender victims (U = 762.00, z = -2.77, p < .05). Although offenders were largely held responsible, findings indicate subtle transphobic and gendered biases shaping victim-blaming judgments. Results underscore the need for awareness efforts to reduce prejudice and support equitable treatment of transgender individuals in the justice system.

Keywords: victim blaming, transgender, gender bias, crime seriousness

Öz

Bu çalışma, Türkiye örnekleminde trans bireylere yönelik mağduru suçlama tutumlarını, kadın, erkek ve trans mağdurların yer aldığı fiziksel ve cinsel saldırı senaryoları üzerinden incelemiştir. Katılımcılar (N = 95; Ort = 27,81, SS = 12,45), altı kısa senaryoyu değerlendirerek olayların ciddiyeti, mağdur ve fail sorumluluğu, provokasyon ve önlenabilirlik düzeylerini 10'lu Likert tipi ölçeklerde puanlamıştır. Yapılan parametrik olmayan analizler (Friedman ve Wilcoxon işaretli sıra testleri), mağdur cinsiyetine göre travmatizasyon ($\chi^2(2, N = 95) = 51.71, p < .001$), mağdur sorumluluğu ($\chi^2(2) = 8.75, p < .05$) ve önlenbilirlik ($\chi^2(2) = 39.74, p < .001$) değişkenlerinde anlamlı farklar göstermiştir. Trans mağdurlar, fiziksel saldırılarda kadın mağdurlara benzer şekilde daha fazla travmatize görülmüş (Ortanca = 2.00) ve erkek mağdurlara göre suçu önleyebilme olasılıkları daha düşük değerlendirilmiştir (Ortanca = 3.00). Erkek katılımcılar trans mağdurlara daha fazla sorumluluk ve provokasyon atfetmiştir (U = 762.00, z = -2.77, p < .05). Bulgular, failin daha çok sorumlu tutulmasına karşın, mağduru suçlamada toplumsal cinsiyet ve transfobik önyargıların sürdüğünü göstermektedir.

Anahtar Kelimeler: mağduru suçlama, trans birey, toplumsal cinsiyet önyargısı, suç ciddiyeti

Introduction

Victimization, in the simplest terms, refers to the process of being victimized or becoming a victim. The scope of its definition, causes, consequences and prevention as well as its measurement, on the other hand, tend to be more complex. Victimological studies have been nourished by the contributions of different disciplines from a wide spectrum of approaches and addition of novel terms, concepts and perspectives. Victimization can thus be seen as a process and victim status can be told to be socially constructed. Some victims are perceived as ideal victims as they are considered innocent whereas some others can be blamed for their victimization (Daly, 2014). The prejudice against victims, for instance, refers to the perception that victims are somehow considered responsible for the criminal actions of perpetrators and is one of the recent topics of the area which re-emerged in the studies of crime (Eigenberg & Garland, 2018). Victim blaming stresses the entire or partial accusation of the victim of a wrongful act of any kind that befell on their own (CRCVC, 2009). The very nature of the concept brings along a certain hierarchy of victims as well as a perception of an idealized victim (McEvoy & McConnachie, 2012).

Ideal victim is considered as legitimate victim status that some victims are more likely to be accepted as the victim (Schwöbel-Patel, 2018). According to Christie (1986), there are five attributes that contribute to “ideal” victim. One of these factors is related to how much the victim can be blamed because of their acts. Researchers found that women are more likely to judges and blamed according to stereotypes that when they are perceived as nontraditional, they are blamed more (Capezza & Arriaga, 2008). Victims can be blamed because of their behaviors and actions which is behavioral blame and blame can be stable factors like personality which is called characterological blame (Janoff-Bulman, 1979). Studies showed that when the victims act against stereotypes, they are blamed more such that people attributed more behavioral blame on the male victims when they act in a unmasculine way (Davies & Rogers, 2006). Similarly, it is found that male victims more prone to behavioral blame whereas female victims faced more with characterological blame (Howard,

1984). However only recent studies focused on victim gender in their studies. Study examining the interaction of binary gender and transgender statuses found that cisgender men are blamed more compared to cisgender women and transgender men for rape scenarios (Diamond-Welch, Hellwege & Mann, 2018). Study focusing on the victim gender and victim sexual orientation revealed that gay males are the most blamed group in comparison to heterosexual male and lesbian female victims (Davies, Rogers & Whitelegg, 2009). Positivist criminology searching for the causes of victimization is criticized by the feminist criminologists that their theories are gendered and people can benefit from cognitive biases, stereotypes to explain their own behavior and others behavior. Prejudices, biases play role in many psychological issue in between group interactions like hate crimes, isolating certain social group of people from the society (Green, McFalls & Smith, 2001). These beliefs and biases also contribute to “ideal victim” and attribution of the blame to victims.

Ryan (1971) was the first to conceptualize victim blaming in his book. He defined victim blaming as an ideological process for maintaining the status quo for certain groups. This occurs as an unintended process which is systematically motivated by distortions of reality. During the victim blaming process, people’s belief systems and ideas serve to maintain the status quo for their group. The just-world fallacy is one of the predominant theories used to explain victim blaming. The just-world fallacy or just-world hypothesis proposes a relative causality regarding to victimization. People can rationalize victimization by believing that bad things happen to bad people and that victims are somewhat responsible for their acts (Hayes, Lorenz, & Bell, 2013). In other words, victims are regarded as responsible for their victimization because they are inherently bad or their behaviors are “bad” (Lerner & Miller, 1978). By this way, people feel that world is just, predictable and safe (Lodewijkx, Wildschut, Nijstad, Savenije, & Smit, 2001).

It is found that there are a number of beliefs and attitudes that contribute to justification of the violence. Blaming the female victims in sexual assault, for instance, is found to be related to interpersonal violence and belief in rape myths (Lonsway & Fitzgerald, 1995). Studies comparing the crime types

and blaming attitudes found that victims are more blamed in sexual assault crimes compared to robbery crimes (Bieneck & Krahe, 2011). Even though gender role related beliefs play a role in victim blaming, for other crimes like robbery it is found that violation of gender roles did not correlate with it (Felson & Palmore, 2021). Another study controlling for the variables gender and crime type showed that rape victims are blamed more than any other group of victims. Besides, it is found that general biases (but not gender biases) explained the victim blaming (Felson & Palmore, 2018). However, another study related to victims' response to attempted robbery showed that people expected victims to act according to specific gender role; namely that resistance by female victims considered less favorable compared to resistance by the male victims (Marsh & Greenberg, 1996).

Another theory used to explain the victim blaming is attribution theory. Attribution theory propose that bias formed culture and individual aspects cause individuals to interpret the events differently that their attribution to blame changes according to biased interpretations (Grubb & Turner, 2012). Study results showed that perceived similarity to victim is negatively correlated with blaming attitude whereas perceived similarity to perpetrator positively correlated with blaming attitude. Researchers explained this differences by the defensive attribution theory that identification with the victim decrease attribution of blame towards the victim (Grubb & Harrower, 2009). Defensive attribution theory help to explain gender difference in victim blaming behavior that as females more likely to identify themselves with the victims that they blamed the victim lesser than the male participants (Gray, Palileo & Johnson, 2010). Study conducted with cisgender and transgender participants found that for rape crime against heterosexual female blamed by the transwomen, cisgender women, transmen and cisgender men lowest to highest degree respectively (Diamond-Welch, et al., 2018). Similarly study conducted with participants different gender and sexual orientation found that heterosexual males blamed the victims more than the other groups for rape scenario (Davies & Hudson, 2011).

Although most of the study conducted on victim blaming focus on female victims, there are little studies focusing on other gender victims. One of the study on transgender victim found that anti-trans prejudice play mediator role between the belief in the just world and victim blaming (Thomas, Amburgey & Ellis, 2006). Another study revealed that for rape scenario with six different victim sexuality (heterosexual, homosexual, cross-dresser, female-to-male transgender, and male-to-female transgender) heterosexual victims blamed less compared to other victim groups (Davie et al., 2011). Another study revealed that transgender victims of sexual assault scenario are more blamed than the female victims and even the results are not statistically significant crime is rated as less serious when the victim is transgender (Blackham, 2006). Based on the in-depth interviews with the workers of the sexual violence support organizations, LGBTQ specific services in Australia found that sexual violence against LGBTQ people are considered as less serious and minimized. LGBTQ survivors are blamed more for the crime. Believing the myths and beliefs like 'asking for it', having risky life contribute to the victim blaming process (Mortimer, Powell & Sandy, 2019).

Studies conducted with Turkey sample also found similar results in line with the western literature. Researchers focusing on the victim blaming found believing the rape myths positively correlated with victim blaming (Çoklar, 2017). Most of the studies focusing on the victim blaming of the woman in rape cases found difference in the answers of the male participants' and woman participants that males blame female victims more (Üzümçeker & Fırat, 2018). However, this gender difference did not found in armed assault when the victim is transwoman. Experimental study compared the female victims with transwoman victims revealed that transwoman is blamed more. Besides woman participants are found to be more biased toward the transwoman yet this bias did not form difference in victim blaming attitude (Cingöz-Ulu, Türkoğlu & Sayılan, 2016). Benevolent sexism and hostile sexism correlated with the victim blaming for both males and females in Turkish population (Sakallı-Uğurlu, Yalçın & Glick, 2007). On the other hand, cultural difference found for victim blaming

in terms of honour tradition that for Turkey where honour culture is tradition victim blaming predicted by the honour where in dignity cultures rape myth acceptance found to be main predictor for victim blaming (Gul & Schuster, 2020).

The present literature stresses the role of gender when it comes to the process of victim blaming and the construction of a victim hierarchy, excluding non-heterosexual, non-binary and non-cisgender individuals from being “ideal victims”. Therefore, the main of this study is to comprehend the victim blaming attitudes toward varying groups of genders and for different types of crimes.

Method

Research Model

This study is designed within a descriptive research model. Descriptive research aims to obtain a systematic portrayal of a phenomenon as it exists naturally, without attempting to establish causal relationships or test explanatory hypotheses (Grimes & Schulz, 2022). Within this descriptive framework, the study adopts a comparative descriptive approach, which allows for the systematic comparison of victim-blaming evaluations across different victim groups and crime contexts. Victim gender identity (female, male, transgender) and type of crime (physical assault, sexual assault) are treated as descriptive categories that structure participants' evaluations, rather than as independent variables in a causal model.

Participants

Convenience sampling method was used that study links shared through social media accounts of the researchers and by email to university students' whose study in researchers' affiliation. Participants were voluntarily attend the study and accept to participate to study. Total of 95 participants whose age ranged between 18-62 ($M= 27,81$, $sd=12,45$) participated the study. 31,1% of the participant was female, 67,4% was male and 1,1% was other. Majority of the participants were cis-gender (87,4%) and 4,3% of the participants were LGBTQ+ members, 8,4% of the participants did not answer

the question of gender. Participants 11,6% graduated from high school, 55,7% was university student, 38,4% was university graduate and 4,2% had Master's degree. 86,4% of the participants were living in the Istanbul and 12,5% of the participants were living in other cities of the Turkey.

Materials

Socio-demographic Questionnaire: Socio-demographic questions are designed to learn age, sex, gender, education level, job, their beliefs regarding to justice system and their experience if any regarding to justice system. Participants' belief regarding to justice are measured by 10- Likert type scale in which zero is used for 'I absolutely never trust to justice system' and ten is 'I absolutely trust the justice system'. The Belief regarding to justice system is measured by the questions 'Do you trust justice system?'.

Vignettes: Vignettes are adapted from the Wrede and Ask (2015) study with the permission. There were six vignettes for two different crime type and for three different victim gender. In vignettes type of the crime, gender of the victim without name and perpetrators regarding information is given. In vignettes Turkish words for female, male and transgender has been used. For transgender term explanation has been given in case of people not familiar with the word.

Physical Assault Vignette: 'A transgender person/a woman/a man is walking through a park to his home after grocery shopping. The transgender person/ woman/man, in his late twenties, passed by a group that was having a barbecue, and group members started yelling and insulting this transgender person. The transgender person/ woman/man provoked by the members of the group also started shouting at the group. Three members of the group get angry and start running towards the transgender person/ woman/man. After a short and heated argument, the transgender person/ woman/man is pushed to the ground and kicked several times. The transgender person/ woman/man, lying on the ground for a while with severe pain, finally manages to stand up and walks away from the scene.'

Sexual Assault Vignette: 'A transgender person/woman/man is walking home from the gym. It is dark outside. The road passes through a sparsely populated settlement. After passing some bushes, the woman encounters a man who is acting strangely and is obviously under the influence of drugs. The transgender person/woman/man becomes uncomfortable with the situation and withdraws as the man approaches. The man leaps forward, grabs the transgender person/woman/man and pulls her into the woods. The man threatens the woman with a knife and forces her to have oral sex. The threat lasts for about 5 minutes, after which the man disappears from the scene, leaving the transgender person/woman/man in the woods.'

Participants rated the statements regarding to event through 10- Likert type scale in which 1= completely disagree and 10= completely agree. Following questions are asked to evaluate the participants' perception regarding to seriousness of event, victim responsibility and blaming the victim, offender responsibility, effect of the event on victim are asked with eight question. Following questions rated by the participant through 1 to 10 on the scale;

1. How seriously do you think the police should take this incident?
2. How much do you think this event traumatized the transgender person/woman/man?
3. To what extent do you think the group members are responsible for this event?
4. To what extent do you think the woman is responsible for this event?
5. Do you think the woman could be blamed for any behavior that caused this incident to happen to her?
6. How negatively do you think the woman's life has been affected after this incident?
7. What do you think is the probability of the woman preventing this event?
8. How much do you think the woman perpetrator provoked?

Procedure

Data is collected through online survey tool Google Forms, anonymously. Answers were collected in same order for all participants. Vignette and questions are divided into section for each victim gender and crime type that participants did not see the previous answers they have given.

Analysis

Analysis conducted in SPSS 26. Because the assumptions of repeated measures of ANOVA are not meet for normality and sphericity for that reason non-parametric analysis; Friedman's test and Wilcoxon-signed ranked test are used for analysis. Interaction effect of independent variables gender and crime type could not be measured.

Findings

Descriptive statistics are used to explore participants' ratings of the statement regarding to physical assault. Participants rated higher for the crime seriousness, traumatization level of the victim, responsibility of the offender, and negativity of the event on the victims' lives. On the other hand, responsibility of the victim, victims' act as a cause of the crime and provocation of the victim rates are found to have lower means (Table 1).

Participants' answers were compared in terms of the gender of the victim which are female, male and transgender in different crimes. According to Friedman's test, there was a significant difference among the ratings of how much the police should take the crime serious ($\chi^2(2) = 6,156, p < .05$). Post hoc analysis with Wilcoxon signed-rank tests was conducted with a Bonferroni correction applied could not find any difference among the groups (Table 1).

According to Friedman's test, there was a significant difference among the ratings of the amount of perceived traumatization of the victim as a result of the crime of physical assault ($\chi^2(2, N = 95) = 51,71, p < .01$).

Table 1. Descriptive statistics of Physical Assault Crime

	N	Female Victim			Male Victim			Trans Victim		
		M	Sd	Mdn	M	Sd	Mdn	M	Sd	Mdn
Police should take serious	95	9,49	1,14	10,00	9,44	1,15	10,00	9,59	1,15	10,00
Traumatization of the victim	95	9,35	1,07	10,00	8,03	1,94	8,00	9,13	1,55	10,00
Responsibility of the offender	95	9,74	0,64	10,00	9,58	1,14	10,00	9,18	1,98	10,00
Responsibility of the victim	95	2,39	2,05	2,00	2,58	2,18	2,00	2,40	2,29	1,00
Victim could prevent the crime	95	3,61	2,61	3,00	3,89	2,55	3,00	2,67	2,22	2,00
Behaviour of victim as a cause of crime	95	1,92	1,67	1,00	2,23	2,19	1,00	2,25	2,3	1,00
Provocation of the victim	95	3,05	2,64	2,00	2,68	2,26	2,00	2,68	2,37	2,00
Negatively effect the life of the victim	95	8,32	1,75	9,00	6,80	2,44	7,00	8,49	1,82	9,00

M = mean, Mdn = median, Sd = standard deviation

Post hoc analysis with Wilcoxon signed-rank tests was conducted with a Bonferroni correction applied, resulting in a significant difference for transgendered victims and male victims ($p=.000$). There was also a statistically significant difference between female and male victims predicted traumatization levels because of the physical assault (Table 1).

Participants' ratings for responsibility of group members who conducted crime showed significant difference according to Friedman's test ($\chi^2(2) = 9,97, p < .05$). Post hoc analysis did found any significant difference among the groups.

Victim responsibility for the physical assault crime showed statistically significant difference among the female, male and transgender victim group ($\chi^2(2) = 8,75, p < .05$) Even male blamed more than the transgender victims and transgender victims blamed more than the female victims, Wilcoxon signed-rank test with Bonferroni correction used as post hoc analysis did not found any significant difference among the groups.

In addition, statistically significant difference found among gender of the victim according to victims' probability to prevent the crime of physical assault ($\chi^2(2)=39,74, p < 0.001$). Follow-up pairwise comparisons were conducted using a Wilcoxon test with Bonferroni correction found that there was a statistically significant difference between the transgender victims and female victims ($p < 0.001$); that transgender victims had a lower median. Transgender victims also had a lower median compared to male victims ($p < 0.001$) (Table 1).

For the crime of physical assault, participants' answers to the crime's negative effect on victims' lives showed a statistically significant change according to gender of the victim ($\chi^2(2)=54,42, p <$

0.001). Post hoc analysis with Wilcoxon signed-rank test was conducted with a Bonferroni correction is applied to find the group differences. Results showed that the perceived negative effect on male victims' lives as a result of the crime had statistically significantly lower ratings compared to the predicted amount of negative effect on female ($p < 0.001$) and transgender victims' ($p < 0.001$) lives.

Friedmans' test results were not significant for other two items which are ratings of provocation of the victim ($\chi^2(2) = 4,188, ns$) and how much can be victim blamed for the crime ($\chi^2(2) = 2,465, ns$).

For the crime of sexual assault, descriptive statistics showed that participants believed that police should indeed take the crime seriously. Besides, participants rated the responsibility of the offender is higher than the victim for all gender groups. Negative impact of the crime on the victim's life and traumatization of the victim were rated higher in comparison to other types of crime by the participants. Provocation of the victim and the statement that an act of victim as the cause of the crime rated lower. Participants disagreed with the statement that victims could have prevented the crime (Table 2).

Participants' ratings for victim possibility to prevent the sexual assault were compared by Friedman's test. Results showed that there was a statistically significant difference between the genders of the victims ($\chi^2(2)=43,172, p < 0.001$). Post hoc analysis with Wilcoxon signed-rank tests was conducted with a Bonferroni correction, and it was found that there was a statistically significant difference for male victims and other two group

which are female victims and transgender victim ($p < 0.05$). Participants rated that the male victims

Table 2. Descriptive Statistics for Sexual Assault

	Female Victim				Male Victim			Transgender Victim		
	N	M	Sd	Mdn	M	Sd	Mdn	M	Sd	Mdn
Police should take the crime seriously	95	9,86	0,72	10,00	9,77	1,11	10,00	9,79	1,06	10,00
Traumatization of the victim	95	9,92	0,43	10,00	9,52	1,39	10,00	9,61	1,19	10,00
Responsibility of the offender	95	9,11	2,65	10,00	8,62	3,20	10,00	8,72	3,00	10,00
Responsibility of the victim	95	1,15	0,70	1,00	1,44	1,58	1,00	1,46	1,67	1,00
Victim could have prevented the crime	95	1,86	1,79	1,00	2,91	2,62	2,00	2,09	2,03	1,00
Behavior of victim as a cause of crime	95	1,37	1,38	1,00	1,55	1,89	1,00	1,54	1,64	1,00
Provocation of the victim	95	1,32	1,22	1,00	1,25	1,15	1,00	1,57	1,90	1,00
Negative effect on the victim's life	95	9,75	0,67	10,00	9,34	1,23	10,00	9,37	1,50	10,00

Note: M = mean, Mdn = median, Sd = standard deviation

have higher possibility to prevent to crime compared to female and transgender victims (Table 2).

Participants rating for how much victim would be traumatized showed statically significant difference according to Friedman's test ($\chi^2(2)=14,893$, $p<0.001$). However, pairwise comparison done by Wilcoxon signed ranked test did not found any statistical significant difference among the groups.

Friedman's test results were significant for negative impact of the event on victim life ($\chi^2(2)=16,074$, $p<0.001$). Wilcoxon signed ranked test with Bonferroni correction did not found any statistically significant difference among the groups.

For other items rated Friedman's test results was not significant that there were no differences for gender of the victim for other items; police should take the crime seriously ($\chi^2(2)=0,231$, ns), responsibility of the offender ($\chi^2(2)=3,862$, ns), responsibility of the victim ($\chi^2(2)=4,161$, ns), behavior of the victim can cause the crime ($\chi^2(2)=1,719$, ns) and provocation of the victim ($\chi^2(2)=1,263$, ns).

Participants' answers in regard to transgender victims were compared for different crime types which are physical assault and sexual assault. A Wilcoxon signed-rank test indicated that there is a statistically significant difference for victim's responsibility for crime ($T=894,00$, $z=4,31$, $p<0.001$). Participant rated higher on the responsibility of the victim for physical assault (Table 1 and Table 2). However, responsibility of the offender for different crime types did not statistically differ from each other ($T=236,00$, $z=-,803$, $p>0.05$).

Wilcoxon signed-rank test results showed that there was a statistically significant difference between the beliefs of participants regarding to victims' possibility to prevent the crime ($T=355,50$, $z=-3,26$, $p<0.001$). Descriptive statistics showed that

participants rated the degree of the possibility to prevent the physical assault higher (Table 1 and Table 2). Besides there was a statistically significant difference regarding to perception of provocation of the victim ($T=1187,5$, $z=4,58$, $p<0.001$). Participants rated the provocation level higher for physical assault (Table 1 and Table 2).

Participants' ratings for the statements are compared by the Mann-Whitney U test in terms of participants' sex revealed a statistically significant difference for the probability of the transgender victim to prevent the physical assault ($U=(N_{\text{female}}=64, N_{\text{male}}=30)=651,00$, $z=-2,62$, $p<0.05$) and for negativity of the event on victims' lives ($U=(N_{\text{female}}=63, N_{\text{male}}=30)=1191,00$, $z=2,12$, $p<0.05$). Male participants rated a higher probability for transgender victims to prevent the crime (Table 3).

Answers of the participants for transgender victims with regard to sexual assault were compared by the Mann-Whitney U test for participants' statement on their sex, i.e. either female or male. The answers of female and male participants showed a statistically significant difference on the responsibility of the victim ($U=(N_{\text{female}}=64, N_{\text{male}}=30)=762,00$, $z=-2,77$, $p<0.05$) the probability of the victim to prevent the crime ($U=(N_{\text{female}}=64, N_{\text{male}}=30)=643,00$, $z=-2,95$, $p<0.05$), the provocation of the victim ($U=(N_{\text{female}}=64, N_{\text{male}}=30)=791,00$, $z=-2,21$, $p<0.05$) and the negative effect of the event on the victim's life ($U=(N_{\text{female}}=64, N_{\text{male}}=30)=1167,50$, $z=2,71$, $p<0.05$). Male participants rated higher scores for victim blaming, the probability of victim to prevent the crime and the provocation of the victim (Table 3).

Table 3. Descriptive statistics according to participants' sex

	Physical Assault						Sexual Assault					
	Female Participants (N=64)*			Male Participants (N=30)			Female Participants (N=64)			Male Participants (N=30)		
	M	Sd	Mdn	M	Sd	Mdn	M	Sd	Mdn	M	Sd	Mdn
Police should take the crime seriously	9,70	0,97	10,00	9,43	1,40	10	9,95	0,27	10,00	9,43	1,81	10,00
Traumatization of the victim	9,28	1,27	10,00	8,8	2,02	10	9,73	0,89	10,00	9,33	1,64	10,00
Responsibility of the offender	9,25	2,01	10,00	9,03	1,95	10	8,64	3,14	10,00	8,83	2,74	10,00
Responsibility of the victim	2,11	1,93	1,00	3,03	2,88	2	1,18	1,03	1,00	2,03	2,48	1,00
Victim could have prevented the crime	2,20	1,74	2,00	3,66	2,79	2,5	1,62	1,48	1,00	3,03	2,65	2,00
Behavior of victim as a cause of crime	2,39	2,5	1,00	1,93	1,81	1	1,43	1,48	1,00	1,76	1,95	1,00
Provocation of the victim	2,58	2,17	2,00	2,73	2,63	1,00	1,34	1,58	1,00	2,06	2,42	1,00
Negative effect on the victim's life	8,86	1,46	9,00	7,76	2,28	8,00	9,64	0,99	10,00	8,83	2,13	10,00

Note: M = mean, Mdn = median, Sd = standard deviation. N=63 for statement of a negative effect on the life of victim for physical assault vignette. The values with a statistically significant difference are shown in bold.

Discussion

Studies on victim blaming mainly focusing on the female victims. Recent studies focus on the other gender victims. Similarly, studies conducted in Turkey on victim blaming mainly focused on woman victims of the rape. There is only one study that compare female victims with transwoman victims for victim blaming (Cingöz-Ulu et al., 2016). Studies reveal that approximately 40% of transgender individuals have been physically assaulted at least once in their lifetime, and 50% are victims of sexual assault (Stotzer, 2009). Apart from encountering various types of violence in daily life, the discrimination and transphobia they experience continue when they apply to justice to seek their rights (Testa et al, 2012). However, there is not enough scientific study or official data regarding to transgender people in the justice system. Transgender people in the justice system victimization is one of the area that is studied by the non-governmental organizations to advocate and protects transgender rights.

Victim blaming is another common approach to transgender people when they were victimized and a significant indicator of anti-transgender prejudice which is referred to as negative attitudes, beliefs, fear, and aversion for prejudice and discrimination against transgender people (Dexter, Amburgey and Ellis, 2016). Grubb and Turner (2012) underlined that victim-blaming cisgender literature attributes higher levels of blame to victims who violate traditional gender role stereotypes such as men being socialized as sexual initiators and women being sexually passive, conforming to

them, and endorsing traditional gender roles. Living outside of hegemonic masculinity and/or heterosexism places the person in the category of morally questionable. In general, culturally institutionalized heterosexism causes a non-heterosexual identity to be framed as deviant and accusing victims of being abnormal and, in turn, blaming them and their bodies for the violence they were confronted (Williams, 2009; Lee & Kwan, 2014).

Davies and Hudson (2011) demonstrated that victim-blaming judgments toward transgender individuals vary systematically according to gender expression and perceived norm violation, with cross-dressers and transgender victims attributed higher blame than heterosexual victims by heterosexual male observers, despite no differences in perceived rape severity. These findings are particularly relevant to the present study, which similarly identified elevated mean responsibility attributions toward transgender victims, especially among male participants, even when overall group differences were not statistically significant. Consistent with this literature, prior research indicates that transgender victims are more likely to be blamed when their identities or living conditions are framed as risky or socially marginalized, including contexts where sex work is emphasized (Buist & Stone, 2014; Wood, Carrillo, & Monk-Turner, 2019). Together, these patterns suggest that transgender victims' perceived deviation from normative gender roles—rather than the severity of the assault itself—plays a central role in shaping victim-blaming judgments.

In our study, even the results are not statistically significant, means differ from each other that transgender victim is less likely to be blamed for

the physical assault crime compared to male victims and more likely to be blamed compared to female victims. The statistically group difference found for item traumatization of the victims showed that participants rated male victims lesser than the other two groups. Even there is no statistical significant for female victims and transgender victims in terms of traumatization level, participants rated traumatization level higher for the female victims. These results can be interpreted that transgender people are perceived more similarly to female victims. Because in question form gender identity of the trans individual is not specified as transwoman and transman, participants may assume that transgender person is female. Study conducted by Gazzola and Morrison (2014) showed that people perception regarding to transgender woman and transgender man are different that stereotypes regarding to transgender man are more negative. For future studies differentiating the victims' transgender identity as transgender woman and transgender man can be more explanatory for understanding victim blaming attitudes.

Results also found that victim possibility to prevent to physical assault less likely for transgender people compared to other groups. Participants may think that as the transgender people target of violence because of their gender. In Turkey, transphobia is so common and visible which makes transgender people vulnerable to hate-motivated crimes mostly in very brutal ways (Uluboy & Husnu, 2020). According to the report of an organization that monitors violence against transgender people around Europe, Turkey was ranked the first country where trans murders were committed among 47 countries in the Council of Europe (Ordek, 2012). Participant may reason that there is no possibility for transgender people to prevent the crime as their one of the targeted group in the society.

In the present study, transgender victims in sexual assault scenarios were perceived as similarly unable to prevent the crime as female victims, with both groups attributed significantly lower preventive capacity than male victims; female victims received the lowest preventability rankings overall. Although group differences in victim responsibility were not statistically significant, transgender

victims received the highest mean responsibility ratings, a pattern that was particularly pronounced among male participants. These findings indicate that, even in the absence of overt blame, transgender victims are subject to subtle attributional biases in sexual assault contexts. This pattern is consistent with prior research demonstrating that victim-blaming judgments are shaped by gender and sexuality, with heterosexual male observers showing a greater tendency to blame victims and minimize the severity of sexual assault (Davies & McCartney, 2003; Davies & Hudson, 2011).

In addition, when the rating has compared according to crime type, it is found that rating for the items; responsibility of the transgender victim for the crime, provocation of the transgender victim for the crime and possibility of the victim to prevent the crime statistically differ for two different crimes. Participants rated higher for the responsibility and provocation items for the physical assault. It is thought that transgender victim has higher possibility to prevent the physical assault compared to sexual assault. This result contradicts with the literature that rape victims compared to other crime types blamed more (Sizemore, 2012; Bieneck & Krahé, 2011). However, Felson and Palmer (2018) found that rape victims were not blamed more compared to other crime types indeed, participants avoided direct blame towards the rape victim. So, the reason for these results can be general biases or methodological.

While empirical findings on gender differences in victim blaming are not fully consistent, accumulating evidence indicates that biased evaluations toward different gender groups pose serious challenges to equity, impartiality, and procedural fairness within the justice system. Although many group differences in the present study did not reach statistical significance, the observed patterns—particularly the intermediate positioning of transgender victims between female and male victims—are consistent with theoretical accounts emphasizing that victim-blaming judgments are shaped more by gender norms and cognitive schemas than by objective indicators of harm. From this perspective, Christie's (1986) concept of the "ideal victim" provides a useful interpretive

framework. According to Christie, victims who are perceived as innocent, defenseless, and socially sympathetic—such as children, elderly individuals, and women conforming to traditional gender norms—are more readily granted victim legitimacy. In contrast, socially marginalized groups, including homeless individuals, illicit drug users, sex workers, and transgender people, remain structurally excluded from ideal victim status, rendering them more vulnerable to blame and diminished credibility.

Importantly, the patterns observed in the present study align with this framework. Transgender victims were neither fully delegitimized nor fully recognized as ideal victims, but rather occupied an ambiguous position within victim hierarchies. This ambiguity resonates with case-based evidence documented by civil society organizations. A 2015 report by the SPoD non-governmental organization indicates that sexual identity and gender identity have influenced judicial decisions, particularly through the acceptance of provocation claims raised by offenders. In several cases, victims' perceived sexual desire, refusal, or requests for sexual interaction were framed as provocation, leading to sentence reductions. Although such cases are limited and primarily documented by NGOs rather than systematic academic research, they illustrate how heteronormative assumptions and victim hierarchies can become embedded in legal reasoning, reinforcing victim-blaming logics within judicial outcomes. The absence of comprehensive empirical data on transgender individuals in the justice system further underscores their structural invisibility and the urgency of research-informed safeguards.

In this context, the present finding that transgender victims were perceived as less able to prevent physical assault and were attributed higher responsibility in certain scenarios underscores the need for judicial protections against implicit bias, including clearer jury instructions and judicial training focused on secondary victimization and stereotype-based reasoning (Garcia, 2023; Juli et al., 2023). At the investigative level, the perception of limited victim agency aligns with research demonstrating that confirmation bias and tunnel vision can shape how authorities interpret victim behavior and responsibility

(Elaad, 2022), reinforcing the need for bias-awareness and procedural fairness training for law enforcement.

Finally, at the community level, prior research indicates that victim blaming operates as a form of secondary victimization that deepens social exclusion, particularly for gender-nonconforming individuals (Dyar et al., 2021; Juli et al., 2023). Community-based education initiatives and sustained collaboration with civil society organizations are therefore essential not only to challenge heteronormative stereotypes but also to promote more equitable institutional and social responses to transgender victims of violence.

Limitations

Several limitations of the present study should be acknowledged when interpreting the findings. These limitations primarily relate to the study design, sampling strategy, measurement approach, and operationalization of gender identity.

- **Scenario structure:** The physical assault vignette included active verbal engagement by the victim, which may have influenced attribution patterns and contributed to differences observed between physical and sexual assault scenarios.
- **Sample size and sampling method:** The relatively small, convenience-based sample limits the generalizability of the findings to broader populations.
- **Measurement approach:** The use of overt self-report measures may have elicited socially desirable responses, particularly given the sensitive nature of attitudes toward gender, sexuality, and violence.
- **Gender categorization:** The absence of differentiation between transgender women and transgender men may have shaped participant interpretations and obscured potential within-group differences.

Directions for Future Research

Building on these limitations, future research should aim to refine methodological approaches and expand the scope of inquiry to better capture

the complexity of victim-blaming attitudes toward transgender individuals.

- ***Differentiating transgender identities:*** Distinguishing between transgender women and transgender men would allow for a more nuanced examination of differential victim-blaming patterns.
- ***Expanding sample diversity:*** Employing larger and more diverse samples would enhance the generalizability of findings and allow for subgroup analyses.
- ***Improving measurement strategies:*** Utilizing implicit measures alongside self-report instruments may help reduce social desirability bias and capture less explicit forms of prejudice.
- ***Cross-cultural perspectives:*** Conducting cross-cultural comparative studies would facilitate understanding of how culturally embedded gender norms shape victim hierarchies and blame attribution processes.
- ***Qualitative integration:*** Integrating qualitative approaches could provide deeper insight into how transgender victims experience justice-seeking processes and secondary victimization.

Conclusion

This study aimed to examine victim-blaming attitudes toward transgender individuals in the Turkish context by comparing perceptions of physical and sexual assault scenarios involving female, male, and transgender victims. Addressing a significant gap in both international and national literature, the study contributes to victimology research by extending the analysis of victim blaming beyond cisgender female victims and incorporating transgender victims into comparative evaluation frameworks.

Overall, the findings indicate that while offenders were consistently held primarily responsible for both physical and sexual assault, gendered and transphobic biases persist in more subtle attributional judgments. Transgender victims were not uniformly blamed more than other victim groups; however, they occupied an intermediate posi-

tion between female and male victims across several evaluative dimensions. In particular, transgender victims were perceived as less capable of preventing physical assault compared to both female and male victims and were attributed higher levels of responsibility and provocation in certain contexts, especially by male participants. These patterns suggest that transgender victims are neither fully excluded from victim legitimacy nor fully recognized as “ideal victims,” reflecting an ambivalent and conditional form of victim recognition.

The results further demonstrate that crime type interacts with victim gender in shaping blame attributions. Transgender victims were perceived as more responsible and provocative in physical assault scenarios than in sexual assault scenarios, a finding that partially diverges from earlier literature suggesting greater blame in sexual crimes. This divergence may reflect implicit biases, avoidance of overt blame in sexual assault cases, or methodological features of the vignettes, underscoring the complexity of attribution processes in victim-blaming judgments.

Importantly, the study highlights that participant gender remains a critical factor. Male participants consistently attributed greater responsibility, provocation, and preventability to transgender victims, aligning with prior research linking victim blaming to gender role beliefs, rape myth acceptance, and heteronormative assumptions. These findings reinforce the view that victim blaming functions not merely as an individual attitude but as a socially embedded process shaped by dominant gender norms and power relations.

Despite its contributions, the study has limitations. The relatively small and convenience-based sample limits generalizability, and the use of overt self-report measures may have elicited socially desirable responses. Additionally, the lack of differentiation between transgender women and transgender men in the vignettes may have influenced participant interpretations and attribution patterns.

In conclusion, this study provides empirical evidence that transgender victims face distinct and nuanced forms of victim blaming that differ from both female and male victim experiences. Given

the scarcity of systematic data on transgender individuals within the justice system in Turkey, these findings underscore the urgent need for further research, including larger samples, more refined operationalizations of gender identity, and cross-cultural comparisons. Advancing such research is essential not only for theoretical development in victimology but also for promoting fairer, more inclusive, and bias-aware responses to transgender victims within legal and social institutions.

Declarations

Funding: No funding was received for conducting this study.

Conflicts of Interest: The authors declare no conflict of interest.

Ethical Approval: This study was approved by the Ethics Committee of Istanbul Arel University on October 14, 2022 (Decision No: 2022/20).

Informed Consent: Not applicable.

Data Availability: The data were collected anonymously via an online survey (Google Forms). The anonymized dataset may be made available by the corresponding author upon reasonable request (subject to ethical/confidentiality considerations).

AI Disclosure: Artificial intelligence tools (e.g., ChatGPT by OpenAI) were used solely for translation purposes. No AI tools were used for data analysis, interpretation, or substantive manuscript writing.

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RESEARCH ARTICLE

From Accumulation to the Collective: Empowerment through Cooperativism in Türkiye – A Narrative Analysis

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Abstract

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This narrative analysis examines how individual empowerment processes evolve into collectivisation through a woman's life story and explores the potential of women's cooperatives from a feminist social work perspective. Based on an in-depth interview conducted within a feminist methodological framework, the analysis identifies three core themes: accumulation, collectivisation, and relearning through new experiences. The findings show that despite academic success and economic independence, the narrator encountered gender roles and patriarchal pressures that shaped her empowerment trajectory. Growing awareness of these constraints enabled a shift from individual empowerment toward collective solidarity. While women's cooperatives function as social structures that can strengthen agency through solidarity and experience sharing, they may also produce disempowering dynamics when partnership awareness is weak and knowledge sharing is resisted. Overall, the analysis highlights the critical role of women's cooperatives in linking individual empowerment to broader processes of collective learning and social transformation.

Keywords: feminist social work, empowerment, women's cooperatives, collectivisation, narrative analysis.

Öz

Bu olgu sunumu, bir kadının yaşam öyküsünden hareketle bireysel güçlenme süreçlerinin kolektifleşmeye nasıl evrildiğini ve kadın kooperatiflerinin feminist sosyal hizmet perspektifi açısından taşıdığı potansiyeli incelemektedir. Çalışma, feminist metodolojiye dayalı derinlemesine görüşme yoluyla yürütülmüş; analiz sonucunda birikim süreci, kolektifleşme deneyimi ve yeni deneyimlerle yeniden öğrenme olmak üzere üç ana tema ortaya çıkmıştır. Bulgular, öznenin akademik başarı ve ekonomik bağımsızlığa rağmen toplumsal cinsiyet rolleri ve patriyarkal baskılarla karşılaştığını, bu baskılara yönelik farkındalığının ise bireysel güçlenmeden kolektif dayanışmaya uzanan bir dönüşüm sürecini tetiklediğini göstermektedir. Kooperatifler, kadınlar arasında dayanışma ve deneyim paylaşımı yoluyla failliği güçlendiren sosyal yapılar olarak öne çıkmakla birlikte, ortaklık bilincinin zayıflığı ve bilgi paylaşımına yönelik dirençler nedeniyle zaman zaman güçsüzleştirici deneyimlere de sahne olabilmektedir. Çalışma, kadın kooperatiflerinin bireysel güçlenmeden toplumsal dönüşüme uzanan süreçte birlikte öğrenme ve dayanışma pratikleri geliştirmeleri bakımından kritik bir role sahip olduğunu ortaya koymaktadır.

Anahtar Kelimeler: feminist sosyal hizmet, güçlenme, kadın kooperatifleri, kolektifleşme, olgu sunumu

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Introduction

The inequalities women face in social life are reproduced not only economically but also through violence, discrimination, and oppression. Many women in Türkiye experience domestic violence (KSGM, 2015), social pressure, and patriarchal control (İlkkaracan & Gülçür, 1996), regardless of education (Başkan & Alkan, 2023). The prevalence of femicide (Platform to Stop Femicide, 2025) and gender-based violence threatens women's safety, disempowering them and highlighting the need for spaces where they can protect themselves, find support, and build collective power. In this sense, women's cooperatives are valuable not only for economic independence but also as safe spaces fostering solidarity and self-protection.

The feminist social work approach seeks to reveal patriarchal pressures by centring women's experiences and creating collective resistance spaces (Dominelli, 2017). It focuses on supporting women's empowerment against violence and oppression and contributing to social transformation. Empowerment goes beyond economic freedom or participation in decision-making (Thompson, 2016); it includes protection from violence, resilience, and secure control over one's life (Dominelli, 2021). Lee (2001, p. 34) describes empowerment in three complementary dimensions: strengthening self-esteem, developing critical understanding of one's social-political context, and acquiring resources and strategies for individual and collective goals.

Similarly, Rowlands (1997) defines three empowerment levels: personal (self-confidence and self-determination), relational (transforming power within family and community), and collective (organising for social and political change). Kabeer (1999) also frames empowerment around resources, agency, and achievements: resources build self-construction; agency enables awareness and decision-making; achievements involve individual and collective outcomes.

Cooperatives thus become key tools for collective action and structural transformation. Women's empowerment in cooperatives extends beyond economics to social relations. Cooperatives enable collective spaces that develop structural policies grounded in women's experiences

(Değirmenci, 2023, p.214). Following Kabeer's (1999) framework, cooperatives expand women's access to resources, increase agency, and foster achievements that drive structural transformation. Their social networks help women learn from each other and resist patriarchal pressures. Cooperative experiences thus embody feminist social work processes of self-realisation, collective resistance, and oppression prevention.

Given the prevalence of violence and isolation in Türkiye, cooperatives serve as refuges and empowerment spaces. Economic independence is vital not only for income but also for breaking cycles of violence (Warren et al., 2019). Studies show that financially independent women are more likely to leave violent relationships, and solidarity networks strengthen resistance (Adar & Dedeoğlu, 2023). From a feminist social work perspective, cooperatives can thus be seen as practices supporting both individual empowerment and social justice.

Research Objective

The general aim of this research is to reveal how the process of cooperativisation is interpreted in terms of individual empowerment and feminist solidarity through a woman's life story and her experience of establishing a women's cooperative, and to discuss the potential of women's cooperatives as alternative forms of organisation and solidarity from the perspective of feminist social work. In line with this aim, answers were sought to the following sub-questions:

- How has narrator's life story been shaped by which experiences and conditions?
- What are narrator's motivations for establishing a women's cooperative, and what experiences did she have during this process?
- How does the cooperative experience contribute to the empowerment of the narrator?

Method

This study adopts narrative analysis within a qualitative research framework, which conceptualises

knowledge as socially constructed through interpretation and interaction (Creswell, 2013; Merriam, 2018). Narrative approaches enable in-depth examination of lived experiences within specific contexts by foregrounding subjective meanings and linking them to broader social structures (Sena, 2023).

The research is grounded in feminist methodology, which centres women's experiences, reduces hierarchical researcher-participant relations, and makes power relations visible (Harding, 2004; Lauve-Moon et al., 2020). This approach critically examines how patriarchal structures shape women's lives and requires reflexivity regarding researcher positionality (Çakır & Akgökçe, 1996). Accordingly, the narrator's account is treated as a primary source of knowledge.

The study analyses the life story of a woman who founded a women's cooperative through empowerment and feminist social work lenses. Although based on a single interview, it offers contextual insight into individual and collective empowerment processes.

Trustworthiness

This research is limited in terms of generalizability, as it is based on a single case. The findings are shaped solely by the experiences and narratives of the narrator under examination. Furthermore, the narrator's individual motivations and sense of responsibility are at the forefront of the study; this reflects a narrative produced from a specific subjective position regarding the cooperative process and does not fully represent the empowerment experiences of different women. In this context, focusing on a single case may have led to certain experiences being open to generalization in the interpretation of the findings, with structural dynamics and contextual factors taking a back seat. Therefore, the findings should be evaluated in the context of a deep understanding of a specific experience rather than universal patterns related to women's cooperatives. In the future, a comparative analysis of these findings through more case-based research from different women's cooperatives will contribute to addressing women's empowerment

processes from a broader and more critical perspective.

Data Generation Process

The data generation process was conducted through in-depth interview. The narrator was included in the study because her life story clearly reflects her commitment to collective empowerment, and she actively shared her journey of self-actualisation with other women. A semi-structured interview form was used to guide the researcher during the interview. This form was prepared based on feminist social work, empowerment, and cooperativism literature. The interview questions were prepared based on feminist social work (Dominelli, 2017) and the empowerment theoretical framework (Thompson, 2016).

The researcher's 12 years of experience in the field of local development and field observations influenced the creation of the questionnaire. The interview was conducted in the office of the brand where the narrator served as cooperative president and lasted 90 minutes. With the narrator's consent, the interview was audio recorded and later transcribed.

Data Analysis

The analysis was based on a single in-depth interview and employed reflexive thematic analysis following Braun and Clarke's (2006) six-phase framework. Given the single-narrative dataset, the process focused on close reading and detailed engagement with the participant's account. The transcript was read repeatedly and inductively coded in MAXQDA (v. 24.11.0) to capture key experiences and patterns, which were then organised into preliminary themes by examining relationships across the narrative.

These themes were reviewed against the full interview, refined, and clearly defined before being integrated into a coherent analytic account. Throughout the process, MAXQDA supported systematic documentation of coding and theme development, enhancing transparency. Guided by a feminist social work and empowerment framework, the analysis moved beyond description to

interpret the narrator's experiences within broader contexts of gender inequality and patriarchal structures (Harding, 2004).

Ethical Dimension

The ethical evaluation of the research was conducted in line with the principles of the feminist social work approach. The narrator was provided with detailed information about the purpose, scope, and use of the research, and informed consent was obtained. In addition, the study received formal ethical approval from the Hacettepe University Social and Humanities Research Ethics Committee (Approval No: 00004250165 and Dated: 02/06/2025), ensuring compliance with institutional and national research standards.

The Researcher's Position

In this narrative analysis, the researcher's position is grounded in feminist social work and empowerment-oriented practice rather than detached observation. Feminist social work views knowledge as relational and co-produced, requiring reflexive attention to power relations and positionality (Dominelli, 2017). Accordingly, the interview was conducted as a dialogical and collaborative process that centred the narrator's lived experience as a valid source of knowledge.

Consistent with Thompson's (2016) empowerment perspective, the narrator was positioned as an active agent in meaning-making. This reflexive stance aligns with feminist social work's commitment to reducing hierarchical research relations and framing research as an ethical practice contributing to empowerment and social transformation (Dominelli, 2021).

Limitations

This study is limited by its focus on a single narrative, reflecting the specific experiences and interpretations of one narrator. This perspective foregrounds her particular meaning-making, motivations, and sense of responsibility within the cooperative, potentially amplifying certain themes while obscuring others. Furthermore, the narrator's individual

perspective should be considered as reflecting a personal interpretation of cooperative life and not fully encompassing the experiences of different women. Accordingly, the findings should be understood as context-specific rather than representative. Future multi-narrative or multi-case research would enable a more comprehensive and comparative understanding of women's empowerment processes.

Women's Cooperatives in Türkiye: Institutional Context

In Türkiye, women's cooperatives operate primarily within two institutional frameworks: Women's Entrepreneurship, Production and Business Cooperatives under the Ministry of Trade, and Agricultural Development Cooperatives with predominantly female membership supervised by the Ministry of Agriculture and Forestry. Together, these cooperatives constitute the institutional landscape of women's cooperativism, with approximately 1,200 active organisations, mainly in labour-intensive sectors such as food production, handicrafts, textiles, and local services (Ministry of Commerce, 2025).

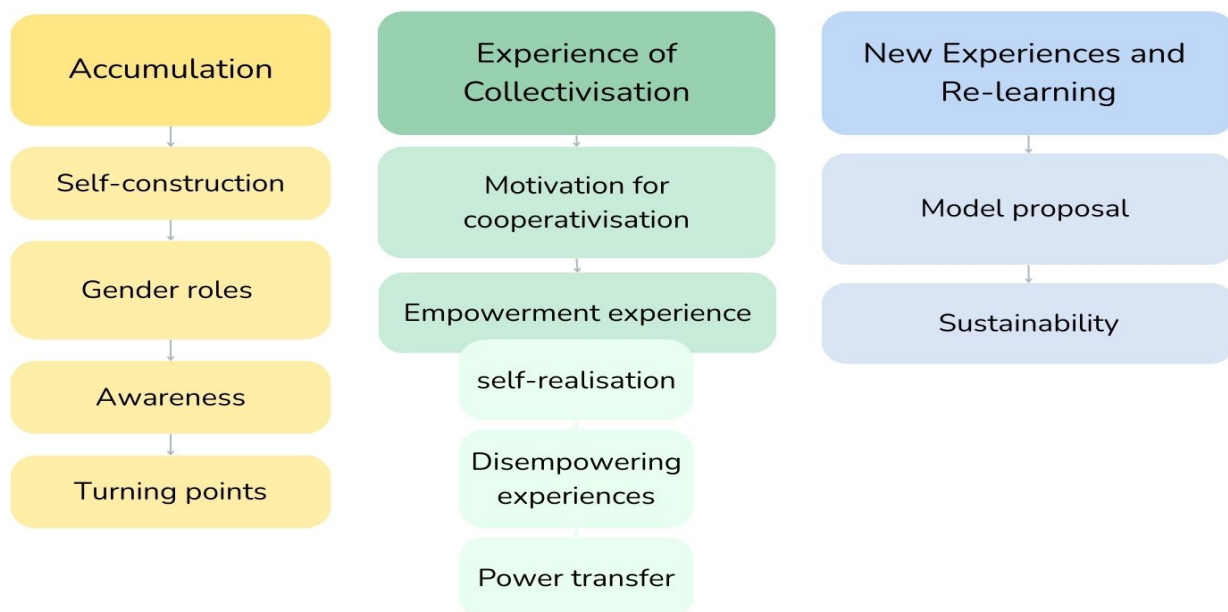
Research on women's cooperatives in Türkiye remains limited and largely embedded within broader discussions of employment and social policy, often emphasising income generation and labour market inclusion where women's access to formal employment is constrained (Buğra & Yakut-Çakar, 2010). As highlighted by Aşık Akdemir (2019), empowerment is frequently assumed rather than critically examined, with limited attention to women's lived experiences and collective meaning-making. Addressing this gap, the present study adopts a narrative approach to examine how empowerment is constructed through cooperative participation.

Findings and Discussion

The narrator is a woman who is actively involved in a women's cooperative operating in a region of Türkiye. The narrator is a 58-year-old woman with a bachelor's degree who is considered successful

by her family and strives to meet family expectations with their support. She met her husband during her education and married him after a long period of friendship. She retired after working for a long time in the public and private sectors and is the mother of two children. After her children started their bachelor's degrees and became adults, she decided to separate from her husband and made radical changes in her life.

Figure 1. Theme Map



In line with the objectives of my research, the questions I posed led me to identify three main themes: The Accumulation Process, The Experience of Collectivisation, and New Experiences and Re-learning.

Theme 1: Accumulation

In women's life stories, individual empowerment processes are often shaped by the experiences they have accumulated in the past, the gender roles assigned to them, and the strategies they have developed in response to these roles. Rowlands (1998) and Kabeer (1999) emphasise that empowerment is not merely a momentary gain but a process that progresses through the transformative effect of experiences acquired throughout life. In this context, the narrator's life story is examined within the framework of accumulation, one of the themes.

The narrator's life story is examined through self-construction, the influence of gender roles, awareness processes, and turning points in a multi-layered accumulation process that extends from the education she received in a middle-class family environment to the structural barriers she encountered in her working life, the constraints imposed by family responsibilities, and her decision to divorce.

During this accumulation process, the narrator first achieved individual empowerment and then, as her awareness of the power relations around her increased, began to question them. With this awareness, she not only rebuilt her own identity but also laid the foundations for collective organisation. Thus, "accumulation" is considered a critical stage that prepares the ground for both individual awareness and the collective process that will develop in the future.

Self-Construction

The narrator was born in Ankara as one of four daughters in a middle-class family and completed her education in state schools before entering the Department of International Relations at Ankara University, marking the beginning of her self-realisation through education. After graduating, she

married and had two sons, and worked in the banking sector for 13 years, eventually becoming a chief economist. However, the privatisation of banks in 2002 interrupted her career trajectory. Despite having the qualifications to pursue higher positions in the private sector, she chose a lower-risk position in the public sector to secure her family's financial stability, while her husband took more career risks. She explains this decision as follows:

"I couldn't take that risk. Because I thought, what if we both lost our jobs? What would I do with two children? Would I go back to my family? What would we do? How would we survive? Out of that fear, I joined the civil service."

This statement illustrates how the narrator internalised gendered expectations that position women as responsible for security and caregiving, while men are expected to take risks and pursue success. As Walby (2016) notes, patriarchy functions as a structural mechanism that reproduces inequality in the division of labour. Over time, the narrator's experience of male-dominated work environments and ineffective organisational processes contributed to growing awareness, accompanied by dilemmas and obstacles in her ongoing process of self-realisation.

Gender Roles

Gender roles constitute a central structuring force in women's life courses, shaping their positions within family life, employment, and collective organisations. Drawing on Lorber's (1994) conceptualization of gender as a social institution, this sub-theme examines how divorce perceptions, family norms, authority relations, and cooperative practices emerge in the narrator's accumulation process. The narrator describes the end of a 27-year relationship as a "fate" shaped by deeply embedded family codes:

"In the family I grew up in, divorce was like the end of the world. As if the whole world would collapse. The children would be miserable. You would be miserable too. That's how it was taught."

Despite her education and history of resistance, this fatalistic framing reflects internalised patriarchy, consistent with Rowlands' (1998) discussion of empowerment constraints. The narrator equates leaving with *"being miserable,"* prioritising the socially imposed responsibility of maintaining family continuity and framing divorce as a social rather than an individual decision.

Within the cooperative context, and drawing on Kabeer's (1999) resources–agency–outcomes model, the narrative indicates limited development of women's agency in early stages, as decision-making remained influenced by male spouses and women bore the consequences. Gendered authority relations were reproduced in collective settings, where women struggled to recognise female leadership while male authority was more readily accepted:

"You are our partners, not your husbands. However, in cooperatives, husbands interfere too much. Women find it very difficult to accept female authority. If there is a man, they listen to whatever he says. Or they form cliques among themselves."

The narrator further highlights how women's submission to male authority is culturally reinforced:

"If a man claims you as his own, you don't face many difficulties in society. But if a woman claims you as her own, it doesn't provide the same advantage."

These accounts demonstrate that gender roles are internalised not only at the individual level but also within collective practices, sustaining hierarchy and inequality even in ostensibly egalitarian structures.

Awareness

The narrator experiences an internal conflict while describing the conditioning of *"good school–good job–good income"* brought about by youth and upbringing. A critical turning point in her life emerges with an experience where she *"came face to*

face with death". This experience led the narrator to ask the following question:

"If I had died the next day... Am I satisfied with myself? Did I live as I am?"

This existential questioning produced a divergence between the old values and new desires, as she later reflected:

"If you had died the next day... You lived for the first 48 years. Was it a life? Are you satisfied with yourself? Did you live as you are? ... Either I will be myself or..."

The narrator expresses that she no longer wishes to spend her life fulfilling the roles of "good wife," "good mother," and "good daughter," choosing instead to prioritise her inner motivations and true self. From a feminist perspective, female agency refers to women as active subjects capable of questioning and transforming the patriarchal limits placed on their lives rather than passively accepting them (Walby, 2016). Having gained strength, the narrator began to question surrounding power relations with greater awareness, demonstrating her growing consciousness and empowerment during this process.

Turning Points

Turning points represent critical moments of rupture in women's life stories that significantly shape empowerment processes and levels of awareness. These moments may emerge through education, professional life, family relations, or existential experiences. In the narrator's case, such turning points initiated a trajectory toward self-actualisation, understood here in line with Maslow's (1943) hierarchy of needs as the realization of one's potential and the construction of a meaningful life aligned with personal values.

The narrator identifies her educational trajectory—particularly her success in the university entrance examination and admission to Ankara University's Faculty of Political Sciences—as an early turning point. Despite her interest in fine arts, her family's conditioning of "good school—good job—good

money" determined her choices. Quickly entering the workforce after university, she took exams for many public institutions and achieved successful results, but was eliminated due to incompetent practices in the interview:

"You take the English exam, you come first, you come second. I entered the Treasury, I entered the Capital Markets Board, I entered the Central Bank. (...) The English exams are always like that. You pass the science exams. There is no oral exam. (...) We are now concerned about the caste system in India. What system is this? This is the nepotism system".

These experiences led the narrator to experience disappointment as a result of encountering incompetence and to develop a critical awareness of working life.

For the narrator, the decision to divorce was not only the end of a marriage but also part of an existential transformation. In particular, an experience where she came face to face with death led her to question his life:

"If you had died the next day... You lived for the first 48 years. Was it a life? Are you satisfied with yourself? Did you live as you are? ... Either I will be myself or..."

This experience led the narrator to question her life shaped by social expectations—being a good wife, mother, and daughter—and to embark on a quest for selfhood. The emotions following this period marked a turning point, pushing her to seek not only basic needs but also creativity, authenticity, autonomy, and meaning (Maslow, 1943). Within her empowerment process, the need for self-actualisation drove her to move beyond individual fulfilment, aiming to transform her personal journey into collective benefit despite gender inequalities.

Throughout this accumulation process, she strongly criticised the nepotism and incompetence system in Türkiye, which she described as one that destroys people's labour and dreams. The tragic outcomes faced by her colleagues, such as cancer and suicide attempts, deepened this critique. These

observations showed that personal turning points arise not only from individual crises but also from structural problems, guiding her towards collective tools for structural transformation.

Theme 2: The Experience of Collectivisation

In the participant's narrative, the movement from individual accumulation toward engagement with a cooperative mark a distinct shift in how empowerment is experienced. Rather than signalling a generalised process, this transition reflects the narrator's own effort to translate her accumulated life experiences into a collective setting. From her perspective, participation in the cooperative created opportunities to share personal struggles, exchange knowledge, and engage in collective practices that were experienced as qualitatively different from individual economic activity.

Within this narrative, collectivisation is described not merely as economic cooperation but as a process through which learning, mutual support, and a sense of shared responsibility emerged through everyday interactions. The narrator recounts how her personal empowerment trajectory became intertwined with collective practices inside the cooperative, allowing her to situate individual experiences within a broader relational context. Interpreted through feminist social work and empowerment literature, such experiences resonate with conceptualisations of collectivisation as a relational and context-dependent process that may enable solidarity, critical awareness, and shared agency, without assuming that these outcomes are inherent to all women's cooperatives (Batliwala, 1994; Rowlands, 1997; Kabeer, 1999).

Motivation for Cooperativisation

The narrator encountered inequalities created by merit issues in employment processes during the accumulation process and stated that this had become a permanent "wound" for them. Therefore, the dream of establishing an employment system where individuals could provide for themselves through their own labour and without needing anyone's mediation formed the basis of the narrator's motivation for cooperativisation:

"Employment is actually a wound from my own story. When entering public service, you know very well that you have no connections to rely on. ... But I needed a tool. A system where people can earn their own bread without needing anyone's connections. Cooperatives are the best tool for this."

With this in mind, she decided to channel her accumulated knowledge into cooperativism, a structure capable of facilitating structural transformation. She first initiated efforts to encourage women's participation in the workforce at the local level. She used her expertise in project writing as a tool and prepared a project for a traditional product that was in danger of disappearing, drawing on her awareness of her own culture. The participation of women in the training sessions 1401rganized within this project was one of the turning points in the process. While the men preferred industrial-type production and did not continue the training, the women's perseverance and aptitude for collective production led to the emergence of a collective enterprise idea:

"The women in that course didn't want to give up... Then they said, 'Let's do something together.' That's how the idea of a women's cooperative came about."

Drawing on her own experiences, the narrator viewed the cooperative as an instrument of structural transformation, aiming to create a model where women could be employed without being bound by patriarchal structures.

Empowerment Experience

The sub-theme of empowerment experience addresses the process of developing an alternative empowerment mechanism based on women's own life experiences. The narrator's personal struggles led to her gaining individual awareness and, in this process, she was directed towards trying new paths. While trying new paths, she witnessed the powerlessness of the women she set out with. The narrator resolved these witnessed powerlessness

issues using her own power transfer methods, carried out processes to empower women, and realised herself through these experiences. In this context, "self-actualisation" encompasses not only individual satisfaction but also the capacity to produce collective benefit (Maslow, 1943; Kabeer, 1999).

Self-Actualisation

After many years in public institutions, the narrator began to question her professional experiences and framed her search for meaning through the concept of self-actualisation, understood as creating a system aligned with her own values. This awareness led her to view self-actualisation not merely as individual success but as a process through which personal empowerment could generate social transformation via collective structures. Within this framework, the cooperative emerged as the space where individual fulfilment intersected with collective empowerment.

The idea of establishing a cooperative developed around craft-based production, which the narrator described as a "lifelong quality" enabling women to build independent identities through their own talents, without dependency on others. She illustrated this goal through the example of women recognised individually by the Ministry of Culture and Tourism:

"Even if they didn't do anything, the Ministry of Culture invited them to events without any connection to the cooperative. With their own identities. That was my goal. They can leave me, they can stay with me, but they have something lifelong in their hands."

The narrator identifies strengthening the cooperative through project writing while simultaneously supporting women's professional identities as a key turning point in her life. From the perspective of Kabeer's (1999) resources–agency–achievements framework, her empowerment becomes visible in the transformation of her accumulated knowledge and experience into shared resources that foster women's agency and create

pathways for collective empowerment within patriarchal structures.

Disempowering Experiences

Women's experiences in the cooperative process are not uniformly empowering; misconceptions, divergent expectations, and structural shortcomings may instead produce disempowering effects. The narrator highlights that women's initial distancing from the cooperative stemmed from a limited understanding of cooperativism as solely an economic arrangement, rather than a social and collective one. She explains women's difficulty in grasping cooperative partnership as follows:

"You have the cooperative fixed in your mind, but each woman who says she wants to be a member has something different in her mind, an expectation. For example, one person sees the cooperative as an established company and thinks of herself as an employee. They are not aware that they are the employers of the partnership. No matter how much you explain, they only understand as much as they can. They only focus on how much money they can earn. They wonder when we will become wealthy, or whether the state will provide us with support."

She stated that being a cooperative member means being an employer as a business owner, and that perceiving oneself as an employee within this structure is disempowering for women and undermines collective empowerment. She observed that, due to this lack of awareness, the cooperative president and board expected all solutions to emerge from a "worker reflex" instead of taking shared responsibility. This reflex, she explained, is rooted in gender roles positioning women as subordinate within the family (Mooser, 1993) and in the perception of women's labour as invisible and secondary in the home (Folbre, 1994). The narrator further notes that cooperatives established under local authority influence often reinforce this hierarchy, limiting the development of genuine partnership and collective responsibility.

Another example of a disempowering experience shared by the narrator is the resistance to sharing knowledge and skills. This perspective, initially an individual master craftsman attitude, has also been observed among women within the cooperative. On the other hand, sharing knowledge and skills in cooperatives is one of the most important elements of collective empowerment, and the narrator expressed that this process does not always work ideally with the following words:

"Something is happening here now. If people do not have a sense of collective work or a sense of sharing what they have learned with others, then after becoming masters, they too begin to take on the structure of the old traditional masters. That is, not teaching. That is, keeping the craft to myself."

This observation shows that the lack of knowledge sharing can function as an element that hinders collective empowerment, reinforces individual hierarchy, and can be disempowering. As Rowlands (1997) points out, empowerment occurs not only at the individual level but also at the relational and collective levels; the failure to share knowledge and experience weakens this collective dimension. Similarly, Freire (2003) emphasises that the unilateral hoarding of knowledge reproduces oppressive relationships. In this case, there is a risk that knowledge will be used as an instrument of power rather than solidarity between the skilled partners within the cooperative and other partners or women with the potential to join the cooperative.

The interview with the narrator showed that women's experiences in cooperatives are not limited to economic production, but also involve situations where gender roles are reproduced and questioned. The narrator's narrative includes:

"When you set up the cooperative, you say to the women, 'Are you a partner?' (...) no matter what we discussed, they would share even company secrets with their husbands and seek their approval. They would say, 'My husband said this, we should actually do that'. I warned them

every time: You are my partners, not your husbands. We are all each other's partners, not our husbands or our children."

The narrator's statements show that women often define cooperative partnership through their husbands and that men's influence persists in decision-making processes. The narrator emphasises that this situation is a significant obstacle to women's entrepreneurship: She also mentions that women's difficulty in accepting female authority and their separation into groups leads to a weakening of collective power. Consulting men and the need for male authority demonstrate that patriarchal structures continue to be reproduced within collective structures, confirming Lorber's (1994) finding that gender inequality is a constructed and perpetuated structure.

Power Transfer

In the cooperative process, the narrator sees it as a fundamental responsibility to pass on her knowledge and experience to other women. The participant aims for the cooperative to be not only a place of production but also a mechanism for acquiring lifelong skills and strengthening personal identity:

"After those women come here and work diligently, they can say, 'I have a lifelong skill, something no one can take away from me.' That was my goal. They can leave me, they can stay with me, but they have something lifelong in their hands."

The narrator facilitates women's acquisition of professional skills through coordinated courses while supporting their personal development. This approach views power transfer not only as technical knowledge sharing but also as building self-confidence and identity, aiming to transfer accumulated knowledge to the collective for structural transformation.

In joint decision-making, a key cooperative principle, the narrator employed methods strengthening transparency and collective participation, ensuring all partners' involvement. Even

on potentially conflicting issues like membership fees, it encouraged direct responsibility and collective accountability.

The narrator adapted its strategic planning experience to cooperative work, transforming it into an educational tool to raise members' awareness. After drafting a project, qualified personnel support was sought, but amid uncertainty, the narrator used gamified role-playing to discuss different actors' perspectives with members:

"I said, let's play a game. I put a piece of paper in front of everyone. One of you is the Ministry of Trade, one of you is our cooperative, one of you is other women's cooperatives... So our confused friend heard all the variations and was convinced."

In the gamification method used by the narrator, the assigned roles enabled the women to concretise the process and the decisions they made in a way that empowered them individually. As Freire (2003) emphasised in "democratising the teacher-learner relationship," the narrator structured the transfer of power as a process of collective learning and consciousness raising rather than a one-way transfer of information. This practice is an example of the narrator transferring the strategic planning knowledge she acquired in state institutions to cooperative members. The narrator used her accumulated knowledge as a means of power transfer. In her journey towards cooperativism, which she described as a "field for integrating experience" using her own accumulated knowledge, the narrator sought to transfer not only her technical knowledge but also her values, coping strategies, and rights-based and inclusive perspective within the framework of her beliefs to other women.

Theme 3: Re-learning through New Experiences

Under the theme of re-experiencing and re-learning, the narrator's process of rebuilding new paths by re-evaluating past experiences is examined. This involves reconstructing accumulated individual experiences within the cooperative's collective structure, seen as a "space for integrating experience."

With her growing awareness, the critical life experiences she encountered—consistent with transformative learning theory—led the narrator to question established thought patterns and develop new perspectives, contributing to her ongoing empowerment (Mezirow, 1991).

The participant's narrative suggests that the cooperative functioned as a space of relearning through collective experience. With these new insights, subjects critically examine their assumptions, address cooperative sustainability and educational needs, and express efforts to build strong cooperatives through a proposed model. The narrator's reflective experiences reveal a learning process oscillating between continuity and transformation, reproducing Kabeer's (1999) triad of resources, agency, and achievements within empowerment.

Sustainability

The narrator emphasises that the most important factor for the long-term success of cooperatives is job creation, which also fulfils their own purpose. According to her, sustainability can be achieved not only through continuous production but also through members gaining awareness about cooperative management and seeing themselves as partners and employers.

"The most important thing is to create employment for them to ensure continuity. Let's say that over time, the person you created employment for has gained a certain awareness. They have formed ideas in their mind about how a cooperative works and what a cooperative manager is like. They have that responsibility, and then they should become a member."

The narrator suggests that women should first engage with the cooperative as workers and become members only after developing awareness and completing training. Learning is framed not merely as income generation but as organisational learning and the formation of participatory consciousness, ensuring responsible and committed membership and

the continuity of the cooperative. This approach aligns with Mezirow's (1991) reflective learning theory and Kabeer's (1999) notion of agency, as experience and critical reflection transform workers into conscious partners.

Model Proposal

As a result of the cooperative experience, the narrator has turned towards developing a more sustainable and functional organisational model through reflective thinking. They observed that the most significant flaw in existing cooperative structures is the failure to establish structures that combine "knowledge and labour" by bringing together people with different competencies. Within this framework, they expressed the proposed model as follows:

"One person is a purchasing marketer, one is highly skilled in e-commerce, and one is an expert in export support. When you establish such a team and begin working, you combine labour and expertise. Together, you can proceed more consciously."

In this new learning process shaped by the experiences of the narrator within the cooperative, the narrator emphasised that collective empowerment cannot be achieved through individual cooperatives alone, and that cooperatives must come together to form alliances for advocacy activities aimed at structural transformation. She stated that through these unions, public support, such as social security contributions and tax reductions, could be demanded more strongly, and advocacy activities towards collective empowerment could be carried out. She also argued that under the union structure, different women's cooperatives could establish and utilise shared facilities, benefiting from professional support such as shared accountants, lawyers, and managers.

"For example, if there were such a union, if it had its own lawyer, its own accountant who only looked after the affairs of those cooperatives, its own manager, and if these costs were shared... If you had such a union, you would be

really strong, and you would also provide employment."

According to the narrator, this model would enable cooperatives to avoid dependent structures shaped under the control of local governments and to strengthen themselves while maintaining their autonomy. Within this proposed model, the narrator translates Kabeer's (1999) conceptualisation of agency in the context of empowerment from an individual level to a collective one, transforming it into an institutional model proposal.

Conclusion and Recommendations

This presentation of the phenomenon reveals how individual empowerment processes evolve into collectivisation through a woman's life story and how women's cooperatives carry transformative potential within the context of a feminist social work perspective. Within the participant's narrative, growing awareness of gender roles, structural barriers, and patriarchal pressures is described as shaping a movement from individual empowerment toward collective solidarity. The stages, referred to in different ways in the empowerment literature but serving a common purpose (Lee, 2001; Rowlands, 1997; Kabeer, 1999), have materialised in the narrators' experiences. The narrator first constructed her identity by effectively using her resources, then took action by discovering her own agency through increased critical thinking and awareness, and finally turned to cooperativism as a collective experience to contribute to structural transformations.

In the participant's narrative, her effort to share the experiences accumulated throughout her life with other women through the cooperative reflects a desire to extend her individual empowerment into a form of collective benefit. This orientation emerges from the narrator's own understanding of cooperativism as a means of working collectively with other women. Within her account, the cooperative is described not only as an economic organisational arrangement but also as a setting in which she sought opportunities for shared learning, mutual support, and the exercise of agency through collective practice.

From the narrator's perspective, the choice of cooperativism is grounded in its perceived potential to offer collective protection against patriarchal pressures and to enable women's participation in social and, to a limited extent, political processes. She describes mobilising her own resources—such as project-writing experience, organisational and management skills, and an inclusive approach—in order to contribute to the establishment of a cooperative with other women. These efforts are narrated as part of her attempt to support women's social and economic empowerment within a collective framework, rather than as evidence of a universally transformative cooperative model.

At the same time, the findings also capture how cooperative participation may be experienced as disempowering within this narrative. The participant describes situations in which cooperative structures became closely aligned with local development policies, operated under municipal influence, or reproduced hierarchical relations. In her account, women's positioning as workers rather than partners, along with reluctance to share knowledge and experience, are perceived as factors that constrained agency and weakened the collective potential of the cooperative. These experiences underscore the ambivalent and context-dependent nature of empowerment as narrated by the participant, rather than suggesting a uniform outcome of cooperative participation.

These findings suggest that women's cooperatives should be approached not only as economic initiatives but as social policy instruments that require a feminist social work perspective. The narratives highlight the need for policies that centre women's experiences, strengthen empowerment processes, and address the reproduction of patriarchal relations within cooperative structures.

From this perspective, enhancing partnership awareness, supporting women's agency, and fostering collective capacities for structural transformation are essential policy priorities for ensuring the social and economic sustainability of women's cooperatives. Accordingly:

- Educational programmes focusing on cooperative partnership, self-esteem, and participatory management are needed, as the narrator's account revealed that many

women perceived themselves as workers rather than co-owners and had limited awareness of shared responsibility and democratic decision-making within the cooperative.

- Mechanisms that encourage knowledge and skill sharing should be prioritised, since the narrator identified resistance to knowledge transfer and the reproduction of hierarchical relations among women as disempowering dynamics that weakened collective learning and solidarity.
- Professional advisory support (e.g., accounting, legal, marketing expertise) organised through women's cooperative unions emerges as a critical need in response to the narrator's experience of dependency on local administrations, which constrained women's autonomy and decision-making capacity.
- Collective organisation under federations or unions is suggested in light of the narrator's expressed difficulty in addressing structural constraints—such as policy influence, market access, and sustainability—at the level of a single cooperative.
- Support programmes designed according to feminist solidarity principles and long-term capacity building are recommended, reflecting the narrator's critique of short-term, project-based incentives that prioritised immediate outputs over women's sustained empowerment and agency.
- Public institutions and policymakers are encouraged to recognise women's cooperatives as empowerment-oriented social structures, rather than merely employment-generating mechanisms, as the narrator's experience demonstrates that narrow economic framings risk reproducing hierarchical and disempowering arrangements.
- Supportive social service mechanisms, particularly care-related services, should be considered in policy design, as the narrator's account highlights how unpaid care responsibilities and gendered roles continued to shape women's participation and

limited their sustained engagement in cooperative work.

In conclusion, women's journeys from individual accumulation to cooperative engagement not only narrate personal stories but also reflect broader processes of social transformation. This narrative analysis demonstrates how cooperativism, viewed through a feminist social work perspective, can serve as a tool for both individual empowerment and social justice, illustrating the transfer of power through experiences of disempowerment and accumulated knowledge. Therefore, it is crucial to foster both academic and policy awareness to position women's cooperatives at the center of gender equality and sustainable development.

Declarations

Funding: No funding was received for conducting this study.

Conflicts of Interest: The authors declare no conflict of interest.

Ethical Approval: Ethical approval was obtained from the Hacettepe University Social and Humanities Research Ethics Committee (Approval No: 00004250165, Date: 02/06/2025). The study was conducted in accordance with institutional and national research ethics standards

Informed Consent: The narrator/participant was informed about the purpose, scope, and use of the research, and informed consent was obtained. Consent was also obtained for audio recording, and the interview was subsequently transcribed.

Data Availability: The dataset generated during this study (web-based survey responses) is not publicly available due to the confidentiality/anonymity commitments made to participants and the ethical approval conditions. De-identified data may be made available by the corresponding author upon reasonable request and in line with relevant ethical requirements/approvals.

AI Disclosure: The qualitative dataset (audio recording and transcript from a single in-depth interview) is not publicly available due to confidentiality commitments and ethical considerations. De-

identified excerpts and/or analytic materials may be made available by the corresponding author upon reasonable request, subject to ethics requirements.

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