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## Crisis Entangled – Reimagining the Social in Turbulent Times

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**Editorial**

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

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RESEARCH ARTICLE

OPUS Journal of Society Research

# The Mediating Role of Crisis Support in the Effect of Work Stress on Emotional Exhaustion Following Crises and Disasters

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## Abstract

*The success of businesses is influenced by a number of factors; however, the human factor is arguably the most significant. In the present study, the extant literature on the subject was reviewed, with a view to examining the relationship between job stress, emotional exhaustion and crisis support, and the impact of these factors on employees' behavior and conduct. The objective of the present study is to examine the impact of crises and disasters, particularly the 6 February 2023 earthquake, on individuals and communities. The objective of this study is to examine how crisis and disaster periods affect the emotional exhaustion levels of personnel working in SME in Kahramanmaraş and Hatay. Moreover, the study endeavors to ascertain how crisis support influences this relationship. The findings of the research indicate that job stress exerts a negative and significant influence on crisis support, while emotional exhaustion demonstrates a positive and significant relationship with the same outcome. The findings of the research study indicate that emotional exhaustion from the crisis support is negatively and significantly associated with the outcomes. The research findings demonstrate that subsequent to incorporating the crisis support variable into the model, the analysis conducted reveals that the crisis support variable exerts an effect as an intermediary. However, this effect is deemed to be of negligible significance. Therefore, it can be posited that the effect of job stress on emotional exhaustion is partly mediated by crisis support. A study is required to examine the concepts of job stress, emotional exhaustion, and crisis support in relation to the workforce. The objective of this study is to provide a comprehensive analysis of the three concepts. The significance of the present study is underscored by the dearth of research in this domain.*

**Keywords:** *Crisis, Crisis Support, Job stress, Emotional Exhaustion, SME.*

## Öz

*İşletmelerin başarısını direkt olarak etkileyen ve örgütün en önemli kaynaklarından biri insan faktörüdür. Bu çalışma da örgüt içinde insan faktörünün tavır ve davranışlarını etkileyen iş stresi, duygusal tükenmişlik ve kriz desteği gibi kavramların literatür taramaları gerçekleştirilmiş ve bu üç kavram arasındaki ilişkiler analiz edilmiştir. Bu araştırmanın amacı, daha önce özellikle 6 Şubat 2023 depremi olmak üzere kriz ve afet dönemlerinden etkilenmiş olan, Kahramanmaraş ve Hatay ili KOBİ'lerde görev yapan personellerin kriz ve afet dönemleri sonrasında iş streslerinin duygusal tükenmişlik düzeylerini nasıl etkilediğini ortaya koymak ve kriz desteğinin bu etkileşimde nasıl aracı bir rol oynadığını belirlemektir. Araştırma sonuçlarına göre; iş stresinin kriz desteğini negatif ve anlamlı olarak, duygusal tükenmişliği ise pozitif ve anlamlı olarak etkilediği görülmüştür. Araştırmanın bir diğer analiz sonuçlarına göre; kriz desteğinin duygusal tükenmişliği negatif ve anlamlı olarak etkilediği ortaya çıkmıştır. Araştırma verilerine göre, aracı değişken olan kriz desteği modele dahil edildikten sonra gerçekleştirilen analizler sonucunda, kriz desteğinin aracı bir etkisi olduğunu ancak bu etkinin anlamlı bir etki olmadığı ortaya çıkmıştır. Dolayısıyla iş stresinin duygusal tükenmişlik üzerindeki etkisinde kriz desteğinin kısmi aracılık rolü olduğu söylenebilir. Kriz sonrası dönemlerde çalışanların iş stresi, duygusal tükenmişlik ve kriz desteği ile ilgili kavramların üçünü birden inceleyen araştırma olmaması araştırmanın literatüre katkı sağlaması açısından önemini ortaya koymaktadır.*

**Anahtar Kelimeler**: *Kriz, Kriz Desteği, İş Stresi, Duygusal Tükenmişlik, KOBİ.*



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## Introduction

Throughout history, individuals and societies have experienced diverse socio-cultural, economic, and environmental transformations that have shaped their futures. With the rapid advancements in information technologies, the dynamics of social development have become increasingly complex. Within these processes of transformation, individuals have occasionally found themselves confronted with various forms of chaos and crises. As integral components of the social system, institutions and organizations have also been affected by these crises and continue to be exposed to their consequences (Aksu, 2009). Uncontrollable phenomena such as earthquakes, fires, floods, volcanic eruptions, soil and water pollution, environmental degradation, and climate change create conditions conducive to crises. These situations are distinguished by their extraordinary nature, their long-lasting societal impact, and the inadequacy of crisis-prevention mechanisms (Pira & Sohodol, 2020; Küçükaltan et al., 2015).

On February 6, 2023, a 7.7 magnitude earthquake struck at 4:17 a.m. in Pazarcık, Kahramanmaraş, affecting 11 provinces, including Hatay,and causing more than 50,000 deaths. The first earthquake, which occurred at 4:17 a.m. with a magnitude of 7.7, was centered in Pazarcık, Kahramanmaraş, and the second earthquake, which occurred approximately 9 hours later with a magnitude of 7.6, was centered in Elbistan. These earthquakes had economic, social, cultural, and behavioral effects on society. (Erdoğan, 2023). The February 6, 2023 Kahramanmaraş-centered earthquakes have secured an important place in Turkish and world history among major earthquakes and disasters. The earthquake resulted in profound human, individual, societal, health, social, economic, architectural, urban, technological, psychological, cultural, agricultural, legal, administrative, and demographic impacts. While first aid and ongoing support continue, we have entered a period where forward-looking action plans are being widely discussed. It is abundantly clear that action plans must be prepared with inclusive and multidisciplinary perspectives and implemented flawlessly. It is vitally important to address the earthquakes with a multidisciplinary understanding, make assessments, and develop solutions accordingly. The healthy presentation of the human, environmental, architectural, urban, demographic, technological, sociological, psychological, economic, agricultural, health, cultural, legal, and political problems in the emerging picture will reveal the success of the rehabilitation and ensure that the solutions progress in a planned and healthy manner (Aytıs, 2023).

From an organizational perspective, crises may emerge as a result of both internal and external factors, either independently or in combination. Internal factors generally include deficiencies in information resources, the abundance of irrelevant or outdated knowledge, insufficient communication and coordination, the existence of divergent value systems leading to organizational conflict, and inadequate planning. External factors encompass political and legal reforms, technological developments and transformations, socio-economic and cultural changes, scarcity of resources, occupational accidents, corruption, natural disasters, and managerial inefficiencies (Dubrovski, 2016; Güngör, 2020; Asunakutlu & Safran, 2004; Ağca, 2021). Prolonged crisis periods disrupt business processes, diminish managerial effectiveness, and reduce productivity. As a natural consequence, employees develop heightened fears of unemployment and concerns for the future, which may generate organizational panic. Job insecurity, in turn, increases workplace stress and tension, fostering emotions such as hostility, resentment, and anger. These dynamics weaken organizational and interpersonal communication, undermine employees' capacity to make sound and rational decisions, and ultimately lead to emotional exhaustion or disengagement, thereby exerting a detrimental influence on the organizational climate (Ekinci & İzci, 2006). Consequently, the psychological impact of crises on human resources the most critical determinant of organizational success may result in significant adverse outcomes. In this regard, investigating job stress and emotional exhaustion among employees is of considerable importance. Providing organizational support during crises constitutes a crucial mechanism for alleviating or mitigating such negative psychological effects.

This study is expected to make a noteworthy contribution to the literature, as it is conducted within the context of SMEs (Small and Medium-Sized Enterprises) and, unlike prior studies, simultaneously examines three interrelated variables: job stress, emotional exhaustion, and crisis support. Moreover, the study is anticipated to serve as a practical guide for SME managers in enhancing organizational performance. Specifically, the aim of this research is to examine how job stress influences the emotional exhaustion levels of employees working in SMEs located in the provinces of Kahramanmaraş and Hatay regions severely affected by previous crises and disasters and to determine the mediating role of crisis support in this relationship. The findings of this study are expected to provide valuable insights for improving managerial decision-making processes in organizations.

**Literature Review**

This section provides background information on job stress, crisis support, and emotional exhaustion, which form the basis of this study.

**Crisis and Crisis Support**

The term "crisis" has been defined in various ways by researchers working in different disciplines. Studies that address crisis at the organizational level define the concept of crisis as "an unforeseen and unexpected situation that requires immediate response from the organization, which overwhelms the organization's prevention and adaptation mechanisms and threatens its existing values, goals, and assumptions" (Duğan & Koç, 2020; Tagraf & Aslan, 2003). A crisis is also seen as a surprise, panic, uncertainty, shock, fear, threat, and stress (Burnett, 1998). Similarly, Kernisky (1997) defines a crisis as "a major mismatch between an organization's expectations and what is happening in its environment." A crisis is an extraordinary period with all its characteristics (Tekin, 2015). Information transfer is one of the most important dimensions of crisis management during crisis periods, but it is also a situation that must be planned before the crisis (Demirtaş, 2000). Crises that disrupt the routine functioning of an organization and arise unexpectedly are a complex process that emerges in different sectors and even completely different systems due to the convergence of many factors, such as deficiencies in the system that affect the economic, social, traditional, psychological, and legal aspects of the organization, natural disasters or epidemics on the other side of the world, or the supply chain. (Antusak, 2005; Dubrovski, 2016; Güngör, 2020). According to Vergiliel (2014), crises should be viewed from three different perspectives. These are, in order, the psychological, socio-political, and technological-structural perspectives. From a psychological perspective, crises are unexpected, uncertain, emotionally charged, and complex events. Both managers, employees, and stakeholders are psychologically affected and harmed by crises. From a socio-political perspective, crises are described as the emergence of cultural symbols and living ideologies. This perspective assigns different meanings to organizational crises and adds various elements to crisis definitions.

The effective management of emerging crises is of great importance for the success of businesses. Crisis management is a systematic, planned, and complex set of activities carried out by a specially formed team in accordance with decisions made before, during, and after the crisis period (Aydın, 2019). When crises are managed well, they can turn into opportunities, but when they are managed poorly, they can turn into disasters along with failure. Crises that sometimes cause serious damage to institutions can result in the institution losing its reputation during the crisis or emerging from the crisis stronger, depending on the institution's response and management strategy during the process. Institutions that make wrong decisions during this period experience a loss of trust and reputation in the eyes of their target audience or employees, which also puts them in a difficult financial situation. Although rapid action is taken to manage crises when time is of the essence, every decision must be carefully evaluated to ensure that it does not cause further chaos. A wrong decision or statement can make the situation even more unmanageable (Çelik & Develi, 2024). The presence of

personnel who feel sufficiently healthy and safe is very important for crisis management (Ekinci and İzci, 2006). Therefore, crisis support is crucial for employees to recover quickly in the post-crisis period. Crisis support refers to the social support received by victims, especially after a crisis or disaster (Joseph, Williams & Yule, 1992). Andrews and Brown (1988) and Brown et al. (1986) define the concept of crisis support as the presence of individuals who are willing to listen to victims affected by the crisis, provide them with emotional and practical support when needed, and do not make the individual feel worse in any way (Elklit et al., 2001).

To ensure organizational integrity after a crisis, an assessment should be conducted following the crisis to identify the organization's weaknesses, investigate their causes, and develop restructuring strategies (Balaban, 2018). On the other hand, financial advantages in achieving goals should be explored, and considering opportunities and threats, how resources will be protected and utilized should be determined, and new measures should be taken against threats (Tutar, 2021).

**Job Stress**

The concept of stress has undergone changes in meaning throughout history. In the 17th century, "stress" was used to describe negative situations such as calamity, sorrow, misfortune, and grief. In the 18th and 19th centuries, the meaning of this concept expanded to include meanings such as pressure, difficulty, and hardship, and it was considered a situation that affected individuals, organs, objects, and mental structures (Kaya, 2010). Stress can be defined as the totality of physiological and psychological responses that the organism gives to harmful stimuli when faced with problems and demands that the individual cannot cope with using their current resources (Burman & Goswami, 2018). In this context, job stress refers to the negative effects of employees' emotional responses, such as anxiety, worry, tension, reluctance, and irritability related to work, on their work behavior (Navas & Vijayakumar, 2018).

In the relevant literature, job stress is also expressed with different concepts such as workplace stress, organizational stress, and occupational stress (Spielberger & Reheiser, 2020; Troesch & Bauer, 2017; Burman & Goswami, 2018). In other words, job stress is the employee's perception of stress sources in the work environment and the responses they develop to this perception. This situation makes it difficult for the employee to perform their normal functions and leads to both physical and mental responses (Gül, 2007). Incorrect policies implemented within an organization can cause stress not only for employees but also for managers. In environments where job stress is intense, job satisfaction decreases, productivity declines, and absenteeism rates increase (Aydın, 2002; Richardson & Rothstein, 2008). To cope with this stress, individuals must become aware of stress management and, if necessary, receive training (Demir, 2022). Common psychological problems among individuals experiencing job stress include constant irritability, tension, interpersonal conflicts, inability to participate in teamwork, feelings of failure, depression, distraction, anxiety, and intense worry (Delice, 2018; Işıkhan, 2003). In addition, it has been found that employee turnover rates are high in organizations with high levels of job stress (Chen et al., 2011).

Another factor contributing to the emergence of stress is the urban living problems and transportation difficulties specific to the city in which the individual lives. Environmental issues such as air, water, and soil pollution, as well as inadequacies in waste and garbage management, can increase anxiety levels in individuals and lead to the emergence of stress (Eren, 1998; Özgan, 2011; Yamangil, 2024). However, an individual's lifestyle is also an important factor affecting their relationship with stress. Individuals who stray from a natural lifestyle can sometimes create their own sources of stress (Aydoğan, 2008).

Social support refers to the presence of people in an individual's environment who trust, value, and care for them. Being able to benefit from these support systems is of great importance for both the physical and mental health of the individual. It is stated that in situations where social support is insufficient, various physical and psychological disorders may arise in individuals (Batıgün, 2011).

In conclusion, job stress can have a wide range of serious effects on individuals. Although stress

can serve as a source of motivation for individuals in some cases, when this effect becomes excessive, stress can become a potential threat. If no intervention is made in such cases, the negative effects of stress can become long-term and permanent (Waters & Ussery, 2007).

**Emotional Exhaustiment**

The main focus of the burnout literature is based on clinical and social psychological perspectives. From a clinical perspective, burnout symptoms and related health issues, and from a social psychological perspective, the situational context of service professions and the relationships between service providers and recipients form the starting point for burnout research (Maslach et al., 2001). Herbert Freudenberger (1974) is considered the founding father of the burnout syndrome. The concept of "burnout," first used by Herbert Freudenberger in 1974 to describe a specific type of work-related stress, was employed to explain the emotional exhaustion, loss of motivation, and decreased commitment to work among young workers who volunteered. The author defined burnout as the depletion of internal resources resulting from failure, loss of energy, loss of power, and unmet desires (Maslach et al., 2001; Cakınberk, 2011). Burnout essentially represents a mismatch between what a person wants to do and what a person needs to do, thus emerging when there is a significant mismatch between the nature of a person's job and the characteristics of the person doing the job (Liang, 2012). Kristensen et al. (2005) argue that the basis of burnout in the Copenhagen Burnout Inventory is fatigue and exhaustion.

The symptoms of burnout manifest themselves in different ways and degrees from person to person. Although burnout occurs suddenly, it develops continuously. In order to achieve the set goal, the individual has struggled for days, weeks, months, and even years (Ören & Türkoğlu, 2006). This situation typically arises one year after the individual begins working at the organization, due to the emergence of certain factors (Freudenberger, 1975). Among the most commonly discussed organizational consequences of burnout are absenteeism, decreased organizational commitment, job dissatisfaction, and increased employee turnover (Maslach & Goldberg, 1998). (Arı et al., 2010) found that emotional exhaustion positively predicts job turnover, while job commitment negatively predicts it.

According to Lee and Ashforth (1996), emotional exhaustion, which constitutes an important dimension of burnout, is a complex process. Emotional exhaustion refers to "the depletion of an individual's emotional and physical resources." In other words, emotional exhaustion occurs when individuals feel they no longer have sufficient emotional resources to manage interpersonal stress factors (Lee & Ashforth, 1996). Emotional exhaustion represents the personal dimension of stress (Yıldızhan, Ören, Erdoğan & Bal, 2018). Individuals experiencing emotional exhaustion tend to become indifferent towards the people they work with and serve. When looking at their attitudes towards themselves, they see themselves as inadequate, unsuccessful, and worthless. This situation will also cause them to gradually distance themselves from life and their life goals. Additionally, they may exhibit a tendency to create unrest, conflict, and tension in their surroundings. However, it is not only workplace factors but also individual factors that can contribute to emotional exhaustion. For example, low self-esteem, low self-efficacy, and psychological issues can play a significant role in the development of emotional exhaustion (Kim et al., 2009). Feelings of burnout can lead to cynicism toward work as employees try to emotionally distance themselves from their jobs as a way to cope with stress (Bakker et al., 2004). The mere obligation to go to work the next day can be a major source of anxiety for someone who is already tense and anxious. For this reason, situations such as not arriving at work on time, not going to work, absenteeism, quitting work, etc., result in inefficiency for both the employee and the company (Yavaş, 2012).

**Hypothesis Development**

Due to the significant socioeconomic impacts of crises, efforts must be made to develop solutions for addressing and preventing crises at both the national and international levels (Koyuncu and

Şenses, 2004; Küçük & Bayuk, 2007; Bakan et al., 2011). Donnellan et al. (2024) found in their research that social support increases self-efficacy and compassion satisfaction levels but reduces burnout and stress levels. Akçınar & Koçyiğit (2023) examined healthcare workers' perceptions of hospitals' crisis management activities and found no significant differences based on gender, marital status, education, or experience, but significant differences based on age and healthcare worker profession. Bakan et al. (2011) found that there were significant differences in the perceptions of economic, health, and social life between individuals who stated that they were affected by the crisis and those who believed that the crisis had no effect on them. Elklit et al. (2001) conducted research to measure social support after a crisis and found that women received less support than men immediately after the trauma and later on. Young victims received the least support in the acute phase, but this situation reversed later on. Özdevecioğlu (2002) conducted a study on industrial enterprises operating in Kayseri and found that during crisis periods, authority becomes centralized, organizational communication breaks down, fear and panic increase among organization members, the quality of decisions deteriorates, and relationships between the functional departments of the enterprise break down. Among the findings obtained is that, while there is no coordination breakdown caused by the crisis itself during crisis periods, there is a general coordination breakdown. Ekinci & İzci (2006) found that as managers age, gain experience, and rise in educational level and management rank, they become more convinced of the impact of employee mental health protection policies on crisis resolution. Gül Eşki (2024) noted in her study that even in the most deadly crisis situations, effective and successful crisis management is quite important in reducing employees' fears and increasing their satisfaction levels. Uçkun et al. (2021) noted in their research that transformational and spiritual leaders are more effective during crises and stressful periods. Gürel (2016) revealed in his research that there is a positive relationship between emotional exhaustion and work stress and work-family conflict, and a negative relationship between work commitment and work-family conflict. Sütütemiz et al. (2009) noted in their study that there is a positive correlation between small business owners' feelings of hopelessness and depression during times of crisis, that married individuals are more hopeless than single individuals, and that business owners' psychological states are influential in their perception of the global crisis. Based on this information, the following hypotheses were formulated:

***H1:****There is a negative and significant effect between crisis support and emotional exhaustion.*

***H2:*** *There is a negative and significant effect between job stress and crisis support.*

Stress is an important factor affecting work life and can be shaped according to the family structure of individuals, the characteristics of the job, and the individual characteristics of the person. Work stress is a situation that arises when individuals cannot meet work-related demands and results in emotional or physical reactions (Yamangil, 2024). When examining studies on work stress and emotional exhaustion, Thompson et al. (2005) found that the support managers show to employees reduces role stress factors that lead to family harmony and conflict through emotional exhaustion, but the support shown by colleagues does not reduce stress factors. According to the results of the research conducted by Bayarçelik et al. (2019), job stress levels increase the two sub-dimensions of burnout, namely emotional exhaustion and depersonalization, while employees' positive psychological capital levels only reduce emotional exhaustion and do not affect depersonalization. Another finding indicates that female employees have higher job stress levels than male employees. Onay & Kılcı (2011) found that emotional exhaustion positively affects the intention to leave the job. Akdu and Akdu (2016) noted in their research that there is a positive and significant relationship between emotional labor, job stress, and burnout. Based on these results, they stated that as job stress increases, so do burnout and emotional labor levels, and as emotional labor levels increase, so do burnout and job stress levels. Karadirek (2021) found in his research that job satisfaction and professional emotional commitment have a significant and negative relationship with job stress and pro-

fessional burnout dimensions (decrease in personal success, desensitization, emotional exhaustion). Ülbeği et al. (2019) found a positive relationship between job stress and emotional burnout in their research. Stordeur et al. (2001) found in their studies that stress originating from the physical and social environment is significantly related to increased levels of emotional exhaustion. Günüşen et al. (2014) found in their research that there is a relationship between job stress and emotional exhaustion. Alonso et al. (2020) suggested in their research that work stress and emotional exhaustion levels may negatively affect the performance of employees in the workplace. Jackson, Schwab, & Schuler (1986) found that emotional exhaustion positively predicts the desire to leave a job. Many authors have found that women are at greater risk of burnout syndrome than men (Aslan & Bektaş, 2016). Saxton et al. (1991) also found that young people are more likely to experience burnout syndrome. Chong & Monroe (2015) determined that excessive workload positively predicts employees' emotional exhaustion levels. Erdoğmuş, Gelmiş, Katar & Gürfidan (2024) found in their study on teachers that job stress has a positive relationship with emotional exhaustion, desensitization, and a reduced sense of personal accomplishment. Candar & Aksöz (2025) found in their research results that the effect of job stress on emotional exhaustion is positive and strong, and also noted that perceived managerial support has a moderating effect on the relationship between job stress and emotional exhaustion. Bilben & Demirelli (2025) found in their research on healthcare workers that job stress statistically significantly and positively affects the dimensions of burnout and intention to leave the job. Sakallı, Temur & Özcan (2025) found in their research on occupational safety experts that stress has positive effects on burnout. Yalçın & Yılmazer (2024) determined from the findings obtained from their research data that job stress and burnout syndrome significantly affect employee performance. Based on this information, the remaining hypotheses of the study were formulated as follows:

***H3:*** *There is a positive and significant effect between job stress and emotional exhaustion.*

***H4:*** *Crisis support has a mediating role in the effect of job stress on emotional exhaustion.*

## Methodology

The aim of this study is to reveal how the work stress of personnel working in SMEs in Kahramanmaraş and Hatay provinces, which were previously affected by crises and disasters, affects their emotional exhaustion levels after crises and disasters, and to determine how crisis support plays a mediating role in this interaction. With this objective in mind, this section presents information on the analysis results obtained using SPSS and AMOS software.

## Research Model and Hypotheses

To achieve the research objectives, a quantitative data analysis-based research method and structural equation modeling (SEM) were used in the causal survey design. SEM is a method that enables both theoretical and empirical research to be conducted in a more statistically advanced manner. It has been proven by Iacobucci (2007) that SEM provides much more consistent results in detecting mediation effects. Therefore, SEM was preferred for testing the research hypotheses. SPSS 25 software and IBM Amos 24 software were used for the analysis of the research data. As a result of the literature review, the model in Figure 2 was created to test the following hypotheses.

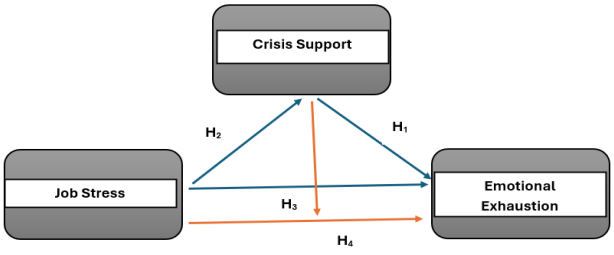


***Figure 1. Research Model***

***H1:*** *There is a negative and significant effect between crisis support and emotional exhaustion.*

***H2:*** *There is a negative and significant effect between job stress and crisis support.*

***H3:*** *There is a positive and significant effect between job stress and emotional exhaustion.*

***H4:*** *Crisis support has a mediating role in the effect of job stress on emotional exhaustion.*

**Research Universe and Sample**

The research universe consists of personnel working in SMEs in Kahramanmaraş and Hatay provinces that have been affected by previous crises and disasters. Convenience sampling was used in the sample selection. According to Sekaran's (2000: 95) acceptable sampling approach, the sample size should consist of 384 participants for a population of 100,000 or more. Therefore, the sample size was set at 384, and convenience sampling was used in the sample selection process. Accordingly, a sample size of 435 participants was deemed sufficient at a 95% confidence level and a 5% margin of error. The survey questions were created both online and on paper. These survey questions were distributed to participants through SME managers. Ethical approval for this study was obtained on August 28, 2025, at the 15th meeting of the Scientific Research and Publication Ethics Committee of Iskenderun Technical University, with decision number 5.

**Research Scales**

To achieve the objectives of the study, the local and foreign literature was reviewed, and the necessary scales for the research were determined. A questionnaire form was prepared as the data collection method, and the questionnaire questions were prepared according to a 5 point Likert scale. First, participants were asked to read the informative paragraph and then answer the questions. The validity and reliability of the scales used in the study were tested. The questionnaire consists of four sections. The first section of the questionnaire includes statements related to participants' demographic information, such as gender, age, and marital status.

***Job Stress Scale:*** In the second section of the questionnaire, Tortumlu's (2016) 13 item, single dimensional "Job stress" scale was used. In his Tortumlu study, he found the reliability analysis value for the job stress scale to be 0.939.

***Emotional Exhaustion Scale:*** The third section of the questionnaire uses the 6-item, single dimensional "Job related emotional exhaustion" scale developed by Günay (2021). Reliability analysis of the scale, the Cronbach alphainternal consistency coefficient was found to be 0.903.

***Crisis Support Scale:*** In the fourth and final section of the questionnaire, the "crisis support" scale developed by Elklit, Pedersen, and Jind (2001), consisting of 7 items and a single dimension, was used to determine the level of crisis support perceived by employees. As a result of the factor analyses conducted in this study, the sixth item of the scale was removed, and the scale was used as a single-dimensional scale with a total of six items. Reliability analysis of the scale, the Cronbach alphainternal consistency coefficient was found to be 0.820.

**Findings**

The analyses were performed using SPSS 25 and Amos 24 software. To test the suitability of the variables, a structural model was first created using structural equation modeling. After determining the suitability and validity of the structural model created for the variables, an instrumental model was created. Frequency analysis was performed on the data obtained. Frequency analyses were first performed on the demographic information of the participants. Of the participants who completed the questionnaires, 280 were male, 155 were female, 219 were married, 216 were single, 64 were primary school graduates, 90 were high school graduates, 99 were associate degree graduates, 146 were bachelor's degree graduates and 36 were post graduates. 209 participants were 18-30 years old, 159 were 31-40 years old, 57 were 41-50 years old, 10 were 41-55 years old. 169 participants worked in administrative positions, while 262 did not. Table 1 presents correlation information for the variables.

In terms of the mean values indicated in Table 1, crisis support has the highest mean (3.46) and job stress has the lowest mean. According to the correlation values, there are positive and significant relationships between job stress and emotional exhaustiment (P= .889, $p<0.01$).

*Table 1. Correlation and Descriptive Statistics*

| Dimension | Mean | Std D. | Job Stress | Emotional Exhaustiment | Crisis Support |
|---|---|---|---|---|---|
| **Job Stress** | 3.1549 | .68067 | 1 | .889** | -.512** |
| **Emotional Exhaustiment** | 3.1724 | 1.05938 | .889** | 1 | -.433 |
| **Crisis Support** | 3.4625 | .80703 | -.512** | -.433** | 1 |

*Std.D. = Standard Deviation N= 471; **p<0.01; Bold Values in Parentheses = √AVE*

According to the analysis results on the relationship between job stress and crisis support, a negative and significant relationship was found between job stress and crisis support (P= -.512, p<0.01). The analysis results also show a negative relationship between crisis support and emotional exhaustion (P= -.433, p<0.01).

**Reliability and Factor Analyses**

Cronbach Alpha values were examined to determine the reliability of the measurement tools used in the research. It is seen in Table 3 that the Cronbach Alpha values of the variables are sufficient in terms of reliability. It was examined whether the scales had multicollinearity problems, and it was seen that the VIF values had values that confirmed that there was no multicollinearity problem between independent variables (VIF<5) (Tabachnick & Fidell, 2001). Skewness and kurtosis values were examined to determine the suitability of the data for normal distribution. If these values are between +2.0 and -2.0, it means that the data are suitable for normal distribution (George & Mallery, 2019). As a result of the analyzes, it was seen that the data conformed to the normal distribution according to the specified values.

Before testing the hypotheses in the study, the analysis processes recommended by Anderson and Gerbing (1988) were applied. In this context, firstly, the analysis was performed with the structural equation modeling approach from the Maximum Likelihood Estimation module of AMOS software. Before analyzing the constructed structural model, as stated by Fornell and Larcker (1981), the appropriateness of the measurement model in terms of validity and reliability was examined.

The model fit values obtained from the model fit analyses are shown in Table 2 (Munro, 2005; Hooper and Mullen, 2008; Schumacker and Lomax, 2010).

*Table 2. Conformity Indices and Evaluation Criteria*

| Conformity Index Criteria | Normal Values | Acceptable Values |
|---|---|---|
| **$X^2$** | p>0,005 | - |
| **$X^2$/sd** | <2 | <5 |
| **GFI** | >0,95 | ≥0,90 |
| **AGFI** | >0,95 | ≥0,90 |
| **CFI** | >0,95 | ≥0,90 |
| **RMSEA** | <0,05 | ≤0,08 |
| **RMR** | <0,05 | ≤0,08 |
| **SRMR** | <0,05 | ≤0,08 |

As a result of the confirmatory factor analysis (CFA) applied to the measurement model, it was seen that acceptable fit indices were obtained: (CMIN/DF) $\chi 2/df$ = 4.011, RMSEA = 0.083, CFI = 0.825, GFI = 0.961, NFI = 0.873, TLI = 0.889. These values are within the limits accepted in the literature in terms of both construct validity and reliability of the scales used in the research (Schermelleh-Engel, Moosbrugger, & Müller, 2003; Meydan & Şeşen, 2015; Gürbüz & Şahin, 2016).

Following the CFA analysis of the measurement model of the study, the scales were evaluated in terms of concurrent and discriminant validity. For the convergent validity of the scales, the factor loadings should be higher than 0.50 and the factor composite reliability (CR) should be equal to or greater than 0.60 (Fornell & Larcker, 1981). On the other hand, the average variance explained by the constructs of the items themselves (AVE) should be greater than the unexplained variance (AVE>0.50) (Bagozzi & Yi, 1988). In addition, the square root of the AVE values calculated for discriminant validity should be higher than the correlation value of the variables in the relevant column (Fornell & Larcker, 1981). Looking at Table 3, where the reliability and concurrent validity values of the scales are given, it is seen that the scales used in the measurement model provide a very strong concurrent validity. In addition, the $\alpha$ values of the scales are greater than .70, indicating that the validity is supported.

*Table 3. Reliability and Convergent Validity*

| | Items | Factor Value | α | CR | AVE |
|---|---|---|---|---|---|
| Job Stress | JOBS1 | ,797 | .867 | .857 | .787 |
| | JOBS2 | ,756 | | | |
| | JOBS3 | ,868 | | | |
| | JOBS4 | ,804 | | | |
| | JOBS5 | ,867 | | | |
| | JOBS6 | ,741 | | | |
| | JOBS7 | ,747 | | | |
| | JOBS8 | ,614 | | | |
| | JOBS9 | ,785 | | | |
| | JOBS10 | ,761 | | | |
| | JOBS11 | ,819 | | | |
| | JOBS12 | ,619 | | | |
| | JOBS13 | ,783 | | | |
| Emotional Exhaustiment | EMO1 | ,852 | .920 | .863 | .811 |
| | EMO2 | ,854 | | | |
| | EMO3 | ,885 | | | |
| | EMO4 | ,927 | | | |
| | EMO5 | ,757 | | | |
| | EMO6 | ,661 | | | |
| Crisis Support | CRS1 | ,832 | .879 | .886 | .833 |
| | CRS2 | ,788 | | | |
| | CRS3 | ,698 | | | |
| | CRS4 | ,829 | | | |
| | CRS5 | ,792 | | | |
| | CRS6 | ,848 | | | |

## Analysis of the Structural Model

The mediation model analysis is based on Baron and Kenny's (1986) approach. In this context, the mediation effect was analyzed using the bootstrap method in line with Baron and Kenny's approach. 5000 Bootstrap was determined as the sample and data analysis was performed using the maximum likelihood module of Amos 24 software.

In the study, the mediation model was created as shown in Figure 2. As a result of the path analysis, it was seen that some parameters related to goodness of fit values were not in the desired range and the modifications suggested by the program were made respectively (e4 and e16), (e22 and 25). The fit indices of the final model were $\chi 2/df = 3.433$, GFI=.968, CFI=.914, NFI=.821, TLI=.909, RMSEA=.097. These values indicate that the mediation model has acceptable good fit indices.

Table 4 presents the analysis results related to the main research model. According to the analysis results between the variables in the table, it is seen that the independent variable of work stress negatively and significantly affects crisis support (-.432, p<0.001) and positively and significantly affects emotional exhaustion (.989, p<0.001). According to another analysis result of the study, crisis support negatively and significantly affects emotional exhaustion (-.569, p<0.001). Based on these results, the following hypotheses were accepted.

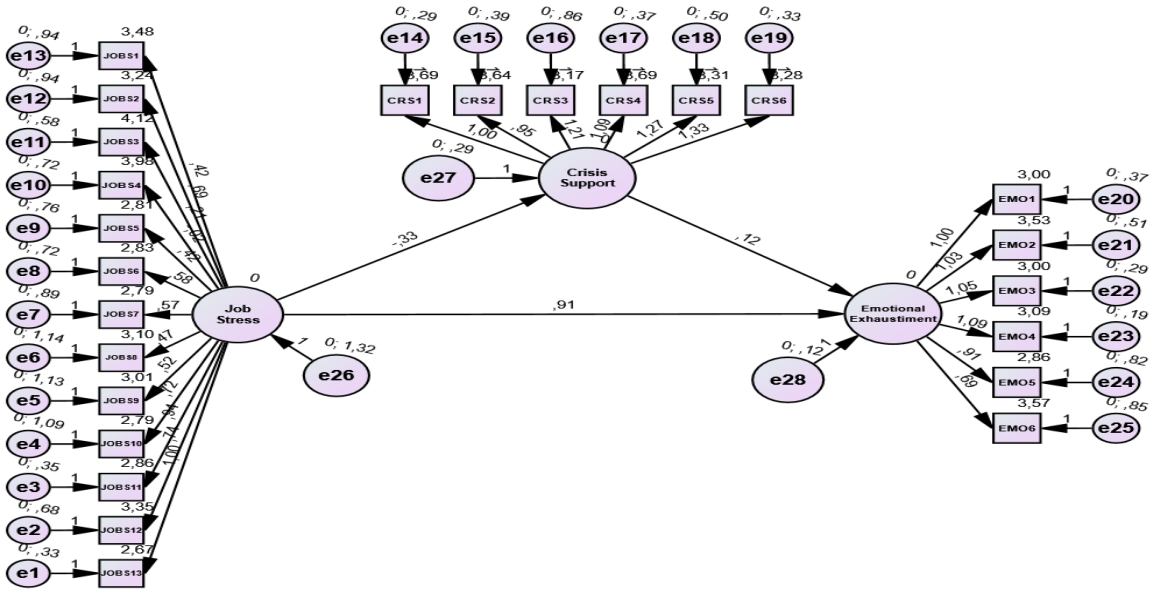


*Figure 2. Main Model of the Research*

*Table 4. Direct Relationship Analysis Results*

| | | | Coeffiecient[1] | S.E. | K.O. | P |
|---|---|---|---|---|---|---|
| **Crisis_Support** | ← | **Job_Stress** | -.432 | ,030 | -1,160 | *** |
| **Emotional_Exhaustiment** | ← | **Crisis_Support** | -.569 | ,052 | -2,210 | *** |
| **Emotional_Exhaustiment** | ← | **Job_Stress** | .989 | ,042 | 2,341 | *** |

**[1]Standardized coefficients are given; ***p<0.001; S.H.=Standard Error; K.O.= Critical Ratio**

***H1:*** *There is a negative and significant effect between crisis support and emotional exhaustion.*

***H2:*** *There is a negative and significant effect between job stress and crisis support.*

***H3:*** *There is a positive and significant effect between job stress and emotional exhaustion.*

The values in Table 3 show that the prerequisites for the mediation model are met. The results of the analysis conducted with the bootstrap method (5000, Bootstrap sample size, .95 confidence interval) to reveal whether crisis support plays a role in the effect of job stress on emotional exhaustion are given in Table 4.

*Table 5. Analyses on the Mediating Model*

| Hipoteses | Direct Effect[1] β | Direct Effect[2] β | Indirect Effect[1] β | Moderation Effect |
|---|---|---|---|---|
| **H4:Job Stress→Crisis Support→Emotional Exhaustiment** | .989 | .910 | .079 | Partial Mediating Role |

***p<0.001, β: Beta***

When the values indicated in Table 5 are examined, it is seen that work stress positively and significantly affects emotional exhaustion (.989, p<0.001) before the mediator variable crisis support is included in the model. After the mediating variable of crisis support was included in the model, it was observed that job stress positively and significantly (.907, p<0.001) affected emotional exhaustion and that there was an increase in the β coefficient (.079, p<0.001). Based on these results, it was found that crisis support has a mediating effect, but this effect is not significant. Therefore, it can be said that crisis support plays a partial mediating role in the effect of job stress on emotional exhaustion. Based on these results, ***H4:*** *Crisis support has a mediating role in the effect of job stress on emotional exhaustion* was rejected.

## Discussion and Conclusion

As the severity of the crisis increases, employees' mental health deteriorates further and they are unable to assess problems in a healthy manner. In addition, the failure to listen to the causes of uncertainty and anxiety at work puts employees under even more stress, which in turn deepens the crisis. Furthermore, the negative impact of managers' reactive behaviors during a crisis feeds the crisis. Work stress is caused by factors such as an employee bearing an excessive workload, failing to fulfill their responsibilities adequately, an unsuitable work environment, and similar reasons. An effective improvement program helps individuals experiencing stress to respond to it and relax. As the individual relaxes, their attention span expands, thereby reducing work accidents and absenteeism, increasing job satisfaction and motivation, lowering healthcare costs, and reducing the turnover rate, which is a significant financial burden on the business (Çelik, 2009). Additionally, individuals experiencing stress show a decrease in their desire to go to work and an increase in absenteeism (Margolis et al., 1974: Gupta & Beehr, 1979).

In this study, analyses were conducted using SPSS and AMOS programs to determine how work stress levels affected emotional exhaustion levels among personnel working in SMEs in Kahramanmaraş and Hatay provinces that had previously been affected by crises and disasters, and to identify how crisis support played a mediating role in this interaction. According to the analysis results, the independent variable of work stress negatively and significantly (-.432, p<0.001) affects crisis support, while it positively and significantly (.989, p<0.001) affects emotional exhaustion. According to another analysis result of the

study, crisis support was found to have a negative and significant effect (-.569, p<0.001) on emotional exhaustion. According to the study results, before the mediating variable of crisis support was included in the model, work stress was found to have a positive and significant effect (.989, p<0.001) on emotional exhaustion. After the mediating variable of crisis support was included in the model, it was observed that work stress positively and significantly affected emotional exhaustion (.907, p<0.001) and that there was an increase in the β coefficient (.079, p<0.001). The results of this study show similarities with other studies conducted on the relationship between work stress and emotional exhaustion (Erdoğmuş, Gelmiş, Katar & Gürfidan, 2024; Candar & Aksöz, 2025; Bilben & Demirelli, 2025; Sakallı, Temur & Özcan, 2025; Yalçın & Yılmazer, 2024).

In addition to these results, it was found that crisis support has a mediating effect, but this effect is not significant. Therefore, it can be said that crisis support plays a partial mediating role in the effect of job stress on emotional exhaustion. The findings of this study are consistent with previous studies (Yamangil, 2024; Thompson et al., 2005; Bayarçelik et al., 2019; Onay and Kılcı, 2011; Ülbeği et al., 2019; Stordeur et al., 2001; Günüşen et al., 2014; Jackson, Schwab & Schuler, 1986; Chong & Monroe, 2015).

As the crisis period prolongs, disruptions occur in work processes. Management effectiveness and work productivity decrease. As a natural consequence, fear of job loss and uncertainty about the future spreads among employees, leading to panic. The psychology created by the expectation of layoffs leads to increased tension among employees and the emergence of feelings such as violence, hatred, and resentment. These, in turn, cause organizational and individual communication to weaken and break down. This situation negatively affects the organizational climate by reducing or eliminating employees' ability to make healthy and correct decisions about their work and themselves (Ekinci & İzci, 2006). It can be argued that being prepared for crises and being able to cope with them has become a fundamental responsibility of business managers in every sector. Studies on crisis management generally indicate that crises are inevitable for every business at some point and that businesses must therefore be prepared for possible crises (Kash & Darling, 1988; Fink, 1986; Okumuş, 2003).

As a recommendation based on the research findings, if the factors causing stress in businesses can be eliminated, employee emotional burnout can be prevented. Especially in SMEs, organizing crisis support activities for employees after crisis periods can have a positive psychological effect on employees and may increase the success levels of the business. Another recommendation is that, based on literature and content analysis data, the relationship and effects of work stress on psychological factors such as psychological resilience, employee performance, work motivation, organizational commitment, life satisfaction, career expectations, psychological well-being, and burnout syndrome can be examined in relation to crisis support.

This study has various limitations, such as the negative structures of the concepts under investigation, the potential insecurity of employees during data collection, and concerns that the organization's responses may cause bias. In addition, the study only collected data through surveys, which limited the number of participants and generalizability. Due to time constraints, qualitative and cross-sectional data collection methods were not used. To improve future studies, the subject could be applied to smaller populations/sample groups using different research methods. The study's results may also vary depending on organizational structures, size, and legal status; non-organizational businesses may be potentially more negatively affected. Therefore, it is recommended that the differences in the research model be examined according to the size and legal status of the business.

## 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 study was obtained from the Scientific Research and Publication Ethics Committee of Iskenderun Technical University (15th meeting, Decision No. 5, August 28, 2025).*

***Informed Consent:*** *Participants were informed about the study via an introductory paragraph, and completion of the questionnaire was voluntary; consent procedures followed the approved protocol.*

***Data Availability:*** *The datasets generated and/or analyzed during the current study 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

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# Organizational Crisis Management in the Age of Disinformation: Leadership, Communication, and Resilience, A Systematic Review

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## Abstract

*This systematic review frames organizational crisis management as both a strategic necessity and a societal responsibility amid overlapping crises and rapid information flows. Synthesizing 246 Scopus articles (2010–2025), it applies SPAR-4-SLR alongside PRISMA 2020 for transparency and rigor. Bibliometric mapping with VOSviewer and Excel shows a growing field bridging management, communication studies, and public administration. Four interconnected domains emerge: (1) crisis leadership emphasizing ethical authority, trust, and adaptive decision-making; (2) organizational communication balancing timeliness, transparency, and stakeholder engagement; (3) disinformation management using fact-checking, prebunking, and real-time monitoring; and (4) integrated response frameworks pairing operational action with symbolic communication to strengthen resilience. Thematic synthesis exposes gaps: underrepresentation of non-Western perspectives, limited work at the leadership–misinformation nexus, and scant attention to ethical and political consequences of governing disinformation. These blind spots inform a research agenda. The study advances an integrative framework positioning leadership, communication, and misinformation mitigation as a unified strategic capability. Theoretically, it argues for tighter integration between crisis communication and disinformation research; practically, it underscores ethical leadership, transparent dialogue, and monitoring as core practices for sustaining legitimacy in information-rich environments.*

**Keywords:** *Leadership, Resilience, Misinformation, Crisis Management, Crisis Communication*

## Öz

*Birbirine eklemlenen krizler ve hızlanan bilgi akışları bağlamında, bu sistematik derleme örgütsel kriz yönetimini hem stratejik bir gereklilik hem de toplumsal bir sorumluluk olarak çerçevelemektedir. Çalışma, 2010–2025 döneminde Scopus'ta dizinlenen 246 makaleyi sentezlemekte; şeffaflık ve yöntembilimsel titizlik için SPAR-4-SLR protokolünü PRISMA 2020 yönergeleriyle birlikte uygulamaktadır. VOSviewer ve Excel ile yapılan bibliyometrik haritalama, yönetim, iletişim çalışmaları ve kamu yönetimini birbirine bağlayan hızla büyüyen bir alan ortaya koymaktadır. Literatürde dört karşılıklı bağlı eksen öne çıkmaktadır: (1) etik otorite, güven ve uyarlanabilir karar almayı vurgulayan kriz liderliği; (2) zamanlama, şeffaflık ve paydaş katılımını dengeleyen örgütsel iletişim; (3) doğrulama, önleyici bilgilendirme (prebunking) ve gerçek zamanlı izlemeye dayalı dezenformasyon yönetimi; ve (4) operasyonel eylemi simgesel iletişimle birleştirerek dayanıklılığı güçlendiren bütünleşik yanıt çerçeveleri. Tematik sentez, Batı-dışı perspektiflerin yetersiz temsili, liderlik-yanlış bilgi kesişiminde sınırlı çalışma ve dezenformasyon yönetişiminin etik ile politik sonuçlarına gösterilen düşük ilgiyi açığa çıkarmaktadır; bu kör noktalar geleceğe dönük araştırma gündemini bilgilendirmektedir. Çalışma, liderlik, iletişim ve yanlış bilgiyle mücadelenin birleşik bir stratejik yetkinlik olarak konumlandığı bütünleşik bir çerçeve önermektedir. Kuramsal düzeyde kriz iletişimi ile dezenformasyon araştırmalarının daha sıkı entegrasyonunu savunmakta; uygulamada ise bilgiyle doygun ortamlarda meşruiyetin sürdürülmesi için etik liderlik, şeffaf diyalog ve sürekli izlemeyi temel pratikler olarak vurgulamaktadır.*

**Anahtar Kelimeler**: *Liderlik, Dayanıklılık, Yanlış Bilgilendirme, Kriz Yönetimi, Kriz İletişimi*



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## Introduction

Crisis management in businesses has progressively evolved into a cross-disciplinary activity, integrating leadership, stakeholder communication, and the governance (or absence thereof) of information environments. A global pandemic, climate-related upheavals, political instability, and crises caused by the spread of false information online are all making things more complicated. Organizations need to come up with plans that take into account both the immediate needs of operations and the larger social effects, not just short-term containment. They become systemic, triggering cascading effects that heighten uncertainty and expose vulnerabilities. Increased complexity is further illustrated by what has been called an "infodemic", where misleading or false information spreads rapidly across digital networks, eroding trust, hindering decision-making, and heightening reputational risk. Research on crisis leadership, organizational communication, and misinformation management has significantly expanded but is often disconnected. Leadership relates to authority and decision-making, communication to the design and timing of messages, and disinformation to detection, correction, and governance. Governance (or its absence) points to how effectively regulatory frameworks, platform policies, and institutional mechanisms manage the information environment, or fail to do so. Contested truths arise when factual claims are disputed across political, cultural, or ideological lines, creating polarized perceptions of reality. The concept of an infodemic describes the rapid spread of misleading or false information in digital spaces, which undermines trust, overwhelms stakeholders, and obstructs effective responses. Finally, resilient organizations are those that not only recover from crises but also adapt, learn, and strengthen their systems in the face of disruption. The gap between these domains does not allow integrated frameworks to emerge and also retards efforts toward practical guidelines that can be made for the actualities of contemporary crises. This review seeks to bridge these divides by synthesizing research at the intersection of leadership, communication, and misinformation mitigation.

This study situates organizational crisis management within broader socio-political and cultural contexts by systematically reviewing 246 peer-reviewed articles published between 2010 and 2025. Using the SPAR-4-SLR protocol alongside PRISMA 2020 guidelines, the analysis combines bibliometric mapping with thematic synthesis to capture both structural publication trends and conceptual linkages across leadership, communication, and disinformation governance. The findings advance theoretical understanding by integrating these fragmented domains into a resilience framework, while offering practical guidance on the need for ethical leadership, transparent dialogue, and real-time monitoring systems. Although limited by reliance on a single database and a cross-sectional design, the review identifies critical blind spots including Western dominance and insufficient attention to ethical and political dimensions and contributes new insights into pathways for building resilient organizations in volatile, information-saturated environments.

## Theoretical Background

Organizational crisis management is based on several related theoretical foundations. Literature most frequently draws from three major domains: (1) models of crisis management, (2) leadership approaches to the management of crises, and (3) crisis communication and the governance of misinformation. Each has developed a considerable body of insight but in large measure, separately. An examination of 246 articles indexed by Scopus and published between 2010 and 2025 shows that, whereas individual frameworks are well established, integrated treatments that bring them together are relatively rare.

## Crisis Management Models

Classical models provide systematic methodologies for diagnosis, reaction, and learning in crisis management. The Situational Crisis Communication Theory (SCCT) (Coombs, 2007) is the most generally used framework since it looks at how well the sort of crisis, who is to blame, and how to communicate with each other match up. Another

pertinent theoretical framework is Image Repair Theory (IRT) (Benoit, 1997), which primarily focuses on rhetorical methods for reputation recovery following a crisis. Resilience-based models (Duchek, 2020) have recently transitioned the emphasis from reactive to proactive capabilities, encompassing anticipation, adaptation, and organizational learning. Since 2020, there has been a growing trend toward terms like "resilience," "adaptive capacity," and "systems thinking." This shows that the field is moving toward a new way of thinking where flexibility and change are more important than damage control. The literature has also discussed complexity theory to explain how crisis circumstances might change in ways that aren't linear and need adaptive self-organizing answers.

**Leadership in Crisis Contexts**

Leadership studies have enhanced crisis management studies by integrating several theoretical frameworks. Transformational leadership (Seltzer & Bass, 1990) underscores vision and inspiration, whereas adaptive leadership (Heifetz et al., 2009) prioritizes negotiating ambiguity and facilitating group problem-solving. Servant leadership (Greenleaf, 2013), conversely, emphasizes empathy, stewardship, and community-building attributes that have gained significance during crises characterized by pronounced social and ethical components. Sensemaking (Weick & Weick, 1995) functions as a cohesive framework among various traditions. Leaders not only make choices, but they also make sense of unclear situations and give clear stories that help the company act. Bibliometric investigations confirm the robust interconnections among leadership, trust, resilience, and organizational learning. This confirms that evaluating leadership during crises should consider not only immediate operational outcomes but also the level of legitimacy and stakeholder confidence that the individual maintains.

**Crisis Communication and Misinformation Governance**

For a long time, research on crisis communication has said that communication needs to be clear, timely, and consistent to preserve people's trust (Coombs, 2015; Ulmer et al., 2022). But the world of digital misinformation changes quickly, which makes it hard. Since 2018, there have been more studies on the "infodemic" phenomenon, which is how quickly false stories spread over official information and influence how people see things. People are coming up with new ways to have two-way conversations. In these strategies, companies pay attention to what people are saying online and move in straight away to check facts, stop rumors, and pre-bunk false claims. The term "misinformation governance," which has become more common in literature since 2021, refers to coordinated policy efforts, digital tools, and collaborations across sectors to find and stop damaging information flows.

This coming together of crisis communication and misinformation management needs a mix of skills. People who work in public relations should know how to use digital tools, analyze data, and work together to make decisions. More evidence shows that controlling false information works better when it is part of bigger resilience framework. This is because it makes the links between leadership, communication, and crisis management models stronger.

**Frameworks for Integrated Crisis Response**

Recent scholarly research emphasizes that crisis management cannot be entirely understood through leadership, communication, or misinformation governance in isolation. Integrated response frameworks, on the other hand, make organizations stronger by combining operational actions (like planning for emergencies, assigning resources, and logistics) with symbolic communication (such as framing narratives, building trust, and making claims of legitimacy). This two-pronged approach recognizes that crises are both real and imagined. Technical measures keep things operating smoothly, but symbolic gestures

change how stakeholders see and respond to the problem. Integrated governance models link management strategies with social and cultural dynamics, facilitating adaptation and communal meaning-making.

Theoretical ideas from resilience theory (Duchek, 2020) and transformation theory emphasize that resilience is cultivated not only by restoring functionality but also by facilitating learning and adaptation through cross-functional collaboration, after-action reviews, and scenario-based training. Integrated frameworks offer a comprehensive approach for businesses to navigate disruptions, rebuild credibility, and establish enduring trust among stakeholders by aligning operational efficiency with communicative legitimacy.

This convergence of crisis communication and disinformation management requires hybrid skill sets, where communicators combine traditional expertise in public relations with digital literacy, data analytics, and collaborative governance. Evidence also indicates that disinformation control is more effective when embedded within broader resilience frameworks, since this integration strengthens the connections between leadership, communication, and crisis management models. While these concepts largely originate from Western scholarship, it is equally important to acknowledge and integrate insights from local and national studies. Although Scopus provided the main sample for this review, drawing on updated domestic literature would enrich the analysis, ensure contextual relevance, and prevent the marginalization of non-Western perspectives.

## Methodology

### Review Protocol and Rationale

To ensure rigor and transparency, the study used the SPAR-4-SLR protocol (Paul et al., 2021) integrated with PRISMA 2020 guidelines (Page et al., 2021). SPAR-4-SLR offers a four-stage process planning, execution, analysis, and reporting that has been described as structured and has found wide acceptance in management and organizational research. The documentation of the screening and eligibility process is standardized by a flow diagram under PRISMA, which thereby makes it complemented by enhanced reproducibility.

### Data Source and Search Strategy

Scopus was chosen as the sole database because it provides comprehensive coverage of peer-reviewed journals across management, social sciences, communication, and public administration. While relying on a single source offers consistency and transparency in data collection, it also entails certain limitations. Relevant studies indexed exclusively in Web of Science, Google Scholar, or discipline-specific databases may have been overlooked, which could restrict the scope of perspectives included in the review. Nonetheless, Scopus was prioritized due to its breadth of coverage, robust bibliometric functions, and widespread acceptance in management and organizational research. This search was conducted in August 2025 using the Boolean string ("crisis management" OR "crisis response") AND (organization OR leadership) AND (communication OR "crisis communication") AND (misinformation OR disinformation) across the title, abstract, and keywords. These terms were combined to ensure that the query captured the intersection of crisis management practices, leadership perspectives, communication strategies, and the governance of information disorders. The initial search was deliberately broad, and filters for language (English), document type (peer-reviewed journal articles), and subject area (Social Sciences; Business, Management & Accounting) were applied in subsequent stages of screening.

The initial query yielded 968 records. This broad strategy was intentionally designed to capture multiple disciplinary perspectives, including management, communication studies, and information systems.

### Screening and Refinement

The multi-stage screening and refinement process applied in Scopus is summarized below:

Initial Search (n = 968). The query retrieved 968 records across all document types, languages, and

subject areas. This broad scope was intentionally designed to capture the full disciplinary range of crisis management research. Temporal Delimitation (2010–2025; n = 378). The timeframe was restricted to the period between 2010 and 2025. This window was selected to reflect the post–Global Financial Crisis environment, which marked the acceleration of digital transformation, the rise of social media as a dominant channel for crisis communication, and the increasing salience of misinformation as a governance challenge. Subject Area Restriction (n = 275). Records were then limited to the Social Sciences and the Business, Management & Accounting categories. This ensured thematic relevance by excluding literature focused solely on technical disaster modeling or engineering applications.

Document Type and Language (n = 246). Finally, only peer-reviewed journal articles published in English were retained. Conference proceedings, editorials, book chapters, and non-reviewed materials were excluded to preserve methodological rigor and comparability. The final dataset comprised 246 articles, which provided the empirical and conceptual foundation for the bibliometric mapping and thematic synthesis presented in this review (See Table 1). Thematic synthesis was carried out in NVivo through open and axial coding, enabling the identification of recurring concepts across leadership, communication, and disinformation governance. Coding was conducted by the author, and consistency was ensured through iterative refinement and cross-checking with bibliometric results, which enhanced the validity of the thematic categories.

*Table 1. Refinement process*

| Stage | Description | Records (n) |
|---|---|---|
| 1. Initial Search | All document types, languages, and subject areas retrieved from Scopus | 968 |
| 2. Temporal Delimitation | Restricted to 2010–2025 (post–Global Financial Crisis; rise of social media and misinformation) | 378 |
| 3. Subject Area Restriction | Limited to Social Sciences; Business, Management & Accounting | 275 |
| 4. Document Type & Language | English-language, peer-reviewed journal articles only; excluded conference papers, book chapters, editorials, non-reviewed content | 246 |
| **Final Dataset** | Articles included in bibliometric mapping and thematic synthesis | **246** |

**Inclusion and Exclusion Criteria**

***Inclusion:***

- Explicit focus on crisis management or crisis response in organizational contexts.
- Direct engagement with at least one of the focal domains: leadership, communication strategy, or misinformation/disinformation.
- Empirical, conceptual, or theoretical contributions relevant to organizational resilience.

***Exclusion:***

- Studies focused solely on technical disaster modeling or environmental hazards without organizational or communicative dimensions.
- Research on misinformation outside crisis contexts (e.g., consumer product reviews, entertainment).
- Commentaries, book reviews, or non–non-peer-reviewed opinion pieces.

**Screening Procedure**

The selection process followed PRISMA 2020. Studies that were not pertinent were eliminated during the title and abstract screening phase. Two reviewers read the whole text separately, and the results were very reliable between them. Final eligibility testing made sure that the methods were strong and fit with the review's main idea.

**Data Analysis**

The research integrates qualitative thematic synthesis with bibliometric mapping:

***Thematic coding*:** Articles were uploaded to NVivo for open and axial coding of concepts that appeared most prominent in the realms of leadership, communication, and governance of misinformation.

***Bibliometric analysis*:** VOSviewer and Excel were employed to create a network of co-authorship, co-

citation, and keyword co-occurrence, reflecting the intellectual structure of the area.

***Trend analysis*:** The quantity of publications from prominent journals and renowned authors, along with their geographic distributions, has been utilized to monitor fluctuations in research activity across time.

**Reliability Measures**

Several safeguards were implemented:

- Full documentation of search strings, filters, and inclusion/exclusion decisions.
- Dual screening to minimize bias.
- Cross-validation of thematic findings with bibliometric evidence to ensure consistency between qualitative insights and quantitative trends.

**Bibliometric Analysis**

To complete the thematic synthesis, documents from the Scopus database for the period 2000-2025 were analyzed, and it was observed that research on the subject has increased since 2010. Therefore, articles published between 2010 and 2025 were included. A bibliometric analysis of 246 documents has therefore been carried out. It attempts to map out in quantitative terms the research landscape on organizational crisis management at that intersection between leadership, communication, and misinformation mitigation. This is a dual perspective that places its vantage point atop both quantitative bibliometrics and qualitative thematic coding, thereby inculcating enhanced validity and comprehensiveness into the review (Donthu et al., 2021). The total corpus has already accrued a very substantial scholarly impact with an h-index that is indicative of a mature and influential body of work. What also emerges from the dataset is definite input coming in from multiple disciplines like management and organizational studies, as well as communication science and information systems.

**Publication Trends**

The timeline of publication output shows that academic interest has been steadily rising over the past twenty years. There has been a lot more output since the 2008 financial crash, the COVID-19 pandemic, and the rise in digital misinformation events in 2016. The years 2020–2024 are overrepresented in all outputs. This shows that even though current times always call for steady state volatility, uncertainty, complexity, and ambiguity (VUCA), there is also a strong need for crisis management scholarship (See Figure 1).

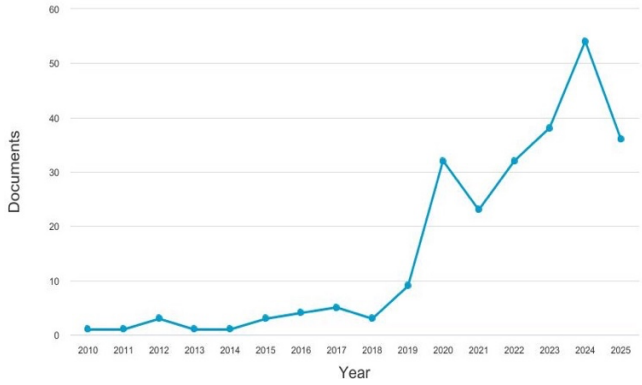


*Figure 1. Documents by Year*

**Core Sources**

The 15 most prolific sources predominantly comprise peer-reviewed journals specializing in crisis communication, leadership studies, public administration, and organizational resilience. Leading outlets such as Journal of Contingencies and Crisis Management and Public Relations Review serve as primary publication venues, suggesting that the discourse is anchored both in applied organizational research and in strategic communication scholarship. This distribution further evidences the cross-disciplinary integration of management and media studies in addressing crisis phenomena (See Figure 2).

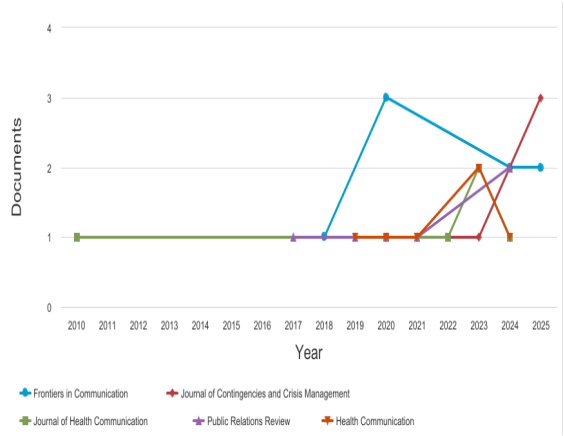


*Figure 2. Documents per Year by Source*

## Authorship and Collaboration Patterns

The author's analysis identifies several prolific contributors whose work recurrently addresses the nexus of leadership, crisis communication, and misinformation control. Co-authorship patterns indicate the presence of transnational research networks, with frequent collaborations between scholars based in North America, Europe, and parts of the Asia-Pacific. Institutional affiliation data confirm that high-output universities and research institutes, often with dedicated crisis management or public policy centers, dominate the field. These institutions play a pivotal role in knowledge production and dissemination, reflecting the institutional embeddedness of crisis research (See Figure 3).

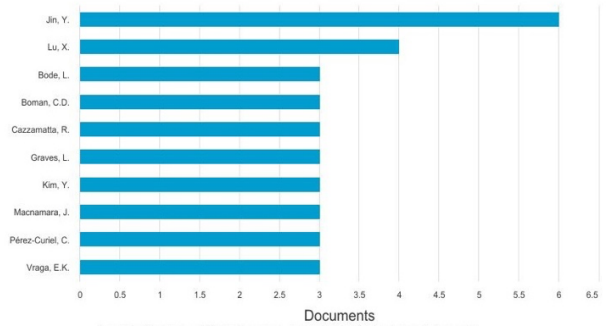


*Figure 3. Documents by Author*

## Geographic Distribution

The geographic analysis reveals that the United States, the United Kingdom, Australia, and Canada emerge as leading contributors in terms of publication volume. This dominance may be attributed to both research funding availability and the presence of established academic infrastructures for crisis and communication studies. Nonetheless, emerging contributions from countries in Asia, the Middle East, and Latin America indicate a gradual diversification of the research landscape (See Figure 4).

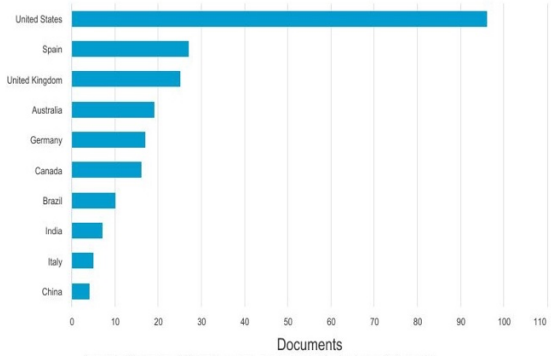


*Figure 4. Documents by Countries*

## Keyword Landscape

The keyword co-occurrence analysis reveals four prominent thematic clusters that structure the field (see Figure 5):

- Human and Organizational Dimensions (Green Cluster) – Keywords such as human, humans, interpersonal communication, organization, and leadership emphasize the centrality of interpersonal trust, ethical decision-making, and communication in crisis contexts.
- Public Health and Pandemic Contexts (Blue Cluster) – Terms like COVID-19, pandemic, coronavirus disease 2019, public health, health communication, and epidemiology highlight how the COVID-19 crisis catalyzed scholarship on crisis communication and misinformation, especially in health-related contexts.
- Misinformation and Digital Media Ecosystems (Red Cluster) – This cluster is dominated by misinformation, disinformation, fake news, infodemic, social media, digital media, and media literacy. The density of this cluster reflects how digital platforms have accelerated the spread of false narra-

tives, creating significant challenges for organizations. Related terms such as debunking, fact-checking, and post-truth indicate the increasing importance of corrective and preventive strategies against disinformation.

- Crisis Management and Strategic Governance (Cross-Cutting) – Keywords such as crisis communication, crisis management, risk communication, crisis response, and strategic communication serve as bridging concepts across clusters. They underscore the integrative role of leadership, public health, and misinformation governance, while terms like decision making, ethics, and political communication reflect the strategic and governance-related dimensions of crisis response.

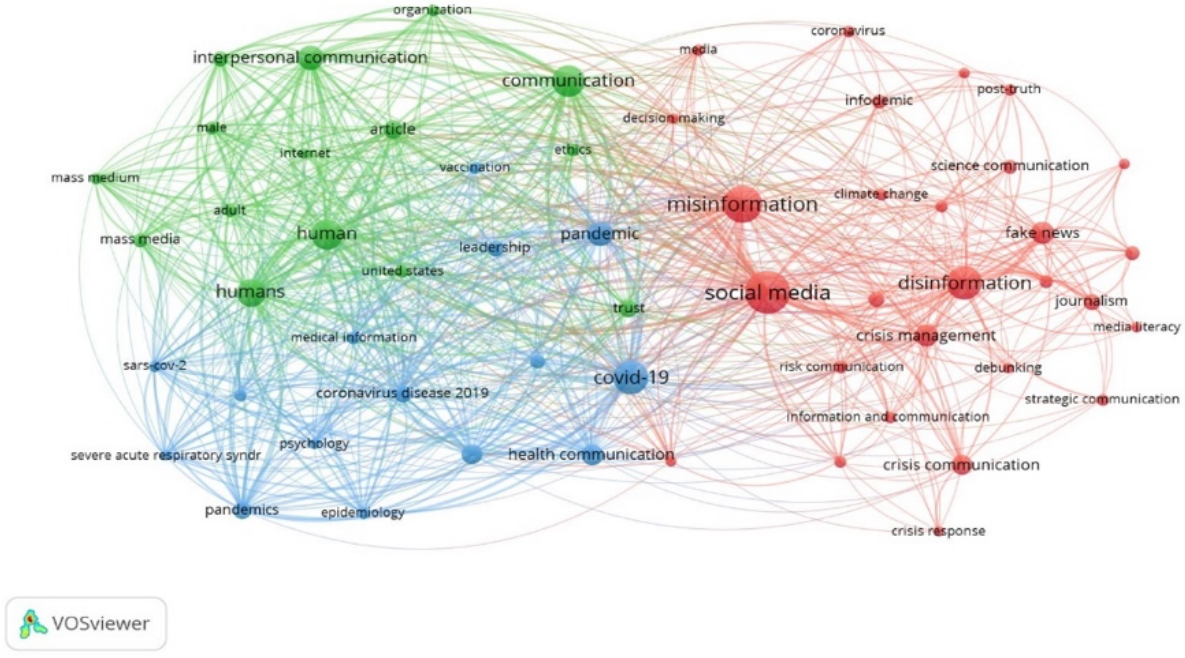


*Figure 5. The keyword co-occurrence*

Overall, the prominence of misinformation-related keywords (misinformation = 63 occurrences, disinformation = 52, fake news = 23, infodemic = 9) illustrates the field's thematic shift toward the governance of information disorder in recent years. Pandemic-related keywords (COVID-19, pandemic, public health) confirm the catalytic effect of the coronavirus crisis in reshaping the research agenda. This dual emphasis on the pandemic context and the misinformation ecosystem empirically supports the integrative framework pursued in this review.

**Document Types and Accessibility**

The corpus is predominantly composed of research articles, supplemented by a smaller proportion of reviews and conceptual papers. While open access publications represent a growing segment, a significant share remains behind paywalls, potentially limiting the timely dissemination of findings to practitioners and policymakers, an important consideration given the applied relevance of crisis management research.

**Citation Impact**

Citation analysis highlights a set of highly influential works that have shaped the theoretical and empirical foundations of the field. The top-cited articles commonly address crisis leadership frameworks, the application of Situational Crisis Com-

munication Theory (SCCT), strategies for countering misinformation, and organizational resilience mechanisms. The concentration of citations among a subset of papers suggests a degree of canonical consolidation, where certain frameworks and case studies serve as reference points for subsequent research. (See Table 2)

The bibliometric mapping reveals a vibrant and expanding scholarly domain that is both thematically cohesive around leadership, communication, and misinformation and methodologically diverse. These quantitative patterns provide the empirical backbone for the thematic analysis presented in Section 5, ensuring that the synthesis is grounded in a robust understanding of the field's structure and evolution.

*Table 2. Citation Overview*

| Rank | Year | Title | Authors | Journal | Citations |
|---|---|---|---|---|---|
| 1 | 2011 | Social media use by government: From the routine to the critical | Kavanaugh et al. | Government Information Quarterly | 954 |
| 2 | 2020 | Tourism in a world with pandemics: local-global responsibility | Jamal, & Budke, | Journal of Tourism Futures | 677 |
| 3 | 2017 | Using Expert Sources to Correct Health Misinformation in Social Media | Vraga, & Bode | Science Communication | 602 |
| 4 | 2021 | Evaluating the Impact of Attempts to Correct Health Misinformation on Social Media: A Meta-Analysis | Walter et al. | Health Communication | 373 |
| 5 | 2020 | Fighting fake news in the COVID-19 era: policy insights from an equilibrium model | Hartley & Vu | Policy Sciences | 217 |
| 6 | 2022 | Creating News Literacy Messages to Enhance Expert Corrections of Misinformation on Twitter | Vraga et. al | Communication Research | 205 |
| 7 | 2021 | Online Social Endorsement and Covid-19 Vaccine Hesitancy in the United Kingdom | Chadwick et al. | Social Media + Society | 169 |
| 8 | 2020 | A Failure of Political Communication Not a Failure of Democracy | Hatcher, W. | American Review of Public Administration | 160 |
| 9 | 2017 | Public information officers' social media monitoring during the Zika virus crisis | Avery, E. J. | Public Relations Review | 150 |
| 10 | 2020 | Not just conspiracy theories: Vaccine opponents and COVID-19 misinformation | Jamison et. al | Harvard Kennedy School Misinformation Review | 148 |

## Thematic Analysis

This thematic synthesis draws on both bibliometric mapping and qualitative coding of the 246 articles reviewed. Guided by Braun and Clarke's (2006) six-phase framework, the analysis proceeded through open and axial coding in NVivo to identify recurrent patterns across leadership, communication, and disinformation governance. Coding was conducted by the author, with iterative refinement to ensure internal consistency. To enhance validity, the emerging thematic categories were cross-checked against bibliometric results, which provided an additional layer of verification. This process resulted in four interconnected themes: (1) crisis leadership practices, (2) organizational crisis communication strategies, (3) misinformation and disinformation management, and (4) integrated crisis response and resilience building. These themes illustrate how organizational crisis management must adapt to environments that are increasingly unstable, unpredictable, and information saturated.

### Crisis Leadership Practices

Leadership is regularly identified as the critical factor influencing organizational responses to crises. Transformational leadership is essential for envisioning and fostering collective resilience, exemplified by Jacinda Ardern's empathetic and inclusive leadership during the COVID-19 pandemic, which emphasized trust and collective responsibility (Wilson, 2020). Adaptive leadership facilitates navigation through uncertainty and decentralization in decision-making; for example, many firms that shifted to remote work during global lockdowns empowered teams to act autonomously, thereby sustaining operational continuity under volatile

conditions (Heifetz et al., 2009; Dirani et al., 2020). Servant leadership, grounded in empathy, stewardship, and community, has been acknowledged in contexts where social and ethical concerns are pronounced; organizations that prioritized employee well-being and mental health support during the pandemic gained legitimacy and stakeholder trust (Eva et al., 2019; Greenleaf, 2013). Across these models, sensemaking acts as a unifying mechanism: leaders do not merely make decisions but also interpret ambiguous environments and craft narratives that enable coordinated collective action (Weick, 1995). Ultimately, crisis leadership is evaluated not only by outcomes but also by the ability to sustain legitimacy, trust, and relationships under stress.

**Organizational Crisis Communication Strategies**

The second topic cluster is communication. A lot of the writing is based on SCCT and IRT. Both theories stress the need of framing messages and aligning them with the sort of crisis. Studies indicate that proactive communication, early disclosure, and transparency diminish uncertainty and inhibit the proliferation of disinformation. When reactive communication is delayed, it usually hurts the credibility of the organization. Recent studies document the transition to two-way dialogic communication models in digital environments, with an engaged stakeholder demographic participating in the co-creation of crisis narratives. A good strategy uses a lot of different channels and keeps the tone and content the same across all of them. It also finds a balance between technical accuracy and emotional impact.

**Misinformation and Disinformation Management**

It is the management of misinformation and disinformation, which has increasingly become one of the most critical challenges as per literature. An overabundance of misleading information undermines trust, accelerates decision paralysis, and increases reputational risks, contributing to the "infodemic" phenomenon. Organizational responses include real-time digital content monitoring, fact-checking partnerships, and algorithmic moderation with the technology platforms. A few studies highlighted that pre-bunking or inoculation strategies, where organizations motivate stakeholders to critically assess information even before a crisis takes place, have been resource-intensive but increasingly viewed as essential elements of preparedness. This demonstrates that communicators must now merge the traditional public expertise with data analytics, media literacy, and cross-sector collaboration work. Bibliometric results showing an upsurge of such terms as misinformation, disinformation, and fake news ascertain that this is no longer a peripheral concern; rather, it has become a defining feature of modern crisis contexts.

**Integrated Crisis Response and Resilience Building**

Another developing theme is the integration of leadership, communication, and disinformation management within comprehensive crisis governance frameworks. While logistics and resources cover the operational dimension, symbolic activities such as narrative framing and trust-building remain equally critical. Integrated Crisis Governance, in which a form of social contract underpins resilience, emphasizes not only recovery but also continuous learning through adaptation, after-action evaluations, cross-functional collaboration, and scenario-based training. In practice, however, translating such frameworks into action presents notable challenges. For example, during the COVID-19 pandemic the World Health Organization (WHO) coordinated global "infodemic management" strategies, combining fact-checking, digital partnerships, and community engagement. Although these efforts enhanced resilience by fostering trust, they also revealed difficulties in balancing centralized coordination with local adaptability (Tangcharoensathien et al., 2020). Similarly, corporate responses to disinformation on social media such as airlines countering false narratives about flight safety or pharmaceutical firms addressing vaccine skepticism demonstrated the potential of integrated communication strategies but

also highlighted power asymmetries between governments, firms, and digital platforms (Lee et al., 2023). Moreover, resource constraints often prevent organizations from maintaining permanent cross-functional crisis units, and cultural as well as sectoral differences complicate the transferability of models. These tensions suggest that integrated frameworks, while theoretically compelling, require contextual adaptation and must carefully balance operational feasibility with ethical and political considerations.

## Discussion

The analysis synthesizes bibliometric findings and shows that organizational crisis management is a multilevel construct shaped by the intertwined responsibilities of leadership, communication, and disinformation governance. These insights are situated within broader theoretical, socio-political, and cultural contexts, generating significant implications for both scholarship and practice. They highlight the necessity of integrating fragmented perspectives into unified frameworks that can better address the complexity of contemporary crises. Moreover, the findings underscore that resilience is not a static outcome but a dynamic process of adaptation and learning, contingent on both organizational capabilities and societal trust.

### Leadership in Complex and Politicized Contexts

It has been reiterated that leadership during crises encompasses not only technical decision-making but also symbolic, ethical, and political dimensions. In external crises such as the COVID-19 pandemic, forced migration, and ecological disasters, leaders must negotiate the legitimacy of their decisions not just with internal stakeholders but also with contesting publics. Transformational and adaptive leadership models are pertinent as they facilitate equitable meaning-making and collective agency in the face of uncertainty, in accordance with sense-making theory (Weick, 1995) and concepts of institutional trust (Mishler & Rose, 2001), which contend that the adequacy of interpretive capacity, coupled with legitimacy, influences leadership performance during crises. Feminist and decolonial leadership perspectives underscore the importance of fairness, inclusivity, and participation in decision-making while addressing crises of structurality.

### Crisis Communication as a Social and Cultural Process

The findings reinforce that crisis communication is not merely a technical task of message dissemination but a socially and culturally embedded process. Communication strategies are shaped by media ecologies, historical narratives, and collective identities. In polarized environments, misinformation not only distorts facts but also reconfigures perceptions of belonging, trust, and authority.

The change of models from broadcast to dialogic and participatory models reflects the broader recognition of stakeholders as active meaning-makers. This is consistent with Habermasian perspectives on the public sphere, whereby communication processes are central to negotiations around legitimacy and democratic accountability. Empirical evidence supports the claim that dialogic approaches foster greater transparency in reducing avenues for the proliferation of rumors and enhancing the commitment of stakeholders.

### Misinformation Governance and the Politics of Information

The increasing prominence of misinformation-related keywords in the data set highlights the necessity of merging misinformation management with crisis management. Yet, this merger is not solely operational; it is deeply political. As more endeavors are made to supervise, fact-check, and moderate digital content, concerns about freedom of speech, algorithmic responsibility, and the imbalances of power between organizations, governments, and tech platforms become more pronounced.

This situation is what Wardle & Derakhshan (2017) call an "information disorder." It's when campaigns of false information make democratic processes less stable and at the same time make society more divided. The research reviewed reveals

that answers necessitate cross-sectoral alliances, partnerships between civil society and fact-checking activities, as well as ethical frameworks that reconcile the preservation of truth with the right to communication. In this context, organizational crisis management increasingly intersects with discussions on algorithmic governance and digital authoritarianism.

**Integration as a Pathway to Organizational and Societal Resilience**

One of the most important things this evaluation does is put together leadership, communication, and misinformation management into one big strategic competency. These frameworks do not regard resilience as a fixed attribute related to recovery; instead, they contextualize it within the fluidity of adaptation, change, and learning.

Looking at things from a systems point of view, organizations are resilience nodes in big social and political ecosystems. Their ability to work together across sectors, engage stakeholders, and manage a contested information environment not only helps organizations survive but also helps society recover and rebuild trust in democracy. This perspective aligns with resilience theory (Duchek, 2020; Cameron & Dutton, 2003), which asserts that adaptation and learning are crucial for long-term sustainability.

**Scholarly and Practical Implications**

The amalgamation of leadership, communication, and misinformation management necessitates an endeavor to reconcile established frameworks such as Situational Crisis Communication Theory (SCCT) and resilience-based models with emerging scholarship in misinformation science, computational propaganda, and sociotechnical governance. Practically, it implies that organizations must invest in multi-domain crisis capabilities, combining ethical leadership, transparent communication, and proactive misinformation management. Organizational crisis management in the age of misinformation is best understood as a strategic, integrative, and ethically embedded practice. It requires attention not only to operational efficiency but also to the cultural, political, and informational contexts in which crises unfold.

**Research Gaps and Future Directions**

Although the reviewed literature provides significant insights into crisis leadership, communication, and misinformation governance, the analysis also reveals several important gaps. Addressing these limitations will be essential for advancing both theoretical foundations and the practical relevance of organizational crisis management scholarship.

***Geographic and Cultural Representation***

The bibliometric mapping demonstrates a strong concentration of scholarship in Anglo-American and Western European contexts. This geographic imbalance risks producing culturally specific frameworks that may not be generalized to other socio-political environments. In practice, studies attempting to include diverse contexts face several challenges. Limited access to reliable data and publication outlets in the Global South often restricts visibility of local scholarship (Canagarajah, 2002). Crisis research in conflict-affected or authoritarian settings is further constrained by political sensitivities, censorship, and risks for both researchers and participants (Clark & Cavatorta, 2021). Moreover, methodological tools developed in Western contexts may fail to capture the cultural meanings of leadership, trust, and communication in non-Western societies, leading to partial or distorted interpretations (Powell & Colyvas, 2008). Future studies should therefore integrate perspectives from the Global South, postcolonial societies, and conflict-affected regions, employing decolonial and feminist methodologies to surface alternative crisis imaginaries and broaden theoretical inclusivity.

***Longitudinal and Process-Oriented Research Designs***

The majority of studies employ cross-sectional designs or focus on single crisis events, which limit understanding of how organizational capabilities evolve over time. Future research should adopt longitudinal and process-oriented approaches to

trace leadership decision-making, communication dynamics, and disinformation interventions from the preparedness stage through to post-crisis learning. Possible designs include multi-wave panel surveys that capture changes in stakeholder perceptions across different crisis phases, longitudinal case studies that follow organizations before, during, and after major crises, and diary or experience sampling methods that document decision-making under uncertainty in real time (Ohly et al., 2010). Process-tracing methods could also be applied to reconstruct sequences of crisis response actions and evaluate causal mechanisms over time (Collier, 2011). In addition, mixed methods design combining computational text analysis of crisis communication with follow-up interviews or focus groups could generate richer insights into evolving narratives. Such methodological diversification would illuminate the temporal dynamics of crisis management and the conditions under which adaptive and transformative capabilities emerge.

### *Integration of Misinformation Science and Crisis Leadership*

While misinformation management has become a salient theme, it is often treated as a sub-component of communication rather than an integral dimension of crisis leadership. Future research should more explicitly integrate insights from misinformation science, cognitive psychology, and algorithmic governance into leadership studies. Interdisciplinary approaches could employ computational text analysis and network analysis to track the real-time spread of disinformation and examine how leaders intervene at key nodes of influence (Vosoughi et al., 2018). Experimental and behavioral designs drawn from cognitive psychology could be used to test how leaders' framing strategies mitigate biases such as confirmation bias or motivated reasoning during crises (Pennycook & Rand, 2021). Furthermore, adopting sociotechnical governance frameworks (Helberger et al., 2020) could help explain how leadership decisions interact with platform algorithms and regulatory mechanisms to shape the visibility of crisis-related information. Such methodological and conceptual integration would allow future research to move beyond treating misinformation as a peripheral communication issue and instead theorize it as a core component of crisis leadership capacity.

### *Multi-Level and Cross-Sectoral Approaches*

Current scholarship predominantly operates at the organizational level, neglecting interactions across micro (individual), meso (organizational), and macro (institutional) levels. Future work should adopt multi-level frameworks to explore, for example, how employee resilience interacts with organizational communication strategies or how sector-specific regulatory environments shape misinformation governance. Cross-sectoral comparisons, such as between public health, humanitarian relief, and corporate domains, would further enrich theoretical development by highlighting divergent institutional logics.

### *Ethical and Political Dimensions*

Despite growing attention to misinformation, relatively little scholarship engages with the ethical and political consequences of crisis strategies. Partnerships with technology platforms, content moderation practices, and algorithmic monitoring raise fundamental questions about transparency, accountability, and democratic freedoms. Future studies should adopt critical perspectives that examine these ethical dilemmas and assess their long-term implications for organizational legitimacy and societal trust.

### *Methodological Innovation*

The research has predominantly utilized prevalent survey and case study methodologies; nevertheless, there exists a significant opportunity for methodological diversification, including participatory action research, computational text analysis, network analysis, and arts-based research. These methodologies can encapsulate the intricacies of crisis narratives while fostering dialogue amidst a growing movement among researchers to adopt more collaborative and participatory research frameworks. Subsequent research ought to

embrace methodologies that are more spatially comprehensive, chronologically dynamic, theoretically integrative, and methodologically diverse. These significant advancements enable scholars to provide substantial insights into how companies and their sociocultural contexts confront, adapt to, and derive lessons from crises, particularly in the setting of misinformation.

## Conclusion

This review positions organizational crisis management at the intersection of leadership, communication, and disinformation governance, drawing on evidence from 246 peer-reviewed articles published between 2010 and 2025. Findings reveal that while each of these domains has matured independently, their integration remains limited, resulting in theoretical fragmentation and practical blind spots. In an era where crises are shaped not only by operational disruptions but also by contested truths and pervasive information disorder, this gap underscores the need for a holistic approach. Disinformation governance refers to the institutional and strategic mechanisms designed to counter intentional falsehoods, whereas information disorder represents the broader societal condition in which misinformation, disinformation, and malinformation converge to undermine trust and democratic accountability. Recognizing this distinction allows crisis management to be reframed as an interdisciplinary practice requiring integrated capacities. Effective crisis leadership should therefore be conceptualized as more than technical decision-making; it must encompass ethical authority, transparent communication, and proactive management of disinformation. Practical examples illustrate this interplay: Jacinda Ardern's empathetic briefings during COVID-19 show how ethical and transparent leadership builds legitimacy, while the WHO's infodemic management framework demonstrates the necessity of combining fact-checking, social listening, and community engagement in digital environments. Similarly, corporate experiences during airline crises highlight how operational responses must be accompanied by rapid correction of online rumors to protect reputational legitimacy. These cases illustrate that resilience is achieved not only through logistical preparedness but also through the capacity to manage the complex dynamics of digital information flows.

Theoretically, advancing this field requires integration between established frameworks such as Situational Crisis Communication Theory (SCCT), resilience-based models, and image repair theory with emerging insights from misinformation science, cognitive psychology, and algorithmic governance. Such integration could generate new conceptual models explaining how leaders anticipate, interpret, and respond to distorted information in real time. Methodologically, future research should move beyond cross sectional designs and adopt longitudinal, multi-level, and participatory approaches to capture the temporal and socio-political complexities of crisis situations. Moreover, greater engagement with non-Western and subaltern perspectives is essential to counteract the dominance of Anglo-American scholarship and to develop culturally inclusive frameworks. In practice, organizations are advised to invest in ethical leadership that prioritizes transparency and empathy, to develop digital media strategies that combine real time monitoring with fact-checking partnerships, and to establish integrated governance structures that link operational logistics with symbolic communication. Embedding these practices not only enhances organizational resilience but also contributes to restoring legitimacy and societal trust. Organizational crisis management in the age of disinformation should thus be understood as a strategic, interdisciplinary, and ethically embedded practice. By embracing integration across leadership, communication, and information governance, both scholars and practitioners can better address the challenges of increasingly volatile, uncertain, and information saturated environments.

## 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 contain any studies with human participants or animals performed by the author. Therefore, ethical approval was not required.

***Informed Consent:*** Not applicable.

***Data Availability:*** The datasets generated and analyzed during the current study are available from the corresponding author on reasonable request.

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RESEARCH ARTICLE

OPUS Journal of Society Research

# Intertwined Policrises: Refugee Inflows, Natural Disasters, Financial Instability, and Housing Market Dynamics in Emerging Economies

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## Abstract

*This study investigates the combined socioeconomic impacts of overlapping global crises—including financial instability, ongoing wars, refugee inflows, and natural disasters—on emerging economies, with a focus on Türkiye. Using a mixed-methods approach merging perception surveys and econometric analyses, the paper examines how refugee-induced demographic shifts and the February 2023 earthquakes interacted to reshape housing market dynamics across eleven affected provinces. The findings reveal a double demand shock in Türkiye's housing market: refugee inflows and disaster displacement simultaneously reduced supply and increased demand, generating significant price surges and spatial fragmentation of housing price cointegration. Furthermore, global financial turbulence and inflation magnified affordability problems, while wars on the northern and southern borders of Türkiye created secondary migration pressures. Results show that while some cities (Adana, Gaziantep) demonstrated resilience due to robust infrastructure and labor mobility, others (Hatay, Kahramanmaraş, Adıyaman) experienced structural breaks and long-term divergence from regional housing price trends. The study contributes to the literature on crisis convergence by situating Türkiye's experience within the broader polycrisis framework, highlighting how financial, political, social, and environmental shocks interact to exacerbate vulnerabilities in urban systems. Policy recommendations emphasize the need for integrated crisis management, resilient housing finance, inclusive labor policies, regional burden sharing, and scaled social infrastructure investment.*

**Keywords:** *Refugees, Housing Market, Earthquake, Financial Crisis, Socioeconomy, Polycrisis*

## Öz

*Bu çalışma, finansal istikrarsızlık, süregiden savaşlar, mülteci akımları ve doğal afetlerin kesişiminden doğan küresel krizlerin yükselen ekonomiler üzerindeki bileşik etkilerini, Türkiye odağında incelemektedir. Algı anketleri ile ekonometrik analizleri birleştiren karma yöntem yaklaşımı, mülteci kaynaklı demografik kaymalar ile Şubat 2023 depremlerinin, etkilenen on bir ilde konut piyasası dinamiklerini nasıl yeniden şekillendirdiğini ortaya koymaktadır. Bulgular, Türkiye konut piyasasında "çifte talep şoku"na işaret etmektedir: mülteci girişi ve afet kaynaklı yerinden edilmeler eşzamanlı olarak arzı daraltıp talebi artırmış; bu da fiyatlarda belirgin sıçramalara ve konut fiyatlarının eşbütünleşmesinde mekânsal parçalanmaya yol açmıştır. Küresel finansal dalgalanma ve enflasyon erişilebilirlik sorunlarını ağırlaştırırken, Türkiye'nin kuzey ve güney sınırlarındaki savaşlar ikincil göç baskılarını artırmıştır. Sonuçlar, bazı kentlerin (Adana, Gaziantep) güçlü altyapı ve işgücü hareketliliği sayesinde dayanıklılık sergilediğini; diğerlerinde (Hatay, Kahramanmaraş, Adıyaman) yapısal kırılmalar ve bölgesel konut fiyatı eğilimlerinden uzun vadeli ayrışmalar yaşandığını göstermektedir. Çalışma, Türkiye deneyimini "polikrizi" çerçevesinde konumlandırarak, finansal, siyasal, toplumsal ve çevresel şokların kent sistemlerindeki kırılganlıkları nasıl bileşik biçimde derinleştirdiğini vurgulamaktadır. Politika önerileri; bütünleşik kriz yönetimi, dayanıklı konut finansmanı, kapsayıcı işgücü politikaları, bölgesel yük paylaşımı ve ölçekli sosyal altyapı yatırımlarının gerekliliğinin altını çizmektedir.*

**Anahtar Kelimeler**: *Mülteciler, Konut Piyasası, Deprem, Finansal Kriz, Türk Telekom, Sosyoekonomi, Polikriz*



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## Introduction

The early twenty-first century has been increasingly defined by what scholars and policymakers describe as a polycrisis—a convergence of multiple, overlapping shocks that interact in unpredictable ways and generate systemic vulnerabilities (Tooze, 2022). Helleiner (2024) defines polycrisis as a set of separate crises that interact in such a way that they, or their consequences, mutually intensify or reinforce one another.

A polycrisis refers to the concurrent unfolding of multiple catastrophic events, including wars, forced migration, pandemics, financial instability, and climate-induced disasters. In such situations, crises do not simply occur simultaneously; rather, they intensify one another's impacts, producing consequences that are greater than the sum of each individual crisis, similar to the resultant vector in physics.

The term "polycrisis" was first introduced by Edgar Morin and Anne Brigitte Kern in their 1999 book "Homeland Earth: A Manifesto for a New Millennium," and they described a situation in which multiple crises— "interwoven and overlapping"—affect humanity simultaneously. They emphasized that the core challenge of the era was not a single issue but rather the "complex intersolidarity of problems, antagonisms, crises, uncontrollable processes, and the general crisis of the planet," which they termed the polycrisis (Morin & Kern, 1999).

Swilling (2019) used the term to capture the interconnected global challenges confronting the world economy—such as climate change, inequality, and financial instability.

Both Morin and Swilling referred to the polycrisis as a unified and ongoing condition characterized by multiple crises occurring at once and reinforcing one another. However, Swilling placed greater emphasis on how these interconnections amplify the overall impact of crises through complex feedback loops. In recent years (2018–2022), the term "polycrisis" was used to describe the overlapping crises facing the EU in the 2010s, including the sovereign debt crisis, the refugee and migration crisis linked to the Syrian conflict, Brexit, and the rise of far-right populism. This definition suggests that a polycrisis can emerge within a specific geopolitical region, even if its effects extend globally (Janzwood & Homer-Dixon, 2022).

The world has never faced so many overlapping and triggering problems, including high inflation, high interest rates, high debt, widening income and wealth inequality, political conflicts, ongoing civil and cross-border wars, post-pandemic impacts, trade wars, and the effects of climate change.

Türkiye represents a unique laboratory for understanding the dynamics of the polycrisis. The number of refugees and immigrant it hosts due to the ongoing war on its north and south borders, the severe socioeconomic impacts of two earthquakes it experienced in 2023, the high inflation rates caused by its monetary expansion policies in 2021, high interest rates it experienced due to the sharp policy shift of Central Bank of Türkiye Republic (CBRT) from monetary expansion to monetary tightening in 2023, the impacts of the local and international political developments on the economic stability are the main overlapping issues that creates intertwined effects in Türkiye. Thus, this study situates itself within this emerging analytical framework by examining the compounded impacts of refugee inflows, natural disasters, and financial crises on socioeconomic structures, using Türkiye as a focal case. Since 2011, the country has hosted the world's largest refugee population, officially estimated at 2.9 million, of whom 2.54 million are Syrians under temporary protection (UNHCR, 2025; Presidency of Migration Management, 2025). In addition to this protracted refugee inflow, the ongoing regional political conflicts, including 2020 Azerbaijan-Armenia war, 2021 change of regime in Afghanistan, the ongoing Russia-Ukraine war, the 2025 Israel-Iran war, and the attacks of Israel on Palestinian civilians since 2023, triggered new waves of migration, with Russian, Ukrainian, Iranian, Iraqi, Azerbaijani, Palestinian and many other neighbor citizens relocating to Türkiye, affecting local housing markets through demand for rental and purchase properties. Compounding these pressures, the February 2023 earthquakes in Kahramanmaraş and Gaziantep caused the collapse or damage of hundreds of thousands of buildings and independent units, displacing millions of residents across eleven provinces.

These developments coincided with a global financial downturn marked by inflationary pressures, rising interest rates, declining capital flows to emerging markets, and mounting sovereign debt vulnerabilities (IMF, 2023). For Türkiye, already struggling with currency depreciation and high inflation, the combined effect of refugee inflows, disaster-induced displacement, and financial instability created unprecedented stresses on security issues, housing markets, labor structures, and socioeconomic infrastructure.

This paper asks: *How do overlapping global and domestic crises interact to reshape housing markets and social resilience in emerging economies?*

By bridging migration studies, disaster economics, and financial crisis literature, the study contributes a novel perspective on the interaction of multiple shocks in shaping socioeconomic realities.

The structure of the research is as follows: Section 2 reviews relevant literature; Section 3 outlines methodology and data; Section 4 presents findings; Section 5 discusses implications within the polycrisis framework, and offers policy recommendations.

**Literature Review**

Migration and refugee studies have long debated the economic and social impacts of large-scale population inflows on host countries. While some scholars focus on the social integration of refugees with the citizens of host countries, others work on the security threats and crimes (Baglioni, 1964; Chavez-Gonzalez et al., 2021; Sato, 2021; Kirdar et al., 2021; Kayaoglu, 2022; Akbulut-Yüksel et al., 2024). For instance, the study by Nambuya et al. (2018) demonstrated a weak legal but more successful socio-cultural integration of refugees in Uganda, a country with successful refugee policies. On the other hand, Sato (2021) underlined the challenges, such as language acquisition, literacy, and religious differences, that the refugee children in Norway face. Arslan et al. (2020) emphasized the social distance and alienation obstacles faced by Syrian refugees in terms of social integration, despite the historical, cultural, and geographical bonds between Turks and Syrians. Kurt et al. (2023) also highlighted the role of mental health, conflict, and displacement-related stressors as critical factors of socio-cultural integration among Afghan refugees in Türkiye. Refugee concentration in metropolitan areas, such as Istanbul, has also strained education and healthcare systems, with schools exceeding their capacity and health clinics experiencing chronic shortages.

The economic literature on disasters underscores how physical destruction disrupts housing supply while displacement reshapes demand (Skidmore & Toya, 2002; Groen & Polivka, 2008).

In China, Xu and Zhang (2023) found relatively stable cointegration among Chinese cities. Cavallo et al. (2013) examined the causal effect of devastating natural calamities on economic growth. They found that extremely large disasters have a negative impact on output in both the short and the long run. The February 2023 earthquakes in Türkiye represent an unparalleled catastrophe, impacting eleven provinces and destroying or damaging over 300,000 buildings. Beyond immediate humanitarian costs, the disaster created long-term disruptions in housing markets, labor availability, and public finances. The earthquakes also impacted Türkiye's health-care system, causing damage to hospitals and health clinics in the affected areas, resulting in a shortage of medical facilities for injured and displaced people (Uwishema, 2023).

The intersection of financial crises and housing affordability has been a recurring theme since the 2008 global financial crisis. Rising interest rates and inflation erode mortgage accessibility, while global capital volatility destabilizes emerging markets (Reinhart & Rogoff, 2009). The current financial downturn has compounded these vulnerabilities, with Akgiray (2019) and the IMF (2023) warning of heightened debt distress and declining investment flows. Following the post-COVID-19 pandemic period, Türkiye has faced persistent currency depreciation and inflation exceeding 50% (CBRT, 2024), which has exacerbated housing affordability issues, particularly for middle- and low-income households.

Previous research has primarily examined the separate effects of migration pressures, natural disasters, and financial instability, highlighting how

these factors interact to increase vulnerabilities—especially in emerging economies with weak institutional frameworks. However, empirical work addressing the simultaneous and consecutive occurrence of multiple crises and their overlapping impacts is still limited. Moreover, a significant gap also exists in synthesizing these threads specifically through the lens of urban housing market dynamics. Housing serves as a primary channel through which these shocks are transmitted to the local population, affecting affordability, spatial inequality, and social cohesion. This study seeks to address this gap by integrating these disparate fields to examine how polycrisis forces converge to reshape the urban housing landscape in emerging economies, using Türkiye as a pivotal case study.

## Methodology

This study employs a sequential mixed-methods approach to capture the multidimensional impacts of intertwined shocks. The quantitative econometric analysis identifies macro-level structural changes in the housing market, while the qualitative perception survey provides crucial social context to interpret these economic patterns.

In the first phase, a survey was conducted in 2024 across multiple Turkish cities, with emphasis on Istanbul, where refugees are heavily concentrated. An online questionnaire was prepared, sent to participants through an online survey platform, and a total of 157 responses were collected. Since İstanbul was the city that hosted the most refugees, the majority of the participants were selected from the residents of Istanbul. The study also focuses on the dynamics of the housing industry, so the industry background of the participants was primarily from construction and real estate. Based on the outcomes of analyzing past studies, the survey was designed to assess the respondents' perceptions of the socioeconomic impacts of refugees on security, social integration, crime, and healthcare services. Since the study focuses on polycrisis in Türkiye, the survey aimed to gather perceptions about the social impact of refugees. The data were analyzed using R statistical software for descriptive and inferential analysis. In the second phase, cointegration and causality analyses were employed. Housing price data from 2014Q1 to 2025Q1 were obtained from the Central Bank of the Republic of Türkiye (CBRT). Eleven earthquake-affected provinces were included in the analysis: Adana, Adıyaman, Diyarbakır, Elazığ, Gaziantep, Hatay, Kahramanmaraş, Kilis, Malatya, Osmaniye, and Şanlıurfa. A structural break analysis of the February 2023 Earthquake was also conducted.

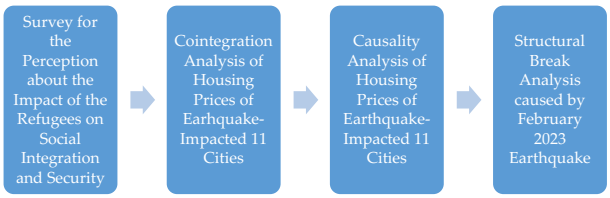


*Figure 1. The Methodological Flowchart of the Study*

For the first phase, the Likert scale was used, and respondents were asked to score the questions (1 = strongly disagree, 5 = strongly agree). For analysis, the chi-squared test was conducted.

For the second phase of the study, the Unit Root Test (Augmented Dickey-Fuller) was used to check for stationarity, the Johansen Cointegration Test was applied to assess long-run relationships between housing prices, the Granger Causality Test was used to examine directional dependencies, and the Structural Break Tests (Bai-Perron) were employed to identify earthquake-induced disruptions. Table 1 shows the hypotheses of the first part of the research.

*Table 1. The hypotheses of the first phase of the research*

| |
|---|
| There is a national security problem due to refugees. |
| There is an internal security problem due to refugees. |
| The crime rates have increased due to refugees. |
| There is a socio-cultural integration problem due to the refugees. |
| Access to health services has been more difficult due to the refugees. |

## *Findings*

### *Survey Results*

According to the Presidency of Migration Management of Türkiye (2025), 443.462 Syrian refugees (17,5% of the total) are living in İstanbul.

*Table 2. Demographic Analysis of the Respondents*

| Residency | Responses | Rate | Gender | Responses | Rate |
|---|---|---|---|---|---|
| **İstanbul** | 103 | 65.61% | **Male** | 106 | 32.50% |
| **Other Cities** | 54 | 34.39% | **Female** | 51 | 67.50% |
| **Total** | 157 | 100.00% | **Total** | 157 | 100.00% |
| **Age** | **Responses** | **Rate** | **Industry** | **Responses** | **Rate** |
| **18-40** | 64 | 40.76% | **Construction & Real Estate** | 64 | 40.76% |
| **41-60** | 73 | 46.50% | **Other** | 93 | 59.24% |
| **61 and Elder** | 20 | 12.74% | **Total** | 157 | 100.00% |
| **Total** | 157 | 100,00% | | | |

*Table 3. The Survey Scores*

| Impacts | All Responses | Istanbul Residents | Construction & Real Estate Professionals |
|---|---|---|---|
| There is a socio-cultural integration problem due to the refugees | 4.59 | 4.66 | 4.66 |
| There is an internal security (public order) problem due to refugees | 4.52 | 4.58 | 4.42 |
| Crime rates have increased due to refugees | 4.3 | 4.38 | 4.25 |
| There is a National Security problem due to refugees | 4.27 | 4.36 | 4.17 |
| Access to health services has become difficult due to the refugees. | 3.92 | 3.86 | 3.78 |

This is followed by Gaziantep (353,315), Şanlıurfa (220,676), Adana (190,084), and Hatay (169,775). Thus, the responses were mostly collected (65,6%) in İstanbul, where the majority of the refugees live. While 46.5% of the respondents were between 41 and 60 years old, 41% of the participants were under 40, and 13% of them were over 61. Among 157 participants, one-third of the respondents (51 responses) were female, and 67,5% of them were male. Table 2 shows the demographic analysis of the respondents.

This is followed by internal security, an increase in crime rates, and national security. Difficulties in access to health services were perceived as having the least impact on the refugees.

Notably, the results revealed similar perceptions across all participants, regardless of age, gender, location, or industry, indicating a broad societal consensus, as shown in Table 4.

*Table 4. The Statistical Analysis of the Responses*

| Internal_Security_Threat | Age | Gender | Location | Industry |
|---|---|---|---|---|
| X-Squared | 0.02859 | 1.0417 | 1.7444 | 3.1216 |
| Df | 1 | 1 | 1 | 3 |
| P-Value | 0.8657 | 0.3074 | 0.1866 | 0.3732 |
| National_Security_Threat | **Age** | **Gender** | **Location** | **Industry** |
| X-Squared | 0.6259 | 0.1052 | 0.9078 | 4.6503 |
| Df | 1 | 1 | 1 | 3 |
| P-Value | 0.4289 | 0.7547 | 0.3407 | 0.1993 |
| Increase_in_Crime_Rates | **Age** | **Gender** | **Location** | **Industry** |
| X-Squared | 3.0269 | 3.7202 | 0.6861 | 2.7562 |
| Df | 1 | 1 | 1 | 3 |
| P-Value | 0.08189 | 0.05376 | 0.9934 | 0.4308 |
| Problems_in Socicultural_Integration | **Age** | **Gender** | **Location** | **Industry** |
| X-Squared | 0.0201 | 2.1507 | 1.3097 | 0.4884 |
| Df | 1 | 1 | 1 | 3 |
| P-Value | 0.8872 | 0.1425 | 0.2524 | 0.9214 |
| Increase_in_Difficulties_to_Access_to_Health_Services | **Age** | **Gender** | **Location** | **Industry** |
| X-Squared | 0.0227 | 2.7187 | 0.1991 | 1.3704 |
| Df | 1 | 1 | 1 | 3 |
| P-Value | 0.8192 | 0.09918 | 0.6554 | 0.7125 |

As shown in Table 3, the survey results indicate that participants perceive refugee inflows as a significant burden on their socioeconomic life, with socio-cultural integration being seen as the main problem.

### *Johansen Cointegration Test Results*

The Augmented Dickey-Fuller test was employed for the stationarity test.

*Table 5. Stationary Test Results*

| City | ADF Stat (Levels) | p-value (Levels) | ADF Stat (1st Diff) | p-value (1st Diff) | Conclusion |
|---|---|---|---|---|---|
| Adana | -2.45 | 0.391 | -5.12 | < 0.01 | I(1) |
| Adıyaman | -1.89 | 0.651 | -5.98 | < 0.01 | I(1) |
| Diyarbakır | -2.12 | 0.527 | -5.45 | < 0.01 | I(1) |
| Elâzığ | -2.67 | 0.255 | -5.23 | < 0.01 | I(1) |
| Gaziantep | -2.88 | 0.178 | -4.87 | < 0.01 | I(1) |
| Hatay | -1.76 | 0.714 | -6.01 | < 0.01 | I(1) |
| Kahramanmaraş | -2.01 | 0.584 | -5.67 | < 0.01 | I(1) |
| Kilis | -2.34 | 0.409 | -5.34 | < 0.01 | I(1) |
| Malatya | -2.55 | 0.303 | -5.56 | < 0.01 | I(1) |
| Osmaniye | -2.23 | 0.472 | -4.95 | < 0.01 | I(1) |
| Şanlıurfa | -2.78 | 0.207 | -5.11 | < 0.01 | I(1) |

All 11 cities exhibited non-stationarity at price levels but became stationary after first differencing. Table 5 shows the stationary test results.

For cointegration, the Johansen Cointegration Test (Trace and Maximum Eigenvalue Statistics) was conducted.

***Null Hypothesis ($H_0$):*** There are at most r cointegrating relationships.

***Test Specification:*** Vector Error Correction Model (VECM) with unrestricted intercepts and restricted trends. The optimal lag length for the VAR model was determined to be two lags via AIC/SIC.

***Result:*** The test identifies multiple cointegrating vectors, indicating these cities' housing markets moved together in a long-run equilibrium before the earthquake. Before the earthquake, six cointegrating vectors linked all provinces, indicating strong regional integration. Table 6 shows the Johansen cointegration test results.

It significantly Granger-causes prices in Adana ($p < 0.01$), a major regional economic center, as well as in Malatya ($p < 0.05$), Osmaniye ($p < 0.05$), and Kilis ($p < 0.10$).

Adana is the secondary hub, exerting significant influence over Hatay ($p < 0.05$), Kahramanmaraş ($p < 0.10$), and Osmaniye ($p < 0.10$). Hatay and Kahramanmaraş, severely affected provinces, form a tightly coupled system, with strong bidirectional causality ($p<0.01$ and $p<0.05$). This suggests that their markets were highly integrated and driven by similar local factors prior to the earthquake.

Diyarbakır and Şanlıurfa exhibit a significant relationship, with Diyarbakır having a notable influence on Şanlıurfa ($p < 0.05$). Diyarbakır also influences Elazığ ($p<0.05$) and Malatya ($p<0.10$), acting as a minor hub for the eastern part of the region.

On the other hand, Adıyaman stands out as the most isolated market.

*Table 6. Cointegration Test Results*

| $H_0$ | $H_1$ | Trace Statistic | 5% Critical Value | p-value | Conclusion |
|---|---|---|---|---|---|
| $r = 0$ | $r > 0$ | 210.34 | 150.55 | 0.000 | Reject $H_0$ |
| $r \leq 1$ | $r > 1$ | 145.67 | 117.89 | 0.001 | Reject $H_0$ |
| $r \leq 2$ | $r > 2$ | 108.42 | 89.48 | 0.003 | Reject $H_0$ |
| $r \leq 3$ | $r > 3$ | 76.33 | 65.82 | 0.007 | Reject $H_0$ |
| $r \leq 4$ | $r > 4$ | 49.15 | 45.74 | 0.023 | Reject $H_0$ |
| $r \leq 5$ | $r > 5$ | 25.21 | 29.80 | 0.158 | Fail to Reject $H_0$ |

### *Granger Causality Test Results*

After the cointegration test, Granger Causality was also employed to examine any price causality among the 11 earthquake-impacted cities. The matrix shown in Table 7 reveals a clear hierarchy and network of influences among the cities, with Gaziantep serving as the primary price setter.

It shows no significant causal influence on the prices of any other city and is only weakly influenced by others. This suggests internal, idiosyncratic factors primarily drove its housing market.

*Table 8. Bai-Perron Structural Break Test Results*

| City | UDmax Statistic | p-value (UDmax) | Number of Breaks Identified | Primary Break Date | F-Stat (Primary Break) |
|---|---|---|---|---|---|
| Adana | 12.45 | 0.104 | 1 | 2020-Q1 | 10.21 |
| Adıyaman | 31.02 | <0.001 | 1 | 2023-Q1 | 28.15*** |
| Diyarbakır | 15.78 | 0.032 | 2 | 2021-Q2, 2022-Q4 | 14.33 |
| Elazığ | 18.91 | 0.008 | 1 | 2022-Q2 | 16.40 |
| Gaziantep | 14.12 | 0.062 | 1 | 2020-Q1 | 12.88 |
| Hatay | 45.67 | <0.001 | 1 | 2023-Q1 | 41.32*** |
| Kahramanmaraş | 38.91 | <0.001 | 1 | 2023-Q1 | 35.18*** |
| Kilis | 16.54 | 0.025 | 1 | 2021-Q3 | 15.01 |
| Malatya | 22.18 | 0.002 | 1 | 2023-Q1 | 19.87*** |
| Osmaniye | Kas.89 | 0.152 | 0 | - | - |
| Şanlıurfa | 13.87 | 0.071 | 1 | 2020-Q2 | 12.04 |

The pre-earthquake causal structure portrays a regionally integrated yet hierarchically structured housing market. Gaziantep and Adana were the dominant drivers of price movements across the region.

A break is confirmed if the F-statistic exceeds the critical value (a 1% significance level is used). The results of the structural break analysis are shown in Table 8.

*Table 7. Granger Causality Test Results*

| Cause ⇒ Effect | Adana | Adıyaman | D. Bakır | Elazığ | G.Antep | Hatay | K.Maraş | Kilis | Malatya | Osmaniye | Ş. Urfa |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Adana | — | 0.128 | 0.315 | 0.241 | 0.321 | 0.015 ** | 0.083 * | 0.452 | 0.187 | 0.074 * | 0.265 |
| Adıyaman | 0.286 | — | 0.587 | 0.412 | 0.845 | 0.762 | 0.634 | 0.321 | 0.528 | 0.455 | 0.691 |
| D.Bakır | 0.092 * | 0.445 | — | 0.038 ** | 0.154 | 0.288 | 0.211 | 0.562 | 0.097 * | 0.333 | 0.023 ** |
| Elazığ | 0.224 | 0.512 | 0.057 * | — | 0.278 | 0.421 | 0.365 | 0.188 | 0.241 | 0.412 | 0.337 |
| G.Antep | 0.008 *** | 0.214 | 0.132 | 0.165 | — | 0.423 | 0.236 | 0.112 | 0.047 ** | 0.031 ** | 0.184 |
| Hatay | 0.851 | 0.672 | 0.724 | 0.558 | 0.672 | — | 0.005 *** | 0.445 | 0.612 | 0.487 | 0.765 |
| K.Maraş | 0.045 ** | 0.387 | 0.254 | 0.321 | 0.198 | 0.028 ** | — | 0.276 | 0.154 | 0.211 | 0.332 |
| Kilis | 0.365 | 0.245 | 0.412 | 0.187 | 0.084 * | 0.354 | 0.432 | — | 0.298 | 0.165 | 0.421 |
| Malatya | 0.154 | 0.561 | 0.087 * | 0.231 | 0.062 * | 0.512 | 0.145 | 0.412 | — | 0.278 | 0.198 |
| Osmaniye | 0.078 * | 0.332 | 0.412 | 0.454 | 0.043 ** | 0.487 | 0.287 | 0.221 | 0.365 | — | 0.512 |
| Ş.Urfa | 0.312 | 0.721 | 0.035 ** | 0.298 | 0.124 | 0.654 | 0.412 | 0.543 | 0.187 | 0.445 | — |

The earthquake's epicenter (Kahramanmaraş) and the most devastated province (Hatay) were in a tight feedback loop but were also influenced by the larger hubs. This structure helps explain the post-earthquake divergence: the decoupling of the Hatay-Kahramanmaraş loop from the influential hubs (Gaziantep/Adana) would have a profound fracturing effect on the entire regional system.

### *Structural Break Analysis Results*

For the structural break, the Bai-Perron Multiple Breakpoint Test was employed. The Null Hypothesis ($H_0$) was that no structural break exists in the time series. The Alternative Hypothesis ($H_1$) was that at least one structural break exists. UDmax/WDmax tests were conducted to detect any breaks. Sequential F-statistics determine the precise break dates.

The analysis reveals a clear and stark division between cities based on the intensity of the earthquake's impact. Adıyaman, Hatay, Kahramanmaraş, and Malatya were severely affected in the February 2023 earthquake. These provinces, located at the epicenter of the earthquake, show overwhelming statistical evidence of a structural break. The F-statistics are highly significant (ranging from 19.87 to 41.32), indicating a drastic and permanent shift in the data-generating process of their housing prices.

The earthquake did not just cause a temporary shock; it fundamentally altered the long-term trajectory and dynamics of the housing markets in these cities. Pre-earthquake trends are no longer a reliable predictor of future prices.

Diyarbakır, Elazığ, and Kilis were moderately affected by the February 2023 earthquakes.

*Table 9. Summary of Econometric Analyses*

| City | Cointe-gration (Pre-EQ) | Granger Causality (Pre-EQ) | Structural Break (2023-Q1) | Overall Conclusion |
|---|---|---|---|---|
| Adana | Integrated | **Influencer & Receiver**: Caused by Gaziantep; Causes Hatay, Kahramanmaraş, Osmaniye. | No Break | **Resilient Hub**. A stable, influential market that maintained its long-run relationships and was not fundamentally altered by the earthquake. |
| Adıyaman | Integrated | **Isolated**: Showed no significant causal links with other cities. | Break | **Fragile & decoupled**. Despite being in the pre-EQ system, it was an isolated player. The earthquake caused a fundamental breakdown, severing its weak links. |
| Diyarbakır | Integrated | **Eastern Hub**: Causes Elazığ, Malatya, Şanlıurfa. | No EQ Break | **Resilient with Shocks**. An influential eastern market. Experienced breaks from other events but not fundamentally reshaped by the 2023 earthquake. |
| Elazığ | Integrated | **Receiver**: Caused by Diyarbakır. | No EQ Break | **Moderately Resilient**. Part of the integrated system and influenced by neighbors but did not suffer a fundamental EQ break. |
| Gaziantep | Integrated | **Dominant Hub**: Causes Adana, Malatya, Osmaniye, Kilis. | No Break | **Central Anchor**. The most influential price-setter in the region. Its stability was crucial for the system, and it remained unbroken post-EQ. |
| Hatay | Integrated | **Bidirectional with Maraş**: Strong causal link with Kahramanmaraş. | Break | **Severed & transformed**. A key, interconnected market that was fundamentally broken by the earthquake, destroying its tight link with Kahramanmaraş. |
| Kahramanmaraş | Integrated | **Bidirectional with Hatay**: Strong causal link with Hatay; also causes Adana. | Break | **Epicenter Collapse**. As the epicenter, its market suffered a fundamental breakdown, shattering its key relationship with Hatay and its influence on Adana. |
| Kilis | Integrated | **Minor Receiver**: Weakly caused by Gaziantep. | No EQ Break | **Minor & Resilient**. A small, integrated market that, while influenced by Gaziantep, was not fundamentally broken by the earthquake. |
| Malatya | Integrated | **Receiver**: Caused by Diyarbakır and Gaziantep. | Break | **Damaged & decoupled**. Although influenced by others, it suffered a severe enough shock to break its long-run ties and market structure. |
| Osmaniye | Integrated | **Receiver**: Caused by Adana and Gaziantep. | No Break | **Resilient Satellite**. A well-integrated market that is influenced by major hubs but remains stable during disasters. |
| Şanlıurfa | Integrated | **Receiver**: Caused by Diyarbakır. | No EQ Break | **Resilient Eastern City**. Part of the eastern cluster influenced by Diyarbakır, it did not experience a fundamental EQ break. |

These cities showed significant breaks, but not in the first quarter of 2023. The breaks are linked to other regional events. While the break of Kilis (2021-Q3) was likely related to periods of intense refugee inflow and geopolitical tension on the Syrian border, the break in Diyarbakır (2021-Q2, 2022-Q4) may be associated with regional economic shifts or security operations. On the other hand, the structural break in Elazığ (2022) was potentially related to the aftermath of the earlier Elazığ earthquake (Jan 2020) and its prolonged recovery process.

Adana, Gaziantep, Osmaniye, and Şanlıurfa were obtained as resilient cities with no earthquake-related break. These major economic centers showed no statistically significant break in Q1 2023.

Their housing markets exhibited continuity, and their economic mass, lower physical damage, and role as destinations for displaced populations likely insulated their markets from a fundamental structural shift. Their pre-earthquake price dynamics remain relevant. The summary of the econometric analyses is exhibited in Table 9.

## Discussion and Conclusion

The findings from both the econometric analysis and the perception survey paint a comprehensive picture of Türkiye as a quintessential example of the polycrisis. Unlike single-shock scenarios, the country faced a convergence of mutually reinforcing pressures: refugee inflows, catastrophic earth-

quake displacement, and global financial instability, each exacerbating the socioeconomic impacts of the others.

The survey results provide critical context for understanding the social landscape upon which these economic shocks unfolded. A broad societal consensus emerged, with respondents across demographics and locations identifying socio-cultural integration as the most significant challenge (avg. score 4.59/5), followed closely by internal security and increased crime rates. This perception of strain on the social fabric is not merely anecdotal; it directly influences public policy debates and social cohesion, creating a challenging environment for implementing crisis response measures. The fact that access to health services was perceived as the least impacted area (though still significant at 3.92/5) suggests that while infrastructure may be strained, the primary societal tensions revolve around identity, security, and social order. These perceptions of social strain, combined with the economic pressures documented in the econometric analysis, create a feedback loop where socioeconomic anxiety can fuel political resistance to inclusive refugee and reconstruction policies, further complicating crisis management.

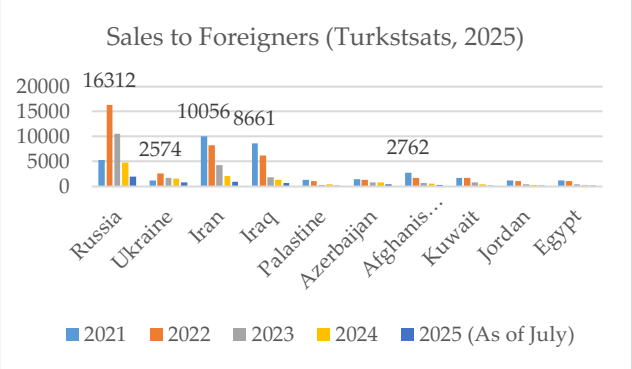


***Figure 2. Housing Sales to Foreigners (Türkstat, 2025)***

This social context intensified economic dynamics. Between 2014 and 2023, the settlement of over 500,000 Syrian refugees in Istanbul alone acted as a primary demand shock to the housing market. Secondary migration waves compounded this; the 2013 Reciprocity Law enabled citizens from conflict-ridden nations, such as Russia, Iran, Iraq, Ukraine, and Palestine, to purchase Turkish real estate as a safe-haven asset, placing additional upward pressure on prices, particularly in major metropolitan areas. Figure 2 exhibits the number of housing units sold to foreigners since 2021.

The February 2023 earthquakes then delivered a catastrophic supply shock that interacted violently with this existing demand pressure. The econometric analysis reveals a stark regional divergence. Severely affected provinces, such as Hatay, Kahramanmaraş, and Adıyaman, experienced profound structural breaks, with their housing markets decoupling from regional equilibrium and witnessing price surges exceeding 50%. In contrast, resilient economic hubs like Gaziantep and Adana, while experiencing price increases (+32%, +29%), demonstrated continuity in their long-term price trends, insulated by stronger infrastructure, economic diversity, and their role as destinations for displaced populations.

The disaster also triggered a massive demographic reordering, as confirmed by Turkstat (2024) data showing 3.45 million people migrating between provinces in 2023, the highest rate since 2007, with 14.5% explicitly citing the earthquake. The net out-migration from devastated provinces (e.g., Hatay, Malatya) and corresponding inflows into cities like Ankara and Istanbul generated secondary demand shocks, exacerbating affordability crises. Furthermore, the reconstruction effort created a skilled labor shortage, driving a 25% wage increase and distorting labor markets, thereby widening the inequality between the formal and informal sectors.

Global financial instability acted as a force multiplier on these domestic pressures. Persistent inflation exceeding 50% and currency depreciation eroded mortgage accessibility for locals, while simultaneously making real estate an attractive hedge for foreign and domestic investors, further inflating prices. The high cost of imported construction materials, driven by a weak Turkish Lira, slowed recovery efforts in the most affected regions, delaying rebuilding and prolonging displacement.

In summary, the Turkish case demonstrates that in a polycrisis, shocks compound through multiple channels: refugee inflows and disaster displacement create direct demand shocks; destruction creates a supply shock; and financial instability amplifies affordability problems and hinders recovery. The perception of social strain, as

captured by the survey, adds a critical layer of complexity, potentially undermining the social consensus needed for effective, long-term policy responses.

The polycrisis manifests through a vicious cycle as shown in Figure 3: Refugee inflows + Earthquakes → Economic Shock (Supply/Demand Imbalance) → Price Surges & Market Fragmentation → Social Anxiety & Perceived Threat → Political and Social Constraints on Policy → Prolonged Recovery & Deepened Crisis. Global financial instability turbocharges this entire cycle by eroding affordability and hampering reconstruction.

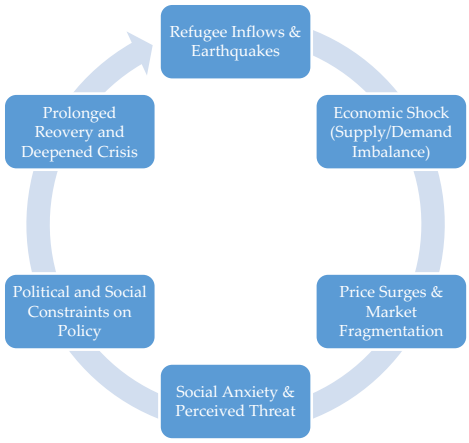


***Figure 3. Vicious Cycle of the Polycrisis in Türkiye (by Author)***

This study examined how the intertwined global crises of refugee inflows, natural disasters, and financial instability interact to reshape housing markets and socioeconomic resilience in emerging economies, using Türkiye as a critical case study. The findings unequivocally demonstrate that these crises are not isolated events but are deeply interconnected, creating a "resultant vector" of impact that is greater than the sum of its parts.

The research confirms a double demand shock in Türkiye's housing market, where refugee inflows and post-earthquake displacement simultaneously constrained supply and inflated demand, leading to dramatic price surges and the spatial fragmentation of a once-integrated regional market. Cities with robust economic infrastructure (Gaziantep, Adana) demonstrated resilience, while those at the epicenter of the disaster (Hatay, Kahramanmaraş, Adıyaman) suffered structural breaks and long-term divergence. Global financial turbulence, characterized by high inflation and currency depreciation, further magnified these pressures, eroding affordability and complicating reconstruction.

Ultimately, Türkiye's experience underscores the profound vulnerability of urban systems in an age of polycrisis. It also, however, highlights potential pathways to resilience through integrated policy planning, robust infrastructure, and innovative financial mechanisms. The lessons from Türkiye are not isolated; they offer a crucial blueprint for other emerging economies navigating an increasingly volatile global landscape defined by overlapping geopolitical, environmental, and economic shocks.

The polycrisis nature of these challenges demands integrated, multi-dimensional policy responses that move beyond traditional approaches. Several steps and policies are to be implemented in this context. In the short run, establishing an integrated central crisis management authority to coordinate housing, migration, and disaster response policies is essential. This body should develop a National Resilient Housing Strategy that includes: phased reconstruction which prioritizes building back better with earthquake-resistant codes in devastated areas, while simultaneously developing new satellite towns near resilient economic hubs to absorb internal displacement without overburdening major cities, and rental market stabilization which introduce targeted, temporary rental subsidies for both displaced citizens and refugees to prevent homelessness and mitigate social tension, coupled with incentives for landowners to register vacant properties.

In the mid-run, creating a dedicated fund for reconstruction, leveraging international development loans and investment bonds to finance infrastructure and housing projects, providing alternative housing financing models to break the deadlock in bank-loan dependent financial system, launching public awareness campaigns to address the integration challenges highlighted in the survey, and focusing on shared economic benefits and cultural exchange are other important steps to avoid or mitigate the potential policrises.

In the long run and on a global scale, international financial institutions such as the IMF and the World Bank, as well as development agencies, should promote and fund Polycrisis Vulnerability Assessments for emerging economies. These assessments would model the interaction of climate, migration, and financial risks to identify systemic vulnerabilities and design pre-emptive policy buffers.

Multilateral development and reconstruction banks and investment funds shall create more flexible financing facilities that can be rapidly deployed in response to compound crises. These funds should move beyond traditional humanitarian aid to support budget stabilization, social infrastructure, and long-term development projects in host countries. The international community must strengthen efforts toward global burden-sharing for refugee hosting. This includes increasing resettlement quotas, providing predictable financial support to major host countries like Türkiye, and creating more legal pathways for migration to reduce pressure on informal channels and border regions. By adopting such a comprehensive and interconnected policy approach, nations can begin to build the resilience needed to withstand the compound shocks that define the 21st-century polycrisis.

The lessons learned from the Türkiye case provide a roadmap, if the suggested policies are implemented properly, for effective polycrisis management in other emerging countries such as Egypt, Greece, and Lebanon. Despite their natures and the differing international institutional support (i.e., Greece is backed by the European Union (EU), whereas Türkiye lacks EU support, especially in handling refugee problems), there are similarities among these countries. For instance, both Türkiye and Egypt are similarly exposed to political, economic, and environmental issues, as well as their dependence on external factors, such as foreign investment inflows and energy supply. Thus, good practice in handling polycrisis in Türkiye can inspire other countries from policy development and implementation perspectives.

The perception survey, though revealing a strong societal consensus, was limited to 157 respondents in this study, predominantly from Istanbul and the construction and real estate sectors, which may affect the generalizability of the findings to the entire Turkish population. Furthermore, the econometric analysis, although robust, primarily captures macro-level housing market dynamics and may not fully account for micro-level factors, such as neighborhood-specific effects, informal rental markets, or qualitative shifts in housing quality and desirability following a disaster.

This study aimed to develop a polycrisis framework based on Türkiye's experience, one of the leading emerging economies. The evolving nature of the polycrisis also means that the full long-term socioeconomic impacts, particularly on labor markets and social cohesion, have yet to be fully realized and measured. Future research should employ larger, nationally representative surveys to deepen the analysis of public perception and its policy implications. Additionally, employing spatial econometrics or agent-based models could provide a more granular understanding of local market dynamics. Longitudinal studies tracking the long-term integration of displaced populations and the effectiveness of different reconstruction and policy interventions would be invaluable for refining crisis response frameworks. Finally, comparative case studies of other emerging economies facing similar convergent shocks would help test the generalizability of the "polycrisis" framework developed in this study.

**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 the project titled "The Socio-Economic Impacts of Refugees and Immigrants on Hosting Countries: Evidence from Türkiye" was granted by the Boğaziçi University Social and Human Sciences Human Research Ethics Committee (SBİNAREK). Application/record No.: 2024-55; Meeting No.: 2024/08;

Date: 30 October 2024. The approval was issued unanimously with all members attending online. The approved protocol covered the survey procedures used in this article.

***Informed Consent:*** Electronic informed consent was obtained from all participants prior to the questionnaire; participation was voluntary and could be withdrawn at any time. No personally identifying information was collected.

***Data Availability:*** Macro-level housing price series used in the econometric analyses are publicly available from the Central Bank of the Republic of Türkiye's data portal. The de-identified survey dataset generated during the study is 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

OPUS Journal of Society Research

# Making Disinformation Visible Through Media in the Age of Crises: An Examination of the Russia-Ukraine War

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## Abstract

*The broadcasting practices produced by the media with the aim of directing people towards specific goals have constituted a social reality from past to present. Especially during times of war, the media reproduces state narratives, legitimizes official policies, and frames conflicts through selective representations. In this context, the media has been used as a tool to persuade broad segments of society and to legitimize the parties involved. With the proliferation of new communication technologies, disinformation content disseminated through the digital media also has a profound impact on society. This study examines disinformation content originating from Russia during the first 100 days of the war, following the escalation of the Russia-Ukraine conflict into a full-scale military war in February 2022. The data source for the research is EUvsDisinfo. Russian-sourced disinformation content was examined through quantitative and qualitative content analysis. According to the findings of the study, the categories of Russian-sourced disinformation that stood out included anti-NATO/anti-Western sentiment, rhetoric about Nazis and genocide rhetoric, social unrest in Europe, and claims about biological laboratories/chemical weapons. Russian media has intensively produced disinformation within the framework of these themes. The study shows that disinformation is not just the circulation of false information; it is also a strategic tool used to build legitimacy, mobilize the domestic public, and weaken the opposing side. Making these mechanisms visible, identifying the central role of the media in contemporary conflicts, and developing social awareness against disinformation are emerging as crucial issues for today's societies.*

**Keywords:** *Media, new communication technologies, disinformation, Russia-Ukraine war, digital media*

## Öz

*Medya yoluyla üretilen ve insanları belirli hedefler doğrultusunda yönlendirmeyi hedefleyen yayıncılık pratikleri geçmişten günümüze değin bir gerçeklik olarak karşımıza çıkmaktadır. Özellikle savaş dönemlerinde medya, devlet söylemlerini yeniden üretir, resmi politikaları meşrulaştırır ve çatışmaları seçici temsiller aracılığı ile çerçeveler. Bu bağlamda medya geniş toplum kesimlerini ikna etmek, tarafların kendilerini meşru kılmak amacıyla bir araç olarak kullanılmıştır. Yeni iletişim teknolojilerinin yaygınlaşmasıyla birlikte dijital medya yoluyla dezenformatif içerikler de toplum üzerinde yoğun etkiler yaratmaktadır. Bu çalışmada 2022 Şubat ayında Rusya-Ukrayna çatışmasının geniş çaplı bir askeri savaşa dönüşmesiyle birlikte savaşın ilk yüz günü boyunca Rusya kaynaklı dezenformatif içerikler ele alınmıştır. Araştırmanın veri kaynağı EUvsDisinfo'dur. Nicel ve nitel içerik analizi ile Rusya kaynaklı dezenformatik içerikler incelenmiştir. Araştırmanın bulgularına göre, Rusya kaynaklı dezenformasyon kategorileri arasında NATO/Batı karşıtlığı, Naziler ve soykırım söylemleri, Avrupa'daki toplumsal huzursuzluk ile biyolaboratuvar/kimyasal silah iddiaları ön plana çıkmıştır. Rusya medyası, bu temalar çerçevesinde yoğun bir şekilde dezenformasyon üretmiştir. Çalışma, dezenformasyonun sadece yanlış bilginin dolaşımı olmadığı; aynı zamanda meşruiyet inşası, iç kamuoyunu seferber etme ve karşı tarafı zayıflatma amacıyla kullanılan stratejik bir araç olduğunu göstermektedir. Bu mekanizmaların nasıl üretildiğini görünür kılmak, çağdaş çatışmalarda medyanın merkezi yerini tespit etmek ve dezenformasyona karşı toplumsal farkındalığı geliştirmek günümüz toplumları açısından oldukça önemli bir sorun alanı olarak karşımıza çıkmaktadır.*

**Anahtar Kelimeler**: *Medya, yeni iletişim teknolojileri, dezenformasyon, Rusya-Ukrayna savaşı, dijital medya*



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## Introduction

The 21st century we live in represents a period marked by multiple crises occurring at the same time. We are confronted with numerous issues such as wars, geopolitical conflicts, economic and ecological crises, political polarization, the rise of populism, and mass migration. In light of all this, it is necessary to emphasize the crisis facing the media and freedoms, which are indispensable for societies. A report prepared by UNESCO (2021) for the 2021-2022 period highlights that 85% of the world's societies have seen a decline in press freedom in their countries. When authoritarian regimes are excluded, it is possible to speak of structural dependencies and systematic limitations on media freedom even in Western democracies. Indeed, Europe is characterized by a rapidly intensifying concentration in the media market, a gradual decline in public service broadcasting, increased pressure on media professionals, and various restrictions on freedom of expression and access to information. A global report published by the Pew Research Center (2025) shows that the media is going through a period of great pressure and crisis. In European societies, which are considered leaders in press freedom, there are intense public concerns about freedoms in the media. According to this report (2025: 15), among the societies that consider fake news and misinformation in the media to be a major problem in their countries are France (63%), Germany (62%), and Italy (51%). A similar trend applies to the American continent. 43% of Canadians and 51% of Americans share the concerns of Europeans. It is clearly demonstrated a global decline in media, freedoms, and democracy is being witnessed. As such, the state of the media constitutes one of the key elements of today's crisis.

This study aims to understand how national and international journalism practices are framed, particularly during times of war, and how biased and manipulative content is circulated in terms of its function of informing the public. The study does not make a comparison between democratic and authoritarian regimes; rather, it seeks to reveal how the media generally reproduces the formal policies of governments. In doing so, the theoretical framework adopts an ideological apparatus approach to the relationship between the media and the state or governments, drawing on the theoretical frameworks of Althusser, Herman and Chomsky, and Hall. In the reality of war, the ways in which news is selected and rendered visible in the media have been examined though Robert Entman's framing approach with illustrative examples. In line with Entman's approach, Edward Said's perspective on how Muslim societies are framed in Western media, particularly after the Cold War, has been examined. Similar patterns reveal how anti-Russian sentiment was generated in the Western political sphere during the Russia-Ukraine war. The final theoretical part of the study is devoted to the phenomenon of disinformation. With digitalization, how information wars are waged has been revealed through content analysis in the context of the first 100 days of the war, alongside Russia's large-scale military operation in 2022.

## Media and State/Government Relations During Times of War: Media as Ideological Reproduction

"The first victim of war is truth"
Hiram Johnson

It would be an exaggeration to say that during times of war, the media exists solely as a neutral space for transmitting information. The selection, presentation, and distribution of news are influenced by the media's ownership structure, economic dependencies, and structural relationships with states/governments. As such, the role of the media during times of war is more critical than ever. States or governments engage in intensive propaganda and information manipulation activities during wartime to mobilize public opinion in line with their policies and control perceptions of the enemy. In this process, the media becomes a vehicle for conveying the state/government discourse to the public, playing a distinct role in legitimizing and conducting the war.

The United Kingdom (UK) and the United States (US), the first two countries where broadcasting began with radio, pioneered two separate models in the West. While a commercial model based on advertising and sponsorship developed in the US, a "public service" model based on license fees was established in the UK (Kejanlıoğlu,

2004, p.22). The British Broadcasting Corporation (BBC), regarded as a pioneer in public broadcasting, has placed significant emphasis on political broadcasting since its early years. In fact, it is one of the primary forces shaping and defining the landscape of British broadcasting (Spangenberg, 1997, p.53). The BBC's global news service is a media organization that reaches an average of 318 million people per week in multiple languages. With approximately £400 million in funding (largely from UK license fees), it states on its corporate website that it shares ideals such as neutral and independent journalism, the advancement of global democracy, and combating disinformation (BBC, no date). In this context, diversity of opinion and balanced reporting are considered fundamental values of the BBC. It is argued that when reporting the news, the arguments of both sides should be presented as they are (Richardson & Barkho, 2009, p.614). Publicly funded broadcasting is viewed positively due to its potential to represent the interests of citizens. Many countries around the world widely maintain public broadcasting on the grounds that it serves the interests of society. This approach, which assigns the state a duty in realizing the public good, refers to "a public service that will enhance the quality of society, particularly in the political and cultural spheres." (Kaya, 2006, pp.109-110). Indeed, it is said that commercial broadcasting has limited public character and that citizens are merely consumers. Commercial broadcasting is primarily profit-driven and dependent on advertisers. According to this understanding, such a situation poses a threat to democratic citizenship because it transfers control of information to commercial entities. Public broadcasting occupies an institutional space that is to some extent independent of market relations and the state. It creates a national arena that enables different segments of society to communicate with each other and addresses viewers as citizens rather than consumers (Stevenson, 2008, pp.109-110). However, when examining the public/private distinction, Althusser argues that institutions such as the media, which are legally considered private property, are integrated into the dominant structure through economic and political relations. According to him, even though press and media organs, radio and television institutions appear to be "independent," they actually function as devices that reproduce the ideological discourse of the ruling class. These institutions do not use overt pressure or force; however, they contribute to the production of social consent by circulating the dominant ideology that ensures the continuity of the state. Therefore, he emphasizes that the private/public distinction is merely a legal formality and does not eliminate the ideological function of these institutions (Althusser, 2014, pp.75-81). Similarly, according to Herman & Chomsky (2012, p.15), "the media serves the interests of powerful social groups that control and finance it, and propagates in their favor. These groups have important agendas and principles that their representatives wish to promote, and they are in a highly advantageous position in terms of shaping and imposing media policy" whether public or private broadcasting, radio and television companies and networks can operate only through licenses and operating rights regulated by governments. This situation potentially subjects the media to government control. This legal dependency can be used to discipline the media or to suppress media policies that deviate from the official line (Herman and Chomsky, 2012, p.83).

In the book *Culture, Media, and Representation*, edited by Stuart Hall, it is emphasized by Connell (1991, p.137) that the neutrality of television news and current affairs programs is widely seen as a myth. Accordingly, it is stressed that media discourses are not simple representations of an independent and objective reality, but rather meanings constructed through specific ideological codes in the processes of journalistic production. Thus, the media is conceptualized not as a neutral channel that simply reproduces dominant ideas, but as a discursive field where ideological meanings are produced and reorganized.

Historical examples clearly reveal this function. For instance, during the war between the United Kingdom and Argentina over the Falkland Islands in 1982, the BBC's relatively impartial broadcasting was criticized by then Prime Minister Margaret Thatcher for allegedly failing to safeguard national interests. Similarly, in the Vietnam War, the main victims were portrayed as American citizens while the Vietnamese people were represented as

"worthless victims." In the Iraq war, favorable attitudes toward the legitimacy of the war in line with pro-Western lobbies were displayed. These cases explicitly demonstrate the media's dependence on political power (Koç, 2017, pp.303-304; Herman & Chomsky, 2012, pp.39-40; Gunter, 2009, p.59). Therefore, although the public/private broadcasting distinction is legally meaningful in accordance with the theoretical approach mentioned above, it shows that this distinction is not possible during times of war and is largely consistent with state/government programs.

**Framing the War, Othering, and Ideological Representation**

According to Robert M. Entman, the framing approach involves selecting and highlighting certain elements of reality in the communication process, thereby presenting the recipient with a specific perspective. In this process, making certain elements more visible through the transmitted text enables the phenomenon to be defined in a specific way, establishes cause-and-effect relationships, allows for moral evaluations, and supports possible solutions. According to the author, communication texts involve selecting certain elements of reality and bringing them to the fore, while leaving other aspects in the background. In this context, framing is not only a means of conveying facts but also serves a guiding function in terms of how these facts will be perceived. Frames perform four functions. These are defining the phenomenon under examination in a specific way, constructing causal explanations for this phenomenon, presenting moral evaluations of events or actors, and legitimizing proposed solutions to problems. Therefore, framing can be considered a form of cognitive structuring that goes beyond the mere presentation of information and enables the public to develop specific intellectual orientations. In this context, the media does not merely convey information; it also shapes social perception by creating maps of meaning regarding which information is considered important, correct, and legitimate (Entman, 1993).

Framing becomes particularly prominent during times of war. For example, while the "communist threat" frame dominated Western media during the Cold War years, it can be said that similar frames are constructed in European-centered publications in studies on the Russia-Ukraine war today. In this respect, the Russia-Ukraine war foregrounds anti-Russian discourses shaped in accordance with Europe's socio-political context. One study examined (Amber et al., 2022), the visual and linguistic presentation of Putin and Zelensky in the news, revealing that photo selections and narrative structures were ideologically shaped. The findings represent Ukraine as a victimized country under Russian occupation, while Zelensky is glorified as a symbol of resistance and humanity. Putin, on the contrary, is portrayed as an aggressive and authoritarian personality.

The framing process is often intertwined with the construction of the "other." In this context, Edward Said's study *Covering Islam* (2007) is illuminating. According to him, Western media represents the Islamic world through reductive stereotypes, despite its historical and cultural diversity. Edward Said emphasizes the need to see the historical and ideological relationship behind the representation of Muslim societies in Western media. Based on this, Western societies represent modernity as a whole, along with the diversity they harbor. The Islamic world, on the other hand, despite its many different societies, languages, and histories, is nothing more than "Islam," which can be reduced to a few unchanging characteristics (Said, 2007, p.82). Today, examples of this phenomenon can be found particularly in Western literature, where they are interpreted as the "Islamic extremist" threat. With the blurring of the line between war and terrorism (McQuail, 2006: 108), representations in the media have also become unclear. During this period, fundamentalist movements originating from the Cold War and supported by the US/Western world emerged, and with the collapse of the Soviet Union, these fundamentalist movements found opportunities to expand (Mert, 2022, p.284). Discrimination and othering against Muslims and Arabs have been widely reproduced in the Western press at different times. Discourse

suggesting that Muslims are more prone to terrorism and violence and pose a threat to Western democracies has fueled this perception. The initial blaming of Muslims following the Breivik attack in Norway in 2011, only for it to later emerge that the attacker was a Norwegian right-wing extremist, clearly demonstrates this prejudice. The BBC's pro-Israel language in the Palestinian-Israeli conflict is another example. Factors such as Israel's material resources and the support it receives from the US in the Western bloc directly influence these broadcasting practices (Richardson & Barkho, 2009, p.615; Ibrahim, 2009, pp.522-523; Noor & Abdul, 2016, p.267; Yusha'u, 2015, p.172; Hashish et al., 2023, pp.65-66; Amer, 2022, p.7).

Such examples demonstrate that framing is not merely a means of conveying information, but a direct reflection of power's influence over social perception. These representations show that othering is not limited to Islamic societies. In the context of the Russia-Ukraine war, Russia is positioned as the aggressor and Ukraine as the victim, thereby steering Western public opinion.

**New Information Wars: Disinformation in the Digital World**

Nowadays, classical propaganda and framing mechanisms have gained a new dimension with the development of digital technologies. Concepts such as disinformation, misinformation, and malinformation have begun to emerge frequently. Examining the development of internet technologies over the past twenty years in the context of the transformation of broadcasting practices is important in terms of the speed at which these concepts have spread. Broadcasting, together with new communication technologies, particularly in the post-2010 period known as Web 3.0, with the further development of mobile internet technologies, points to an era in which it is possible to establish connections between different platforms; traditional mass communication tools have adapted to this new technology, transforming the nature of broadcasting (Dikmen, 2017, p.426). In this context, modern warfare also marks an era where information warfare is being waged through new media environments. To resolve the semantic confusion surrounding these concepts, Wardle and Derakhshan (2017, p.4-5), offer an analytical perspective and examine them in three contexts. According to them, misinformation, disinformation, and malinformation are the three types. The authors argue that two dimensions should be considered when making this distinction: harm and inaccuracy.

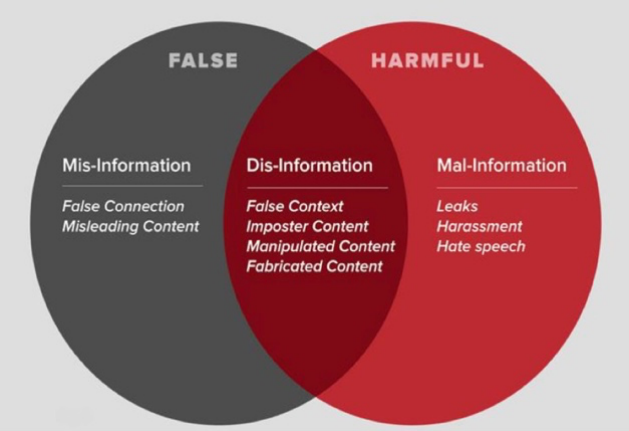



***Figure 1. Information Disorder*** (Wardle & Derakhshan, 2017, p.5)

Misinformation arises when harmful content is shared without the intention of causing harm (İşleyen, 2023). Disinformation refers to the deliberate dissemination of false information with the intent to cause harm. Malinformation, on the other hand, refers to the misuse of accurate information. That is, information that should normally remain private or not be taken out of context is made public with the intent to harm others (Wardle & Derakhsan, 2017, p.5). As seen in the figure above, there are points of intersection between disinformation, misinformation, and malinformation. According to Floridi (2011, p.260), misinformation is "data that is correctly formed and meaningful, but false," while disinformation is defined as "misinformation deliberately communicated with the intent to deceive the recipient into believing it is information." Therefore, we must emphasize that disinformation is misleading information that serves to deceive (Fallis, 2015, p.401). Thus, unintentionally produced misinformation is deliberately disseminated to the masses alongside disinformation. When combined with malinformation,

the narrative is deliberately distorted from its intended context and reinforced through disinformation.

With emerging digital technologies, raising social awareness against disinformation has become more challenging. Disinformation can be achieved through many tactics. By using fake accounts, deepfakes, and emotional content, confusion is created, society is divided, and people are led to doubt reality. This change makes it harder to recognize disinformation and makes it more dangerous than ever (Sese, 2025, pp.7-8). Spreading disinformation through the media is one of the most important strategies for the state's war policies to be effective today.

In the case of Russia, where media autonomy is extremely limited, it seems highly unlikely that the media can be separated from the state's dominant discourse. Indeed, it is emphasized that media freedom in Russia is severely restricted, the media ownership structure is largely under direct or indirect state control, and independent press is granted only a limited and marginal space. It is noted that economic competition at the regional level in this largest geographical area in the world does not provide autonomy to the media; instead, it reinforces the authorities' capacity to control the media. This situation, combined with the structural weaknesses of the media market in Russia, allows the state to strengthen its hegemonic position in the media field and increase its capacity to influence public opinion (Vartanova & Smirnov, 2011; Mejias & Vokuev, 2017). This situation demonstrates that information sources in Russia are largely controlled by the state. The Russia-Ukraine war has shown that disinformation is no longer produced solely through state-backed media; citizens are also using social media to produce, consume, and disseminate disinformation. Thus, they contribute to the formation of a new order in which disinformation is gaining increasing authority to such an extent that while content produced by governments or companies may be viewed with suspicion, the fact that ordinary people engage in such actions gives them authenticity, and such content may be disseminated by social media (Mejias & Vokuev, 2017, p.1029). Additionally, advances in the use of artificial intelligence are leading to the emergence of disinformation in different forms and its spread through more diverse channels (Marushchak et al., 2025, p.1). Thus, disinformation content whose source cannot be fully identified but which is extremely easy to produce is quickly put into circulation.

In general, it is evident that during times of war, the media cannot be considered independent of government policies. The media, as an ideological apparatus integrated with the state, shapes social perception through selective and directive frameworks, strategies of othering, and processes of information and, consequently, disinformation accelerated by digitalization. Therefore, disinformation is not merely the circulation of false information; it is one of the most critical tools for governments to build legitimacy during times of war.

## Method

In the research part of the study, disinformation content circulated during the first 100 days of the Russia-Ukraine war (February 24-June 3, 2022) was examined. The primary data source for the research is the EUvsDisinfo project conducted by the European External Action Service's East Stratcom Task Force. Since 2015, this project has systematically recorded ongoing examples of disinformation originating from the Russian Federation that affect the European Union, its Member States, and neighboring partner countries, and makes these examples available to the public in the form of an open database. EUvsDisinfo also identifies disinformation cases through media monitoring and analysis activities conducted in 15 languages and publishes disproof texts related to these cases alongside the records.

This study employed a mixed-method approach combining qualitative and quantitative content analysis. Disinformation texts were first cleaned and coded thematically using a keyword dictionary (Appendix 1). A discourse analysis was then applied to identify ideological strategies such as *demonization, victimization,* and *heroization*. For the quantitative dimension, TF-IDF vectorization and spherical k-means clustering were used to detect discourse clusters, while time-series and co-occurrence analyses revealed thematic changes and

overlaps across the first 100 days of the war. This combination allowed for both an in-depth interpretive reading of narratives and the measurement of their frequency, intensity, and evolution over time.

**Data Collection Process**

The data used in the study were downloaded directly from Mendeley Data and from an open dataset prepared by Barbaro & Skumanich (2023a). This dataset contains a total of 14,497 disinformation cases recorded between January 6, 2015, and November 22, 2022, along with the corresponding debunking texts. For each case, seven different attributes are included: date, title, disinformation text, fact-checking information, source link, target country, and relevant media outlet. This structured format allows for the evaluation of both the content and temporal trends of the cases. In this study, the aforementioned extensive database was filtered and used as a subset of 324 disinformation cases occurring during the first 100 days of the Russia-Ukraine war, from February 24 to June 3, 2022. The reason for focusing on this period is that it represents a critical phase that determined the course of the war; it is assumed that disinformation activities intensified during the first hundred days. This assumption is linked to the process in which military operations developed rapidly and the international public's perceptions of the war were shaped.

**Analysis Methods**

Both qualitative and quantitative content analysis methods were used in the study. First, the data was cleaned, duplicate records were removed, and disinformation claims were coded using keywords to create thematic categories. The ideological patterns used in the language of news were examined using a discourse analysis approach, revealing strategies such as *demonization*, *victimization*, and *heroization.* In the quantitative analysis, the frequencies of cases were calculated, determining how often the discourses were repeated and in which weeks they became more concentrated. These data were then evaluated as time series, allowing the tracking of changes in the themes that came to the fore during different phases of the war.

Keyword-based thematic coding was performed using the dictionary provided in Appendix 1. Multiple assignments were allowed; a case could be assigned to more than one theme. Coding was performed independently by two researchers; reliability was measured using Cohen's (1960) kappa coefficient prior to agreement. The calculated $\kappa=0.82$ value indicates "very good" agreement according to Landis & Koch's (1977) classification and demonstrates a high degree of consistency in the coding process (0.61-0.80: good; 0.81-1.00: very good). The records were screened for both exact and near-exact copies. Near copies were measured using Jaccard similarity (Manning, Raghavan & Schütze, 2008; Broder, 1997) based on n-grams generated using the standard shingling approach; pairs exceeding the $\geq 0.85$ threshold were manually checked. It was scanned in line with the large-scale web page similarity literature (Henzinger, 2006), and no records requiring merging were found. TF-IDF (Term Frequency-Inverse Document Frequency) based vectorization was applied to reveal discourse clusters, and similar discourses were grouped using the *spherical k-means* algorithm. The k value was scanned in the range of 2-10; based on the trends of the silhouette (Rousseeuw, 1987) and Davies-Bouldin indices (Davies & Bouldin, 1979), $k=5$[1] was found to be optimal. To increase the interpretability of cluster characteristics, distinctive terms were reported using *sparse centroid projection*. Co-occurrence was calculated at two levels: the term level, where two themes/key terms appear together within the same case text, and the theme level, where the same case is tagged with multiple themes. The co-occurrence threshold was set to at least one common sentence (term level) and at least two common theme tags (theme level); the results are presented in tabular form. Critical event markers were used in the weekly trend graphs; for example, the *Bucha disclosure (early april),* selected sanctions packages, and heavy weapons shipment discussions were added to the relevant weeks with

[1] The silhouette coefficient yielded its highest value at k=5, while the Davies-Bouldin index yielded its lowest value at k=5.

vertical lines and explanatory notes (Graphs 2-4, also Appendix 2).

Furthermore, all analyses were performed using Python: *pandas* for data processing, *unicodedata* for character normalization, *regex* for text preprocessing, *scikit-learn (TF IDF Vectorizer)* for text mining and vectorization, *spherical k-means* for clustering, and *matplotlib* for visualization (see Appendix 3 for details).

**Limitations and Reproducibility**

This study is based on EUvsDisinfo's regulatory framework; therefore, it may contain selection bias in terms of sample, platform, and language coverage. Thematic matches are correlative; they indicate simultaneous patterns and intensities, not causality. Results are reproducible using the same data filters. The method is an adaptation of the first 100 days of the dataset from Barbaro & Skumanich (2023b).

**Findings**

Column names and text have been made consistent in the 324-case subset; invisible space characters and different line endings have been corrected. Only unnecessary spaces at the beginning/end of text cells were removed; content was preserved. No completely empty rows were encountered, and date columns were converted to a uniform format. No records above the threshold were found in either exact-copy or near-copy checks. A missing value analysis was performed on a column-by-column basis; missing rates were reported in a table.

**Thematic Analysis**

Disinformation texts in the cleaned data were classified using a keyword-based coding method (Appendix 1), and thematic categories were created based on the identified terms[2]. As a result of these processes, it was observed that disinformation cases were concentrated around specific topics. Prominent categories include opposition to NATO/the West, opposition to the US/EU, Nazi and genocide rhetoric, social unrest in Europe, and claims about biological laboratories/chemical weapons.

***Table 1. Prominent Themes***

| Theme | Number of Cases |
|---|---|
| Anti-NATO and anti-Western sentiment | 134 |
| Anti-US and anti-EU sentiment | 93 |
| Nazis and genocide rhetoric | 51 |
| Unrest in Europe | 41 |
| Biolaboratories and chemical weapons | 9 |
| Total | 328[3] |

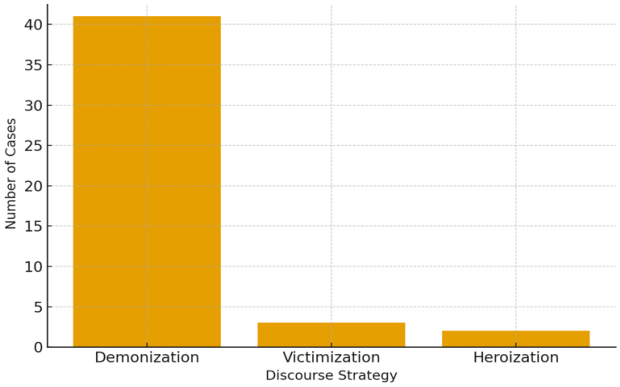
When disinformation content is categorized by theme using keyword analysis, certain discourses emerge as prominent during the first hundred days of the war. The most frequently recurring theme was anti-NATO and anti-Western sentiment, with a total of 134 cases falling under this category. Anti-US and anti-EU sentiment was identified in 93 cases, while Nazi and genocide rhetoric was found in 51 cases. Although less frequent, emphasis on social unrest in Europe was seen in 41 cases, while claims about biological laboratories and chemical weapons were seen in 9 cases. This distribution shows that disinformation was particularly concentrated on anti-Western content and content targeting Ukraine with Nazi rhetoric.

The disinformation content in the data was examined using a discourse analysis approach, and at this stage, recurring ideological patterns were identified through keywords. The findings revealed that disinformation was most often carried out through a strategy of demonization. In a total of 41 cases, the Ukrainian government was targeted with expressions such as “Nazis,” “killers,” or “fascists.” In contrast, the victimization strategy was observed in only 3 cases. These contents generally emphasized that Russia or civilians were under attack. The heroization strategy was identified in only 2 cases, where Russia presented itself as a “protector” or “hero.”

The following graph shows which strategies disinformation cases centered around during the first hundred days:

*[2] Thematic assignments are made when keywords appear directly, or their synonyms are used.*

*[3] Since a case can be assigned to more than one theme, the total number of themes has exceeded 324.*

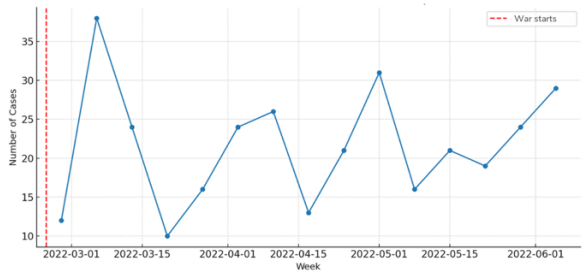



*Graph 1. Discourse Strategies in Disinformation*

Discourse analysis findings show that disinformation is most often carried out through the strategy of demonization. *Victimization and heroization* strategies have been observed to a more limited extent. Enmity is not limited to the "Nazi/genocide" sub-narrative; it encompasses a broad spectrum that delegitimizes or demonizes the opposing side (Nazi discourse being a subcategory of this).

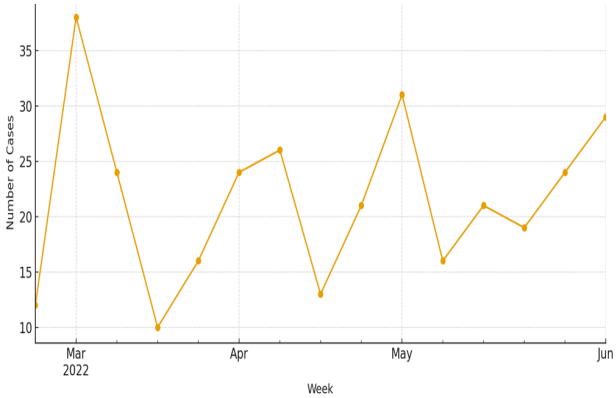
**Time Series Analysis**

The temporal distribution of disinformation cases during the first hundred days of the war was evaluated using three different graphs. The data was grouped weekly, frequency calculations were performed, and graphs were prepared.



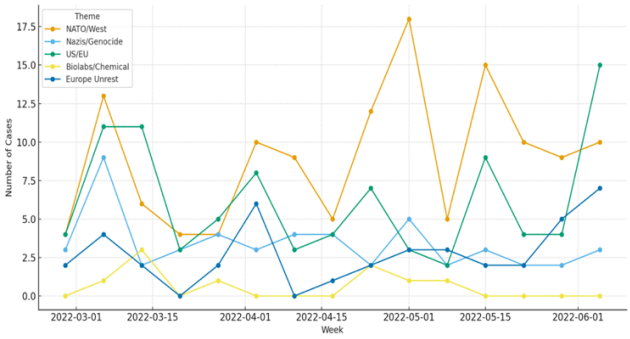

*Graph 2. Time Series of Disinformation Cases*

Graph 2 shows the change in total case numbers by week. Disinformation peaked during the first week of the war, February 27-March 6, 2022 (38 cases), with anti-NATO/anti-Western rhetoric particularly prominent. In mid-March, there was a significant drop in the number of cases (10 cases), and during this period, the rhetoric shifted towards claims of "Nazis" and "genocide." Throughout April, the number of cases remained relatively stable (ranging from 13 to 26 cases), but rose again in May, with 31 cases recorded in the week of May 1-8 and 29 cases in the week of May 29-June 5.




*Graph 3. Weekly Frequency of Disinformation Cases*

Graph 3 details the fluctuating frequency of cases. The sharp increase in the first weeks of the war, in particular, shows that disinformation was produced intensively at the start of the conflict.




*Graph 4. Weekly Trends by Theme*

Graph 4 presents thematic trends in a comparative temporal format. When event markers are added, anti-NATO/Western rhetoric emerged immediately after the invasion; Nazi/genocide narratives intensified in mid-March; and themes of sanctions and social unrest became prominent in May. Anti-NATO/Western sentiment rose with 13 cases in the week of March 6, peaking with 18 cases in the week of May 1. That same week, Nazi/genocide rhetoric (9 cases) and anti-US/EU sentiment (11 cases) were also notable. Claims about biological laboratories and chemical weapons were limited but increased, particularly in mid-March; references to unrest in Europe were low in intensity and scattered.

When these three graphs are evaluated together, it is clear that disinformation changed not

only in terms of content but also over time, parallel to critical phases of the war. While NATO and Western-opposed rhetoric was prominent in the early days of the war, Nazi/genocide rhetoric targeting Ukraine came to the fore in mid-March; US/EU opposition followed a relatively stable course throughout April, while rhetoric about European sanctions and social unrest became more pronounced in May. This fluctuation reveals that disinformation does not follow a fixed line; rather, it is used as a strategic tool, shifting to different themes depending on the course of the war and developments in international public opinion.

### Text Mining and TF-IDF Analysis

The TF-IDF Vectorizer method was applied for text mining to determine which concepts stand out in disinformation content. This method calculates the importance of each word within the texts, enabling the identification of prominent concepts[4]. As a result of this analysis, it was observed that the most frequently repeated and defining concepts in disinformation discourse during the first hundred days of the war were "Ukraine," "Russia," "Ukrainian," "Russian," "Kyiv," and "NATO" (Table 2). Furthermore, terms such as "Western/West," "military," "weapons," and "Bucha" also achieved high scores, reflecting the themes on which disinformation focused.

*Table 2. The Most Frequent and Defining Terms*

| Term | TF-IDF Score |
|---|---|
| Ukraine | 69.84 |
| Russia | 55.20 |
| Ukrainian | 49.66 |
| Russian | 47.21 |
| Kyiv | 29.72 |
| NATO | 26.97 |
| Western | 26.38 |
| West | 25.87 |
| Military | 24.94 |
| Weapons | 22.71 |
| Bucha | 21.84 |
| Operation | 21.66 |
| War | 20.95 |
| States | 19.61 |

The findings reveal that disinformation was largely produced around concepts centered on the warring parties (Ukraine and Russia) and critical developments on the battlefield. In addition, the Western world and its institutions (NATO, Western States) emerged as one of the main targets of disinformation. Content related to arms shipments and military aid (military, weapons) has been at the center of propaganda, while attacks on civilians and their repercussions in the international public sphere (Bucha) have also become recurring themes in disinformation.

### Clustering Analysis

After TF-IDF vectorization, disinformation content was clustered using the *spherical k-means* algorithm, and the optimal separation was achieved with k=5. In selecting terms, the average TF-IDF scores for each cluster were considered, thus identifying words that were not only prominent in a single document but also recurring and distinctive across the cluster[5]. Furthermore, the distinctive terms for each cluster are presented in bar charts (Figures 6-10).

*Table 3. Prominent Terms by Cluster*

| Cluster1 | Cluster2 | Cluster3 | Cluster4 | Cluster5 |
|---|---|---|---|---|
| Poland | Ukraine | operation | Russia | Bucha |
| polish | nazi | special | Ukrainian | Russian |
| Ukraine | Russia | Ukraine | Nato | biological |
| Warsaw | state | Russia | Russian | Ukrainian |
| western | Kyiv | military | World | laboratories |
| control | west | Donbas | War | military |
| Russian | European | Donetsk | Zelenskiy | weapons |
| lands | weapons | people | West | media |
| poles | EU | Russian | Ukraine | troops |
| territorial | Europe | republics | People | civilians |

The cluster headings are as follows:

**CL1:** Discourse focused on Poland and regional territorial disputes.

**CL2:** Nazi discourse, accusations against Kyiv and the West.

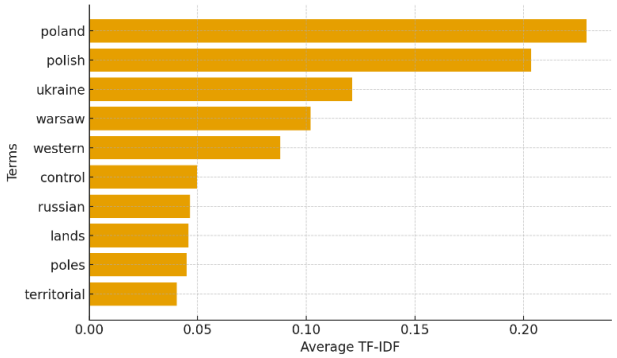
**CL3:** Military emphasis on Donbas and operations.

[4] *TF-IDF (Term Frequency-Inverse Document Frequency) values are normalized scores; they are only comparable within themselves. A higher value indicates that the relative importance of the term in the document has increased.*

[5] *The cluster distribution and proportional magnitudes are reported in Appendix 2, Table Appendix 2.*

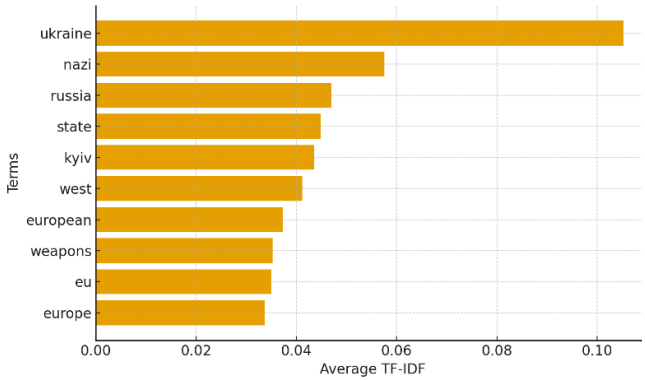
**CL4:** NATO, Zelenskiy, and international actors in the general context of the war.

**CL5:** Bucha, biological laboratories, and allegations concerning civilians.



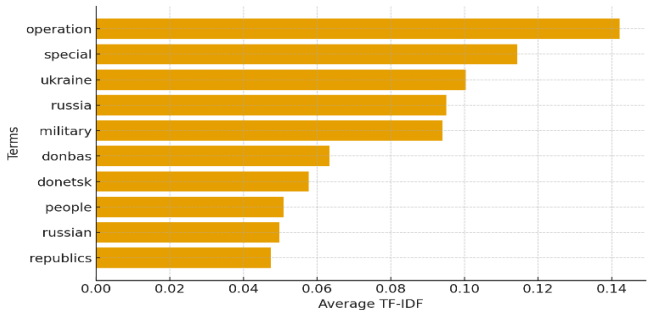

*Graph 6. Cluster 1-Top 10 Terms*

This cluster highlights Poland and regional territorial disputes. The discourse aims to exaggerate Poland's role in the Ukraine crisis, portraying the country as an aggressive or expansionist actor. Furthermore, concepts such as "Polish," "Warsaw," and "territorial" emphasize Poland's historical influence over Ukraine. This cluster indicates that Russian disinformation targets not only Ukraine but also other countries in the region.



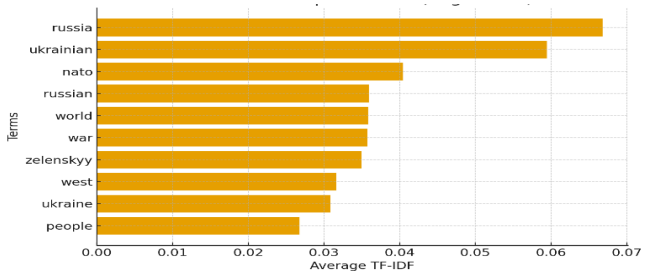

*Graph 7. Cluster 2-Top 10 Terms*

The second cluster highlights Nazi rhetoric and accusations against the West. Concepts such as "Nazi," "Kyiv," "state," and "European" equate the Ukrainian government with the Nazis while also fueling the claim that the Western world supports this so-called ideology in Ukraine. This strategy is an effort to undermine Ukraine's legitimacy and portray Western interventions as illegitimate. The aim of the rhetoric is to weaken international support for Ukraine.



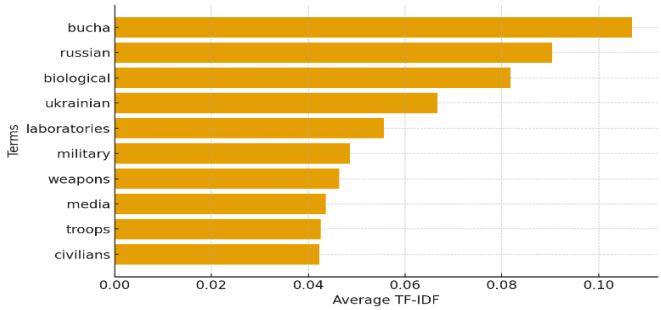

*Graph 8. Cluster 3-Top 10 Terms*

The third cluster is dominated by rhetoric about Donbas and the operation. Concepts such as "operation," "special," "Donbas," and "Donetsk" frame Russia's attack on Ukraine as a legitimate "special operation." The language used here aims to normalize and justify military intervention. At the same time, Ukraine's presence in these regions is portrayed as an illegitimate occupation.




*Graph 9. Cluster 4-Top 10 Terms*

The fourth cluster highlights NATO, Zelensky, and international actors. Terms such as "NATO," "war," "world," and "Zelensky" reflect the global dimension of the war in Ukraine and the propaganda conducted through leaders. This discourse portrays NATO as an aggressive and war-mongering structure, while reducing Zelensky to the position of a spokesperson for the West. Thus, Ukraine's independent will is overshadowed, and responsibility for the war is shifted to the West.




*Graph 10. Cluster 5-Top 10 Terms*

In the fifth and final cluster, Bucha, biological laboratories, and allegations against civilians stand out. Terms such as "Bucha," "biological," "laboratories," and "civilians" are key components of disinformation that denies Russia's war crimes and blames Ukraine. These narratives aim to mislead the international community and cover up attacks on civilians. Furthermore, the biological laboratory allegations reinforce the perception that the West is conducting covert activities in Ukraine through conspiracy theories.

These findings show that disinformation in the first hundred days of the war did not focus on a single theme; rather, it was constructed in a multi-layered way around geographical actors (Poland, Kyiv, Donbas), ideological frameworks (Nazis, the West), international institutions (NATO, EU), and specific events (Bucha, biolaboratories). This multi-layered structure reveals that disinformation not only framed the military conflict between Ukraine and Russia but also aimed to steer the perception of the international public, question the unity and credibility of the Western world, and create an emotional impact with dramatic events targeting civilians. Thus, disinformation has been circulated through different discourse clusters targeting both regional actors and global decision-makers; it has been conducted in parallel with the military dimension of the war as a tool of strategic communication.

**Co-Occurrence Analysis**

The co-occurrence results (Table 4) show that discourses are often circulated in complementary pairs.

*Table 4. Prominent Discourse Co-occurrences*

| Discourse Pair | Number of Cases |
|---|---|
| West-Ukraine Gov | 27 |
| Russia-Civilians | 9 |
| US-EU | 6 |
| NATO-Biolaboratory | 1 |
| Nazi-Genocide | 1 |

The findings reveal that disinformation follows a multi-layered persuasion strategy not only through individual themes but also through complementary pairs of narratives. The most common pairing is the joint targeting of the West and the Ukrainian government (27 cases). These discourses have generated questions about legitimacy by positioning Ukraine as an actor directed by the West. The Russia-civilians discourse pair was identified in 9 cases, with Russia presenting itself as an actor protecting civilians. US-EU opposition was used together in 6 cases, targeting the unity of the Western bloc. More rarely, NATO-biolaboratory and Nazi-genocide discourses were seen simultaneously in the same texts. These co-occurrences enabled disinformation to portray Ukraine as a "puppet" acting with Western support, while also positioning Russia in a "protective" role, thereby increasing the persuasive power of the propaganda messages.

**Case Study**

To support the quantitative findings, some disinformation cases were examined in detail and presented in tabular form (Table 5) to represent the thematic categories and discourse strategies identified in the previous stages of the study. In the case selection process, each case was identified as an example of a different strategy or theme. The first example, the claim that the US and NATO created militaristic hysteria in Ukraine, is a typical example of an anti-Western conspiracy discourse. The second case linked the Ukrainian government to Nazi rhetoric, a strategy that reinforced demonization. The third case reveals the denial strategy regarding the Bucha massacre. The fourth case, portraying Ukraine as a "puppet" of the US and the EU, represents a propaganda line that denies Ukraine's independence. Each of these examples has been selected in relation to a different strategy or theme, thus concretely and representatively demonstrating the diversity of disinformation.

These examples demonstrate that disinformation was circulated through a multi-layered strategy during the first hundred days of the war, utilizing both anti-Western rhetoric and Nazi/genocide narratives, as well as the denial of incidents targeting civilians.

The findings of this study, which focuses on the first hundred days of the Russia-Ukraine war, show that disinformation was not merely a side element accompanying the military dimension of the

war, but was also used in a planned and multi-layered manner as a strategic communication tool.

*Table 5. Detailed Analysis of Selected Cases*

| Title | Disinformation | Information | Theme / Strategy |
|---|---|---|---|
| US, NATO fanning militarist hysteria in Ukraine | The US and NATO are fueling militaristic hysteria in Ukraine. | This claim is a recurring piece of disinformation targeting Western security policies. | Anti-NATO sentiment / Conspiracy |
| Three Ukrainian presidents have sent Nazis into Donbas | Three former presidents of Ukraine sent Nazi groups to Donbas. | This is a recurring Kremlin disinformation narrative that has no basis in reality. | Enemizing / Nazi rhetoric |
| Bucha is a fabrication only used to interrupt negotiations | Bucha, this is a fabrication. They only use it to interrupt negotiations. | Independent reports and satellite images confirm that the massacre actually took place. | Disbelief / Attack on Civilians |
| Kyiv's US and EU curators are encouraging hostilities to continue | Ukraine is being directed by the US and the EU, and hostility towards Russia is being encouraged. | This claim is disinformation that rejects Ukraine's independent decision-making processes. | Anti-US/EU sentiment / Puppet rhetoric |

Thematic analyses show that anti-NATO and anti-Western rhetoric is the most dominant discourse, followed by anti-US/EU rhetoric and Nazi/genocide narratives. While the most frequently encountered strategy in these contents is demonization, victimization and heroization discourses are encountered in much more limited numbers. Time series analyses reveal that disinformation fluctuated in tandem with critical phases of the war; for example, anti-Western discourse came to the fore in the first weeks of the invasion, Nazi/genocide narratives intensified in mid-March, and by May, content related to unrest and sanctions in Europe became prominent. Text mining and clustering results show that disinformation was produced not only through Ukraine and Russia, but also through a wide range of regional actors such as Poland, extending to specific events such as the Bucha massacre. Co-occurrence analyses have proven that rhetoric is often circulated in pairs to increase its persuasive power, with Ukraine being portrayed as a puppet of the West and Russia being presented as the actor protecting civilians. This multidimensional structure reveals that disinformation aims not only to influence regional conflicts but also to shape international public opinion, utilizing ideological, geopolitical, and emotional elements simultaneously. Consequently, when the data obtained is considered in terms of content, timing, and discourse connections, it is understood that disinformation is a dynamic, adaptable, and systematic propaganda tool during times of crisis, changing its content and direction according to the course of the war and global developments. Therefore, counter-strategies should not be solely verification-focused; they must also make visible the ways in which content is produced, its objectives, and its temporal strategies.

## Conclusion and Recommendations

This study demonstrates that during times of war, the media is not merely a neutral channel for conveying information; rather, it is a powerful ideological apparatus that reproduces the discourse of political power, shapes social perception, and directs the perspective of the international public. When considered alongside the findings, the theoretical framework employing Althusser's approach to ideological apparatuses, Herman & Chomsky's propaganda model, Hall's representation theory, Entman's framing approach, and Said's perspective on othering demonstrates how deeply intertwined disinformation is with power practices, both historically and in the present day. From this perspective, the media emerges not merely as a tool for reporting events, but as a power element at the very center of power struggles. The findings reveal that disinformation is constructed in a flexible, multi-layered, and strategic manner alongside the course of the war. These results reveal not only which themes came to the fore, but also the functional consequences created by disinformation. For example, the anti-NATO rhetoric that emerged in the first weeks of the war not only increased anti-Western sentiment but also created a legitimacy gap by leading to the questioning of the support given to Ukraine by international actors. Similarly, Nazi and genocide rhetoric

was designed to portray the Ukrainian government as illegitimate and justify Russia's military intervention. Thus, disinformation has become a strategic tool that directly influences international legal debates, moral legitimacy searches, and social mobilization processes, going beyond mere information manipulation.

Another important finding of the study is disinformation's capacity to create emotional impact. As seen in the example of the Bucha massacre, rhetoric that denies war crimes and blames the other side not only distorted reality but also aimed to divide the international public's reaction. This situation reveals that disinformation involves not only information wars but also emotional wars. Content that appeals to people's emotions, such as anger, fear, or suspicion, overrides rational assessments and increases the effectiveness of propaganda mechanisms. Furthermore, the structural flexibility of disinformation is noteworthy. Findings show that narratives are highlighted in different combinations in different weeks. This flexibility proves that propaganda mechanisms do not merely repeat a specific theme; rather, they quickly adapt to the course of the war, sanctions discussions, or diplomatic developments. For example, when sanctions were on the agenda, the emphasis on social unrest in Europe was increased; when allegations of war crimes against Russia intensified, the rhetoric about biological laboratories and chemical weapons was highlighted. This situation necessitates evaluating disinformation not as a static process, but as a dynamic, tactical, and event-driven one that reshapes itself.

Ultimately, the most critical point revealed by this study is that disinformation is not merely about producing false information. Disinformation is a communication strategy that transforms social perception, creates international legitimacy, manages emotional responses, and directly influences the course of war. Therefore, combating disinformation should not be limited to fact-checking; it should also focus on deciphering the contexts in which content is produced, the emotional responses it triggers, and the political goals it serves. In this context, increasing digital literacy, strengthening ethical media practices, developing AI-supported detection systems, and activating international cooperation mechanisms are of great importance. In this perspective, future research should focus more on how to develop political resistance mechanism against disinformation, alternative public tools, educational modules, and digital control technologies. Thus, combating disinformation can become a space of resistance not only at the content level but also at the structural, cultural and technological levels. All of can only be achieved through global efforts and prioritizing public benefit.

**Declarations**

***Funding:*** No funding was received for conducting this study.

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

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

***Informed Consent:*** Not applicable.

***Data Availability:*** The study draws on publicly accessible EUvsDisinfo records and open datasets (e.g., Mendeley Data). The cleaned subset and analysis outputs generated during the study 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 equally to the conception, design, analysis, and writing of the manuscript.

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RESEARCH ARTICLE

OPUS Journal of Society Research

# Photography as an Expression of Crisis: The Self-Portraits of Ahmet Öner Gezgin

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## Abstract

*This article conceptualizes the notion of crisis through psychological, social, and cultural forms, examining how photography in Turkey after September 12, 1980, particularly through the medium of self-portraiture, transformed into an indirect, allegorical, and multi-layered form of expression. The study analyzes symbolic imagery forms such as shadow, silhouette, void, layer, and reflection, which emerged as a result of the abandonment of socialist realist documentary photography due to censorship and suppression, through the self-portrait photographs taken by Ahmet Öner Gezgin between 1980 and 1988. A qualitative analysis based on iconographic reading, which focuses on the conceptual dimension of self-portraiture, was used as a method; the use of elements such as cups, pocket watches, curtains, glass, mirrors, and shadows was interpreted in the context of the uncertainty of time, the blurring of space, and the existential positioning of the subject between visibility and invisibility. The findings show that Gezgin's self-portraits are based on a practice that merges the subjective with the political rather than a narcissistic presentation; the photographic representation surface itself is transformed into a kind of battlefield consisting of a diagnosis, expression, confrontation, invitation, and challenge related to the crisis through elements such as tears, marks, shadows, and reflections. In conclusion, the study argues that Ahmet Öner Gezgin's self-portraits after 1980 serve both as an archival record of society and as a means of subjective expression; that they highlight the transfer between personal memory and collective memory; and that self-portraits played a foundational role in the transition of Turkish photography from documentary to conceptual/fictional narrative.*

**Keywords:** *Crisis, Photography, 1980 Coup, Self-Portrait, Ahmet Öner Gezgin*

## Öz

*Bu makale, kriz kavramını psikolojik, toplumsal ve kültürel formlar üzerinden kavramsallaştırarak, 12 Eylül 1980 sonrasında Türkiye'de fotoğrafın özellikle özportre türü aracılığıyla nasıl dolaylı, alegorik ve çok katmanlı bir ifade biçimine dönüştüğünü incelemektedir. Çalışma, toplumcu gerçekçi belgesel fotoğrafın baskı ve sansür sonucunda terk edilmesiyle ortaya çıkan gölge, silüet, boşluk, katman, yansıma gibi sembolik imgesel ifade biçimlerini Ahmet Öner Gezgin'in 1980-1988 tarihleri arasında gerçekleştirdiği özportre fotoğrafları üzerinden çözümlemektedir. Yöntem olarak, özportrenin kavramsal boyutunun esas alındığı ikonografik okumaya dayanan nitel analiz kullanılmış; fincan, köstekli saat, perde, cam, ayna, gölge gibi unsurların kullanımları, zamanın belirsizliği, mekanın bulanıklaşması ve öznenin görünürlük ve görünmezlik arasındaki varoluşsal konumlanışı bağlamında yorumlanmıştır. Bulgular, Gezgin'de özportrenin narsisistik sunumdan ziyade öznel olanı politik olanla kaynaştıran bir pratiğe dayandığını; fotografik temsil yüzeyinin bizzat kendisinin yırtık, iz, gölge, yansıma gibi unsurlarla krize dair bir tespit, ifade, yüzleşme, davet ve meydan okumadan oluşan bir tür mücadele alanına dönüştüğünü göstermektedir. Sonuç olarak çalışmada, 1980 sonrası Ahmet Öner Gezgin'in özportrelerinin hem topluma dair arşivsel hem de öznel ifadeye imkan sağlayan bir işlev gördüğü; kişisel hafıza ile kolektif bellek arasındaki aktarımı belirgin hale getirdiği ve Türk fotoğrafının belgeselden kavramsal/kurgusal anlatıma geçişinde özportrenin kurucu rol oynadığı ileri sürülmektedir.*

**Anahtar Kelimeler**: *Kriz, Fotoğraf, 1980 Darbesi, Özportre, Ahmet Öner Gezgin.*



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## Introduction

Koselleck (2006, p.358) stated that the concept of crisis comes from the Greek word "krisis," meaning "to decide" or "to distinguish." Ülken (1969, p.181), however, considering the concept to have both economic and sociological aspects, used the word "Depression." He stated that economic crises generally occur in societies in transition between two cultural environments, when the balance between production and consumption is lost in all or individual institutions. He stated that these crises are experienced in beliefs, moral behavior, artistic taste, etc., resulting in a loss of social balance and the destabilization of institutional cohesion. For example, Öztürk (2005, p.307) stated that capitalism, as a historical system, has always existed with crises, that crises in capitalist production are an essential component of the capital accumulation process, and that while crisis points to the contradictory nature of accumulation, it also provides the opportunity to overcome these contradictions and create more favorable conditions for accumulation.

Hançerlioğlu (1978, p.200), who explains the concept with the word "crisis," states that, according to existentialism, humans are responsible for creating themselves, that this great responsibility causes humans to feel distressed, and that he who cannot escape this distress turn to other actions. However, despite this explanation, he writes that the real cause of crisis is the idea that existentialism, which defends the existence of the individual, ultimately leads to the end of that existence and the fear of death. It is understood that, especially when considered in the context of social sciences, the concept of crisis refers to extraordinary situations that disrupt the ongoing flow, shake the existing balance and order, and deeply affect individuals or society. In addition, it can be said that crises can occur at every level, from the individual to the social, and can have both short-term and long-term consequences.

As a process, crises can be thought of as the intense emotional tension that individuals experience when faced with unexpected, stressful, and threatening situations from a psychological perspective. During such processes, the individual may experience intense emotional reactions such as anxiety, helplessness, or anger, as their sense of self, identity integrity, and coping mechanisms are challenged by the circumstances that constitute the process. The crises in the aforementioned psychological context can leave lasting effects, such as post-traumatic stress disorder, while also creating a turning point in the individual's life and triggering personal transformation.

The social implications of crises include their effects on social institutions, the economy, politics, and cultural structures. Examples of such situations include wars, economic collapses, epidemics, and mass migrations. Social crises have the potential to reshape a society's value system, collective memory, and forms of social solidarity, much like the effects of a crisis on an individual's psychology.

In a cultural crisis, not only the material production processes of individuals and societies are affected, but also their processes of meaning production. In other words, societies can question their existing narratives, symbols, and rituals during times of crisis and bring forth new forms of expression and layers of meaning. Cultural production areas in all art disciplines that construct culture and serve it, such as literature, music, cinema, and photography, can become important tools that both bear witness to crisis periods and play a healing role for individuals and society involved in the process. In this context, cultural productions should be evaluated not only as a means of record-keeping but also as part of the process of coping with and making sense of the crisis.

## The Relationship Between Photography and Crisis

Since its invention, photography has been one of the most powerful visual tools in human history, serving both as a witness and a recorder. In particular, crisis representations in photography have left a deep mark on visual memory and become a turning point in the formation of collective memory with the first photographic records of human crises in the mid-19th century, such as wars, natural disasters, accidents, social protests, murders, etc. In this context, documentary photography occupies a special place. As an example The American photographer Dorothea Lange took the picture at a time when the United States was in the

throes of an economic depression of never before experienced dimensions, and the international economic crisis even proved to be traumatic for Europe (Honnef, 1999, p. 70). Dorothea Lange's iconic images taken during the Great Depression as part of the Farm Security Administration are early examples of photography's power to raise social awareness. Such works not only documented crises but also brought about calls for social change.

When considered as a type of documentary photography, war photography can be regarded as one of the most striking and controversial representations of crisis. Photographers working on war, particularly Robert Capa, have provided visual testimony to violence, destruction, and human drama. However, such images shared with the public have come to the fore not only for their informative function but also for sparking ethical and aesthetic debates. Frequent exposure to uncensored images of suffering carries with it the danger of desensitizing people to such images. While documentary photography plays an important role in recording crises, the subjective approaches of photographers are also highly valuable. For example, "Due to the destruction of a large part of the archives and artworks during the period following the Russian Revolution, it is not easy to trace the history of avant-garde art that emerged in Russia in the early 20th century" (Hodge, 2020, p. 124). In this sense, "photography in the Soviet Union was the vanguard of the movement that encouraged radical social change" (Smith, 2018, p. 23). Lewis (2018, p. 54) notes that revolutionary photography in the Soviet Union was guided by constructivism, and that artists and designers such as Gustav Klutsis, El Lissitzky, and Alexander Rodchenko introduced new approaches to photography to spread socialist ideology. These statements show that during times of crisis, artists have taken on the role of depicting, protesting, and shaping the period. Among these artists, El Lissitzky and Alexander Rodchenko, in particular, used photomontage to convey their political messages to the masses through their self-portraits.

**Self-Portrait and Subjective Expression**

As a form of expression, self-portrait is a visual narrative in which the artist reflects their physical appearance and inner world, including part or all of themselves, with the subject also acting as the object. Kal (2006, p. 4) states that artists began their journey of immortalizing the subject of their paintings with portraits, and later included themselves in their works, which led to the emergence of self-portraits. The origins of self-portraits in painting date back to the Middle Ages. During the Renaissance, self-portraits became an important genre with the increase in individual self-awareness. Artists have produced works that convey both their personal identities and the spirit of the era in which they lived by using their own faces or other parts of their bodies. The greatest opportunity for this was provided by mirrors. Hall (2014, p. 38) states that the first mirrored mirrors were made around the 15th century. In Jan van Eyck's painting "The Arnolfini Marriage," a married couple poses facing the viewer. Behind the couple is a mirror, and Jan van Eyck's reflection can be seen in the mirror. Above the mirror is written, "Jan van Eyck was here." Öztürk (2024, p. 6) states that states that in self-portraits, the body as an object is both the subject and the subjectivity of the artist, the content is the artist himself, the self-portrait is an external expression and presentation of this, and finally, this situation is considered valid for self-portraits produced in all art disciplines.

***Figure 1. (Left) Self Portrait of Robert Cornelius*** *(Source: Library of Congress. (2025). Robert Cornelius, self-portrait; believed to be the earliest extant American portrait photo. Retrived September 25, 2025 from https://www.loc.gov/item/2004664436/), (Right) Self Portrait of Hippolyte Bayard (Source: Wikipedia.org. (2025). Retrived September 25, 2025 from https://en.wikipedia.org/wiki/Hippolyte_Bayard)*

Examples of self-portraits in photography became widespread in the 19th century with the development of technical capabilities. Robert Cornelius's self-portrait from 1839 is considered one of the earliest known examples of this genre (Figure 1). The realism offered by photography has, over time, transformed the self-portrait from a mere representation of the face into a powerful tool for documenting the individual's identity, emotions, and experiences. For example, Hippolyte Bayard, whose work on the invention of photography was overlooked, photographed himself in 1840 and titled his work Self-Portrait as a Drowning Man. According to Hacking (2015, p.20), Bayard's self-portrait reflects the disappointment of being marginalized in the public eye. In this sense, the pose of the photographer becomes important. According to Bate (2013), "Pose and poise surround the personality (mental, physical, social, etc.) of the depicted character with connotations from all angles" (p. 118). Similarly, Leppert (2020, p.238) emphasizes that poses and gestures are not culturally empty signs, but rich and powerful discursive factors.

In terms of subjective expression, self-portraits allow artists to represent themselves not only physically, but also emotionally, psychologically, and even philosophically. Indeed, Bonafoux (1985) underscores the significance of this subjective dimension, stating that "there is nothing important in the artist's gaze in a self-portrait" (p. 84). In this respect, self-portraits can be used as a tool for identity research in a conceptual context, and for internal dialogue or the visualization of moments of crisis in a psychological context. In times of crisis, self-portraits can serve as both a means of expression and a method of coping with the crisis.

With the transition from the analog era to the digital age, the concept of self-portrait, whose production form has changed, has undergone another transformation with the influence of social media. This transformation is the act of recording one's own image together with the place and time in which it is located, and rather than an artistic form of expression, it is a selfie (self-portrait) act that fulfills the functions of memory and proof. This situation has democratized individual forms of representation by massifying them, while also bringing about a debate on visuality. Aksoy (2021, p.101) defines selfies, which have become popular enough to define the age we live in, as a form of self-portraiture used by everyone.

**The Visual Language of Art and Indicators of Crisis**

In photographic compositions of crisis representations, dramatic effects can be created through asymmetrical arrangements, intensive use of space, tight frames, and multi-layered montage images obtained through conventional or digital manipulation, leaving the viewer with a feeling of unease and anxiety. The position of objects or figures within the frame can direct the viewer's gaze and increase emotional intensity. However, the meaning and feeling that emerge can also be interpreted as a way out of the crisis. Bürger (2019, p.132) writes that montage requires reality to be fragmented and describes the process of creating the work. According to this idea, reality is fragmented, and thus the perception of reality is shaken. The use of light and shadow in photography is also a decisive factor in the construction of a crisis atmosphere. As Turani (2020) notes, "universal light in the Renaissance began to come from a single point in the Baroque period" (p.21). According to this idea, for example, "Rembrandt used light and shadow to dramatize the scene he created in his paintings" (Gombrich, 1976, p.338). In this context, the use of high-contrast light and shadow can create a harsh, depressive atmosphere, while low light conditions can create an atmosphere that emphasizes melancholy and uncertainty. In other words, the direction, angle, harshness, or softness of the light used can directly determine the psychological effect of the photograph. If the photograph is color, the choice of colors can determine the emotional tone of the photograph. Cool tones such as blue and gray can evoke feelings of alienation, loneliness, or hopelessness, while warm and intense colors such as red or orange can emphasize tension, danger, or anger. In monochrome, or black-and-white, photographs, the viewer's attention is directed toward form, texture, and contrast, allowing the theme of crisis to be transported to a more timeless and universal dimension.

Symbolic elements such as broken objects, empty spaces, masks, mirror reflections, blurred silhouettes, etc., which can be found in photographs or paintings related to crisis, can create the aforementioned layers of meaning that can convey the feeling of crisis without directly showing the event itself. Rideal (2005, pp.55-57) states that roses represent love, children represent fertility, palettes and brushes represent creativity, dogs represent loyalty, food represents temporary abundance, and oysters represent aphrodisiacs; the chain for painting, the star for the three kings who set out to see the baby Jesus, curtains to express devotion to saints, the rider on a horse to evoke a sense of obedience in the viewer, the bird as the greeting of angels, the reins and whips as symbols of love specific to married couples, the juniper branch believed to provide protection against early death, the burning bushes for a flawless pregnancy, the apple as a reference to expulsion from paradise and a warning against sin, the peacock promising paradise, the dry tree for death, the wig as a sign of nobility, the hat for an artist or someone interested in literature, and group portraits personalized by painters as symbols of loyalty. A similar situation is also accepted in the art of photography. Clarke (2017, p.124) writes that the photographer Edward Steichen achieved a symbolic narrative by using elements related to himself in many of his self-portraits. In his self-portrait, in which he painted himself in a convex mirror, Mannerist artist Francesco Parmigianino expressed himself in a distorted form, with his hand growing larger toward the center and his head shrinking, thus playing a decisive role (Figure 2).

***Figure 2. Francesco Parmigianino, Self Portrait, 1524,***
*(Source: https://en.wikipedia.org/wiki/Parmigianino)*

Symbols are important in creating a deeper impact by allowing the viewer to interpret the work. In summary, visual language in crisis-themed photography should be evaluated not only as a set of aesthetic preferences but also as a strategy for establishing an emotional and intellectual connection with the viewer. It can be said that these elements are fundamental tools that the artist may need in order to convey his own crisis experience in the most straightforward and striking way, especially in the context of self-portraits.

**The 1980 Coup and the Crisis Environment in Turkey**

After 1975, economic crisis, rising unemployment, high inflation, and foreign debt burden increased significantly in Turkey, and the country began to go through a difficult period. The economic problems that became apparent as a result of the crisis were compounded by ideological divisions and polarization, followed by ideological conflicts, ethnic problems, and the actions of various radical organizations, which became an almost routine part of daily life. Between 1978 and 1980, thousands of people lost their lives for political reasons, and clashes frequently occurred in universities, workplaces, and public institutions. In such an environment, on September 12, 1980, the Turkish Armed Forces, led by General Kenan Evren, the Chief of the General Staff, seized power in what is considered the third military coup in Turkey's modern political history. Unlike the interventions of May 27, 1960, and March 12, 1971, this coup led to fundamental changes in the political, social, and economic structure.

Following the intervention, the Grand National Assembly of Turkey was dissolved, political parties were banned, and their leaders were arrested. Martial law was declared throughout the country, trade union activities were suspended, and censorship was imposed on the press. The process of drafting the 1982 Constitution took place under the supervision of the military regime; this constitution was formulated as a framework that expanded executive powers, restricted political participation, and enshrined military tutelage in the constitution. The post-coup administration closed down the

Demokrat, Aydınlık and Hergün newspapers (Topuz, 2014, p. 257). After the 1980 coup, the effectiveness of civil society in Turkey weakened, trade union movements declined, and political pluralism narrowed. In addition, the transition to a free market economy accelerated; this economic orientation was shaped by the adoption of neoliberal policies and the withdrawal of the state from economic activities. However, this transformation also brought about consequences such as increasing income inequality and the decline of the welfare state. The coup should not be regarded as merely a military intervention. This process also became a turning point that affected the paradigms of Turkey's political, economic, and social structures. Attempts to restore lost political stability through authoritarian methods linked to military intervention had a negative impact on the development of democratic culture in the long term.

**The 12 September 1980 Military Coup and Art of Photography in the Context of Crisis**

As mentioned above, the military coup of September 12, 1980, was a process that deeply affected the political and social order. The next target of the coup regime was people involved in cultural and artistic activities, and thousands of these people were punished with various penalties, with many stripped of their citizenship (Karpat, 2013, pp. 213-214). After the coup, repressive policies were implemented in many areas, and censorship mechanisms were activated, seriously restricting freedom of expression. This situation directly affected the forms of artistic production and the themes chosen.

In line with the decisions and practices of the coup regime, control mechanisms were tightened in the fields of theater, cinema, music, and literature, including written media. "In 1980, with the military regime, as bans and controls began to be applied effectively and decisively, sex films disappeared on the one hand, while socialist realist films faced restrictions on the other" (Esen, 2000, p. 41). Works had to be approved by committees established by the military regime before they could be published, distributed, exhibited, or performed; content deemed objectionable was banned, censored, or altered. This situation led to widespread self-censorship among artists, thereby suppressing the critical and oppositional nature of art.

In the period before the coup, topics such as social realism, labor movements, revolutionary ideals, and discourses of freedom were frequently addressed in art. However, after 1980, this was replaced by more individual, metaphorical, and allegorical narratives. Artists have sought to continue their social criticism through imagery, symbols, and indirect narrative techniques rather than direct political discourse. This situation has crystallized in the transformation of themes in literature, poetry, and the plastic arts. With official art institutions under control, the emergence of independent art initiatives became inevitable. From the mid-1980s onwards, independent exhibitions and performances held in apartment buildings or workshops in major cities such as Istanbul and Ankara facilitated the development of an alternative artistic language in a crisis environment where freedom of expression was restricted. This process, which began with the creation of alternative art spaces, can be considered to have laid the foundations for contemporary art practice that continued into the 1990s. Although the impact of the September 12, 1980 coup on the art scene in Turkey is generally accepted as short-term repression, bans, and restrictions on freedom of expression, it can be argued that in the long term, it indirectly contributed to the development of alternative art practices, contemporary art movements, and interdisciplinary forms of production. Indeed, both artists of that period and younger generations of artists have occasionally addressed the crisis brought about by the coup in their artistic works.

Before the coup, photography in Turkey focused primarily on documentary and social memory functions. In the preface to Fikret Otyam's book *Photographs*, Demirel (1978) wrote, "The photographer should be at the service of society and devote himself to such a service". This situation was severely restricted in the period following the coup. "Media outlets were subject to censorship under martial law; photographs documenting social movements such as rallies, strikes, and protests were either banned or manipulated as a result of

censorship. Photographers's freedom to take pictures in public spaces was restricted, and police and military intervention in such situations became commonplace. Thus, political pressure directly affected the effectiveness of photography's documentary function and made it difficult for both journalists and documentary photographers to document social events such as protests, strikes, and rallies through photography. This situation led press photographers such as Ara Güler to focus on projects that were less about current events and more about historical textures, cityscapes, and people (Figure 3). Kutlar (1994) wrote in the text for Ara Güler's book *Eski İstanbul Anıları* (A Photographical Sketch On Lost İstanbul) that one of the most striking things about Ara Güler's photographs is the abundance of human faces and that he could not imagine anything without people. Güler's photographs of İstanbul compensated for the lack of political documentation during that period, but they did not offer a directly critical visual memory.

***Figure 3. Ara Güler, An Old Hill in Kandilli, 1985, (Source: Ara Güler Eski İstanbul Anıları)***

One of the important themes of photography, such as labor movements, rural-urban migration, and political struggle, which were directly documented with political content, has now been replaced by photographs that use artistic, metaphorical, symbolic, and indirect narrative techniques based on aesthetic concerns, focusing on more individual and everyday life. Thus, after 1980, the concept of aesthetics began to be reinterpreted in the art world, and individualization began in terms of meaning and form in expression with different perspectives (Susup, 2016, p.43). Of course, photographers did not completely abandon their sensitivity to social criticism, but rather continued their work by developing a more closed, interpretive visual language through images, rather than presenting the subject matter in an explicit manner. This indirect narrative approach based on censorship can be considered one of the fundamental elements that shaped the aesthetics of photography in the post-1980 period. On the other hand, the repressive environment caused by the coup led many photographers to emigrate and choose a life abroad (Susup, 2016, p.43). Thus, Turkish photography entered international circulation through foreign exhibitions, magazines, and biennials. This process of increased international interaction also transformed the aesthetic understanding of photographers. Artists have become acquainted with more conceptual and contemporary approaches to art compared to socially realistic works. Gezgin (1989), reflected on the condition of higher education after 1980, noting that while universities are meant to be places where knowledge and experience are generated and shared, scientific activity had, in many ways, come to a halt during this period.

As a summary, after 1980, photography started to breathe differently. Many photographers grew tired of repeating the same social realist patterns and began searching for something more personal, more open. They looked beyond familiar borders for inspiration and turned to their own lives as a source of meaning. This shift led to a more experimental and expressive way of making images, a clear break from the old, descriptive documentary style. That turning point still lingers in how photography speaks today (Gezgin, 1995, pp. 531-535).

**Self-Portraiture in Photography in Post-Coup Turkey**

As will be recalled, self-portraiture is a visual form of expression that historically allows individuals to

question their own existence, represent their identity, and transform themselves, thereby making visible the relationship that positions the artist as the subject and/or object. After September 12, 1980, this genre began to function not only as a form of personal confrontation for artists in Turkey, but also as a form of internal resistance against social oppression. Due to the censorship and prohibition of visual representations with explicit political messages, artists turned to individual representation. In this sense, self-portraits have enabled artists to express their mood, the pressure they feel, and their identity crises without directly conveying a political message.

At this point, it is important to explain the reason behind the choice of term in the title of this study. This is the difference between the terms "self-portrait" and "auto-portrait." Although there is generally no difference in usage between the terms autoportrait and self-portrait, there are slight differences in their connotations and, consequently, their meanings in terms of the content and meaning they represent. In French, auto-portrait is a portrait made by a person themselves (Çakaloğlu, 2001, p. 2). In English, "self-portrait, on the other hand, is the artist's depiction of themselves through their own portrait. Therefore, 'self-portrait' has a broader meaning that also includes 'auto-portrait'" (Ertürk, 2007, p. 19). Rideal (2005, p. 7) has stated that self-portraiture, the most personal form of expression for an artist, offers an opportunity for self-reflection, self-expression and self-presentation; that it is the most fundamental way of analysing oneself; and that, while generally repeating familiar traditions in portraiture, it also carries dimensions that allow for complex interpretations. Atay (1999, p. 11), however, has stated that the auto-portrait is a narcissistic expression, a legitimised exhibitionist fantasy, an aestheticised form of self-gratification, and a crystallised manifestation of egocentrism. According to artist Gezgin's (personal communication, August 16, 2025) statement influenced the choice of terms used in this study: "I would like to emphasize that auto-portrait and self-portrait are not the same thing. Auto-portrait, which is the act of making one's own portrait, is based entirely on personal reasons. In a work that uses self-portraits, there is a more meaningful metaphorical distance between the viewer and the image." For this reason, in the commentary sections of the artist's photographs, the term "self-portrait" has been used instead of "auto-portrait" to take into account the meaning expressed by Gezgin. In this sense, while every self-portrait can be an auto-portrait, not every auto-portrait is a self-portrait.

Although artists whose works include self-portraits can be found in various collective publications or exhibition catalogs in our country, the number of artists whose works include self-portraits in photography books other than these is quite limited. Among these, Nuri Bilge Ceylan, with his album published in 1987 and his retrospective album Pasajlar, published in 2024, which also includes his self-portraits from after 1980, and Ahmet Öner Gezgin are of particular importance.

This study will analyze the self-portraits of Ahmet Öner Gezgin, who attracted attention with his experimental works in Turkish photography after 1980. Although there are other photographers with experimental works from this period, Gezgin chose self-portraits as a specific subject, making him the subject of this study.

**Ahmet Öner Gezgin's Life and Artistic Approach**

Ahmet Öner Gezgin graduated from the Textile Department of the İstanbul State Academy of Fine Arts (İDGSA) in 1970. He then received a state scholarship to study at the Kunst Hochschule Kassel (Germany / former Gesamthochschule Kassel), where he completed his specialized education in "experimental photography" and "graphic design" in 1977. In 1975, he participated in seminars organized by Europhot in Chalon-Sur-Saon (France) and, in 1981, attended photography seminars and workshops at the Salzburg Summer Academy as a guest of the Austrian Federal Ministry of Science and Research. Gezgin began his academic career as an assistant at the Graphic Design Department of the Istanbul State Academy of Fine Arts in 1978, and was promoted to associate professor in 1987, professor in 1988, and full professor in 1998. He served as Vice Rector, Dean of the Faculty of Fine Arts, and Head of the Photography Department at Mimar Sinan University of Fine Arts;

Dean of the Faculty of Fine Arts and Head of the Department of Fashion and Textile Design at Işık University, and Dean of the Faculty of Fine Arts at İstanbul Arel University. He is one of the most important pioneers of experimental photography in Turkey, defending its philosophy and producing works in line with this approach (Gezgin, 2025).

Gezgin doesn't see photography as just a way to document what's in front of the camera. For him, it's a space where imagination, dreams, and subconscious impulses come together to create something personal and deeply felt. He treats photography almost like a stage - a place where he can build his own reality and, as Man Ray once said, let everything forbidden unfold freely (Gezgin, 2000, pp. 70–71).

The artist expanded the boundaries of photography in Turkey in the 1980s and 1990s, breaking the conventional patterns of traditional photography and thus establishing interdisciplinary communication. In his works, he has provided the viewer with concepts about humanity and the key to understanding how humans view the world. The unchanging reality of his photographic signs contains a structure that raises awareness of existential issues of humanity through the concept of "us." Mentally connecting the past, present, and future, the artist creates his photographic signs based on images and concepts (Gezgin, 2024, p. 8).

According to Gezgin (2011), although many concepts and disciplines acquired definitions, interpretations and evaluations beyond the conventional in the transition to the contemporary order after 1980, the rigid structure of the pre-1980 period delayed the transition to the contemporary art environment and the interdisciplinary flow of knowledge.

**Method**

This study was conducted using a qualitative-interpretative research design. Interpretations were made through iconographic/iconological reading and visual discourse analysis, focusing on the conceptual dimension of self-portraiture. The aim of this study is to identify the situation of the photographer as a subject in the crisis conditions following the coup d'état of September 12, 1980. This assessment focuses on how visibility, invisibility, memory, permission, and individual or political tensions are visualized. In this sense, formal indicators such as light–shadow, framing, etc., and elements such as cups, chained clocks, curtains, glass, mirrors, shadows, torn surfaces, and silhouettes with antennas, etc., have been referenced in the analysis. In iconographic reading, what is shown in an image, such as objects, situations, figures, subjects, objects, gestures, spaces, etc., is identified. In iconological reading, the reason for the use of these elements and how they are used within a political perspective, the internal meaning of the image, and its historical-cultural dimensions are interpreted. Panofsky (2012, p. 25) sees iconography as a branch of art history that deals with the subjects or meanings of artworks in relation to their forms. Rona (1997, p. 837) defines iconography as "the scientific identification, classification, and evaluation of subjects, symbols, and themes in visual arts." According to Sözen and Tanyeli (1992, p. 2014), iconography is a field that studies the typified or religiously themed forms and patterns of religious artworks, even to the extent of being fixed. In summary, iconography can be defined as "the science of explaining and identifying icons" (Akalın et al., 2005, p. 950). Keser (2009, p. 166) has defined iconography as the pictorial representation of a subject. Tepe (2023, p. 2), on the other hand, has stated that a more accurate definition would be to interpret iconography as the depiction of the conceptual analysis of images and visuals. In Erwin Panofsky's iconographic description, elements such as lines/forms, composition, light-shadow distribution, tonality, depth of field, direction of gaze, framing, tears, scratches, collage, and other surface interventions, printing techniques, horizontal-vertical format, etc., found in the photograph are taken into consideration. In the iconographic analysis section, the possible layers of meaning are conceptualized by naming objects and signs. In the iconological interpretation section, the deeper meaning of the image is examined in relation to the mentality of the period, the political and social context, and the modes of production. In visual discourse analysis, images are treated not only as representations but also as discourse-producing

practices. For example, the relationship established by the figure in the photograph with the viewer through direct or indirect gaze can be interpreted as confrontation or avoidance. In addition, both the content context and the period and conditions in which the photograph was produced are taken into consideration. It should not be forgotten that, due to the subjective nature of expression in art, all layers of meaning and feeling are multifaceted and, in other words, do not contain absolute certainty. Indeed, Dönmez (2009, p. 8) states that the traditional use of symbols in European painting is largely based on the Old and New Testaments, drawing on the mythological elements of pagan religion, and that religious symbols form the source of Western painting as a supporter of the Church. However, she also states that while many of the symbols used by painters are understandable today, some of them remain unsolved.

**Universe and Sample**

The universe of the study consists of self-portraits produced by Ahmet Öner Gezgin between 1980 and 1988. In the study, five works that intensively convey the concept of crisis were selected as a purposeful sample, and detailed readings of these works were conducted in the article. The first is a 1980 composition featuring a table, a cup, a cigarette, and a pocket watch; the second is a 1981 shadow self-portrait titled "Salzburg"; the third is a 1983 pose of a thinker against a plain background; the fourth is a 1987 work depicting a torn sky surface and a city silhouette; and the fifth is a self-portrait consisting of a silhouette and shadow on a curtain, taken in 1988. The primary data in this study are based on images in a printed book and on the artist's personal website, which contain digital reproductions of the artist's works, and other data are based on statements made by the artist in correspondence on August 16, 2025.

**Findings**

According to Panofsky's pre-iconographical description, the 1980 self-portrait depicts two white cups placed on a dark, probably black, circular table (Figure 4). One cup is next to the photographer, the other opposite Gezgin. The artist's head is not visible; the frame begins below his chin. Chest hair is visible through his partially unbuttoned striped shirt. One hand holds a cigarette on the table, while the other remains hidden beneath it. A watch and chain are positioned between the cup and the hand.

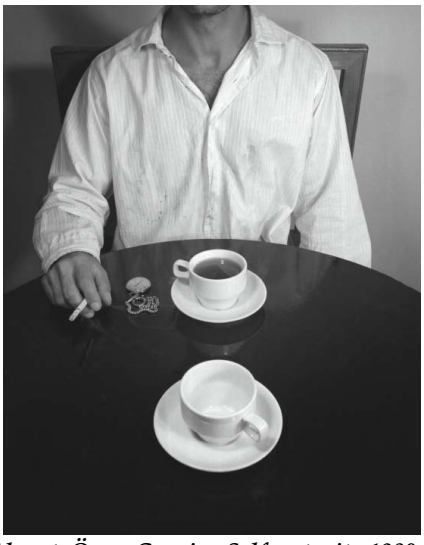

***Figure 4. Ahmet Öner Gezgin, Selfportrait, 1980,*** *(Source: Gezgin, A. Ö. (2025, 25 September). https://www.ahmetonergezgin.com.tr/)*

The reflective surface of the table mirrors these elements, creating multiple layers within the composition. The scene in the photograph is evenly lit. Accordingly, soft and diffused light has been used here. Sharp shadows have been minimised. Surface details such as the texture of the white shirt and the reflective tabletop are emphasised. The composition is symmetrical. The viewer's gaze is positioned on a vertical axis from the foreground towards the model. The fact that the shirt and cups are white and the table is black or a dark colour makes the tone contrast between the shape and the background more pronounced. In terms of composition, the fact that the model's entire head is not included in the frame suggests anonymity due to the lack of details about their identity, and introversion due to the fact that their face is not clearly shown.

According to Panofsky's iconographical analysis, two cups, one full and one empty, are placed side by side. This image can be thought of as serving as a visual metaphor for presence and absence, communication and silence. The cigarette, with its

accumulated ashes, symbolises the passage of time and existential fatigue, while the watch clearly links the image to the passage of time. The concealed face has the potential to symbolise anonymity and the erasure of subjectivity. The reflection on the table can also be read as a symbolic dilemma, evoking repressed memories and the presence of the absent interlocutor. In Camera Lucida Barthes (1996, p. 104), portrays photography as a strangely complex medium: while it can mislead our immediate perception, it also affirms the undeniable reality of a moment that has passed. A photograph carries with it a quiet, shared illusio, the subject is no longer present, yet its trace remains visible. In this way, the photographic image holds a subtle tension, existing both as something separate from reality and as a powerful reminder of its former presence. In Gezgin's photograph, the paradox of one of the two cups being empty, the absence of any trace of the owner of the empty cup, the possibility that the clock might have stopped despite the cigarette ashes indicating the passage of time, and all the contradictions and question marks, such as the presence of the body but the absence of the face, are in harmony with Barthes's views.

According to Panofsky's iconological interpretation, at the third level, it can be said that a political statement is made through personal objects in the image. By refusing to show his face, Gezgin seems to allegorically express the subject silenced under authoritarian control. The duality of the cups presents an allegory of interrupted dialogue; this can be read as a sign of both personal and collective trauma. In this respect, the self-portrait goes beyond mere documentation and takes on the function of a silent but powerful political testimony symbolising the indirect discourse of post-1980 Turkish photography.

According to Panofsky's iconographic pre-explanation of this image, Gezgin stands in the centre against a plain background (Figure 5). Compared to the mise-en-scène in Figure 4, the photograph appears to be an ordinary photograph taken in front of a plain background. However, as Marien (2015, p. 81) points out, "Whether it is a painted backdrop in a photography studio or the landscape behind the main subject, the background of a photograph is an essential part of it." Therefore, it must be said that the background is an important element that constitutes the meaning of this mise-en-scène.

***Figure 5. Ahmet Öner Gezgin, Selfportrait, 1983,*** (Source: Gezgin, A. Ö. (2025, 25 September). https://www.ahmetonergezgin.com.tr/)

He wears glasses and a contrasting t-shirt. The photograph ends at waist level, with a large empty space above his head. A circular halo of light surrounds his upper body, and he rests his hand on his chin, looking away from the camera. In the photograph, an intense spotlight has been used. Accordingly, there is a controlled lighting arrangement in the background, and a circular area of light has been created on the wall behind the subject. This creates a strong contrast between the figure and the background. The composition is shifted slightly downwards from the centre, so that the interplay of light and shadow occupies a large area of the frame. In this black and white photograph, the texture of the subject's face, glasses and clothing is particularly emphasised.

Drawing upon Panofsky's iconographic analysis, the halo-like studio lighting, isolating the artist's figure from the neutral ground, evokes a staged, theatrical space. Berger argues that the way an image is composed through lighting, pose, and spatial framing—actively constructs how the subject is perceived. He notes that "the way we see things is affected by what we know or what we believe" (Berger, 1972, p. 8), and that images are never neutral but "a way of seeing the world" (Berger, 1972, p. 10). In this sense, the halo-like studio lighting functions not merely as illumination but as a theatrical device that directs the viewer's gaze and frames the subject within a specific meaning

structure. Based on this information, Gezgin's contemplative pose recalls traditional representations of intellectual reflection. The emptiness above his head reinforces this sense of spatial and psychological suspension. In this context, Arnheim reminds us that when we look at a picture, our sense of space doesn't just happen by chance. Artists, often without even thinking about it, use certain visual principles to help us read depth and distance. As viewers, we bring our everyday experiences into the act of seeing — we know, for instance, that a larger figure in an image usually feels closer than a smaller object behind it. But artists can't rely only on what we already know. To make sure we see the space the way they intend, they use light, scale, and other visual cues to gently guide how we perceive what's in front of us. (Arnheim, 1974, p. 234). In the photo, Gezgin's glasses, his resting hand, and the partial shadow above his head evoke both an intellectual stance and a sense of inner questioning in the viewer.

According to Panofsky's iconological interpretation, this work visually expresses the intellectual isolation experienced after the 1980 coup. Gezgin is staged not as a political agitator, but as a thoughtful subject questioning his role in a silenced society. The empty space surrounding him becomes a metaphor for the shrinking space of public discourse and the artist's retreat into internalised intellectual thought.

***Figure 6. Ahmet Öner Gezgin, Selfportrait, 1988,*** (Source: Gezgin, A. Ö. (2025, 25 September). https://www.ahmetonergezgin.com.tr/)

According to Panofsky's iconographic pre-explanation of this image, in the vertical-format photograph, a patterned curtain occupies the right side, and the silhouette of the artist holding a camera emerges from the left (Figure 6). His face is not directly visible; instead, a shadow falls sharply against the curtain. The entire composition is dominated by strong contrasts between light and darkness. In the photograph, a single light source has been used. A distinct shadow silhouette is projected onto a patterned curtain. This use of light is based on the chiaroscuro lighting technique. This relationship between light and dark creates a layered spatial effect between the figure and its shadow. The composition is designed vertically, and the subject is slightly offset from the centre. This creates a balance between the patterned surface on the right and the dark negative space on the left. The black and white photograph features sharp tonal contrasts.

In line with Panofsky's iconographic framework, the floral motifs on the curtain signify domesticity and ordinary everyday life, while the artist's silhouette and the deliberate play of shadow emphasize absence as presence. Chiaroscuro has been used in this photograph. Chiaroscuro, is the "Term describing the effects of light and shade in a work of art, particularly when they are strongly contrasting" (Chilvers, 2004, p. 147). This use of chiaroscuro detaches the body from individual identity, transforming it into an anonymous trace.

From the perspective of Panofsky's iconological interpretation, through the effacement of his face, Gezgin inscribes the political erasure of subjectivity onto his own image. The interior setting symbolizes a refuge from oppressive external forces, echoing how many artists of the era resorted to covert narratives. His self-representation as a shadow foregrounds the paradox of visibility and invisibility experienced by intellectuals under censorship, creating a poetic yet critical image of survival.

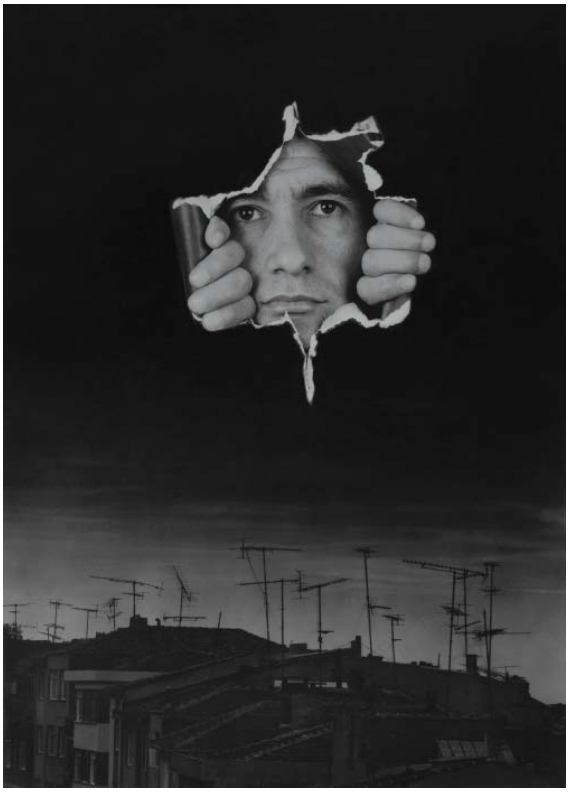

***Figure 7. Ahmet Öner Gezgin, Selfportrait, 1987,*** *(Source: Gezgin, A. Ö. (2025, 25 September). https://www.ahmetonergezgin.com.tr/)*

As articulated through Panofsky's iconographic pre-explanation of this image, the lower part of this vertical composition depicts roofs filled with television aerials (Figure 7). This landscape gradually darkens towards the upper part. In the upper middle section, the Gezgin's hands and face are visible through a torn surface. The photograph is in black and white tones. The sky appears to have been captured using a gradient filter. It can be said that the exposure was taken at a time when there was little light, as a darkness prevails in the overall atmosphere of the photograph. There is a tear in the middle of the sky, and the artist's face appears from there. This expression is surreal in style. The artist has photographed the photograph.

In accordance with Panofsky's iconographic analysis, the antennas symbolise mass communication and the ideological mechanisms of the state, because at that time antennas were devices necessary especially for television broadcasts. The torn surface disrupts the continuity of the image, creating an opening, a literal and symbolic rupture. Gezgin's direct gaze at this rupture brings about a counter-movement against the closed system in question. This image brings to mind Foucault's concept of the panopticon. "The panopticon is a machine for dissociating the see/being seen dyad: in the peripheric ring, one is totally seen without ever seeing; in the central tower, on sees everything without ever being seen" (Foucault, 1995, pp. 201-202).

According to Panofsky's iconological interpretation, the tearing of the image surface represents a symbolic act of resistance against the hegemonic narratives of the coup regime. The gaze emerging from the rupture is not only personal but collective, expressing an intellectual effort to reclaim space for opposition. Here, the artist performs a visual act that intertwines personal subjectivity with collective political critique. Gezgin (1995, pp. 48-54) has noted that, despite many concepts and disciplines acquiring definitions, interpretations and evaluations that are unconventional or beyond the norm during the transition to the contemporary order, the breaking of the habit of seeing only the pure truth, as proposed by the naturalist and/or realist approach in photography, occurred in the 1980s. This aligns with the artist's transition from direct documentary photography to an allegorical, metaphorical visual language in the post-coup era.

***Figure 8. Ahmet Öner Gezgin, Salzburg, 1981,*** *(Source: Gezgin, A. Ö. (2025, 25 September). https://www.ahmetonergezgin.com.tr/)*

The photograph taken by the artist in Salzburg in 1981 is referred to as "Salzburg" in his book Pasajlar (2024, p. 104). However, since the shadow of Gezgin is used in the composition as a conscious choice, it can be considered as a self-portrait as

well. Through the lens of Panofsky's iconographic pre-explanation, this square-format photograph shows a narrow street framed by two contrasting buildings: one classical with symmetrical windows, the other modern with rounded edges (Figure 8). Gezgin's shadow is cast prominently on the ground in the foreground. Natural light was used in the photograph. The facades of the buildings are bright, while the streets are dark in comparison. The resulting contrast also serves as an axis in terms of composition. The symmetrical framing of the two buildings creates a balanced architectural structure. The artist's shadow adds a timid human presence to the static scene. The black and white tones emphasise the architectural lines and spatial depth of the building. The tonal contrasts offered by black and white can direct the viewer's gaze from the shadow in the foreground to the vanishing point between the buildings. It can be said that the photograph has a visually balanced composition.

According to Panofsky's iconographic analysis, the architectural contrast introduces a temporal and stylistic dialogue between past and present. The shadow functions as a self-referential signature, as a discreet way of embedding the photographer into the image just like its the unconscious part of Gezgin. "The ancient Greeks believed that when we departed from the real world, we continued to live as shadows among the shadows" (Gombrich, 2020, 35). Just like this, Gezgin also continues to exist through his shadow. On the other hand, the shadow, as Jung (2009, p. 168) also pointed out, the shadow is not the entirety of the unconscious personality. It represents the unknown or little-known characteristics or qualities of the ego - characteristics that are mostly personal and may also be conscious. The blocked perspective at the end of the street prevents the gaze from extending outward, evoking a sense of spatial enclosure.

Within the scope of Panofsky's iconological interpretation, the artist's shadowed presence, rather than full visibility, speaks to the restricted subjectivity imposed on artists and intellectuals during the post-coup period. The architectural opposition mirrors the tension between continuity and rupture, between historical persistence and the silenced individual. "A typical example of symbolic art is architecture; particularly architecture in which the ideal content is symbolically represented in its external form" (Bozkurt, 1995, p. 143). This indirect self-portrait uses urban space as a metaphorical landscape of crisis, confinement, and muted resistance.

**Conclusion**

This study examines the September 12, 1980 coup in Turkey as a crisis. Approaching the concept of crisis as a multi-layered socio-cultural phenomenon, the study demonstrates how photography, particularly self-portraits, became a form of expression in Turkey during the crisis period through the photographs of Ahmet Öner Gezgin. The crisis phenomenon is exemplified in psychological terms in the context of the shock to the self and identity caused by the coup; in social terms in the context of the loosening of institutional ties, internalization of surveillance and self-censorship; and in cultural terms in the context of the re-examination of forms of meaning production. It can be said that, in the process, the direct discourse of the documentary tradition has been replaced by figurative, indirect, and allegorical strategies, thus undergoing an aesthetic transformation. In this respect, self-portraiture has gained importance in times of crisis as a genre that can express both the fragility and resistance of the subject. What makes self-portraits privileged in times of crisis, for example, compared to the documentary genre, is that the fictional nature of self-portraits allows them to serve as a permeable threshold between the subjective and the political. In this sense, self-portraits are not only photographs that have been taken, but also photographs that have been designed.

The findings of this study reveal that the self-portraits produced by Ahmet Öner Gezgin between 1980 and 1988 consist of content that has the potential to refer to the crisis caused by the coup in both individual and social contexts. The headless body in the 1980 work, the symbolic representation of everyday objects such as two cups, one empty and the other full, a cigarette, and a pocket watch; the subject in the 1983 work, who is socialized but also limited by a kind of isolation; the representation of the paradox of visibility and invisibility

through the silhouette falling on the curtain fabric in 1988; the fragmentation of the representational surface in the composition where the sky seems to be torn; all these expressive strategies, such as the use of shadow as a trace in the Salzburg example, point to an expression form in which the crisis is not merely a simple subject but is embedded in the visual language and practice of seeing itself. Gezgin's self-portraits are not narcissistic self-presentations; they can be seen as a counter-discourse practice in which the subjective mimics the political, the political mimics the subjective, or the boundaries between the two become blurred, crystallizing examples of the indirect political language of the period. Among the findings, the idea that Turkish photography after 1980 is not merely a tool for documentary testimony but also a medium for producing thought is also significant. This is evidence of the existence of visual thinking in Turkish photography. Whether this ability has been transformed into a language is a subject for other studies. In addition, thanks to the artist's retrospective book, it is an important observation that collective memory is still active in a historical sense and that the artist, who continues to produce self-portraits, establishes a connection between the past and the present. Thus, Gezgin's self-portraits have become a form of expression that is not composed of individual images but spread over a certain period of time.

This study on self-portraying can be considered alongside Melike Öztürk's 2024 master's thesis, Contemporary Photography Art and Self-Portrait Aesthetics, which conceptualizes self-portraying, and Bahar Susup's 2016 study, Turkey from 1980 to the Present, which focuses on Ahmet Öner Gezgin in the context of staged photography. In Bahar Susup's thesis, positions Gezgin, one of the leading actors of the experimental/fictional line in Turkey after 1980, on an abstract-expressionist axis that combines experimental photography with different techniques through his education and practice. With a crisis-focused approach, the viewer expresses Gezgin's aesthetic and formal approach through local-historical and emotional dimensions in the context of crisis, trauma, and memory produced by post-coup socio-psychopolitical fractures. Bahar Susup's work focuses on Gezgin's construction of a subjective reality by combining images through imagination and the unconscious. In my work prepared in the context of crisis, this subjective construction intersects with time as the wound caused by the crisis and witnessing this situation: self-portrait is not only considered as fiction, but also as a tactic of subjectification and protection; as a memory tool and a means of recording social memory. In this context, the study prepared on the crisis has acquired a complementary quality.

In Melike Öztürk's master's thesis titled "Contemporary Photography Art and Self-Portrait Aesthetics," it is conceptualized self-portraiture within an interdisciplinary framework, defining the face and body as "anthropological surfaces." According to this, the components of the production process include elements such as pose, clothing, decor, space, and light/composition. Additionally, the study emphasizes the relationship between aesthetics and form, establishing an analogy between photography and performance, positioning the photograph within a performative context. Öztürk relates this to the avant-garde and experimental line in the historical context of Soviet Russia, the Weimar Republic, and Paris, as well as the effects of the political conjuncture. In the study, when it comes to the contemporary period, self-portraits are divided into types and discussed with various examples. In contrast, self-portraits related to crisis are focused on Turkey after the 1980 coup in a geographical and historical context. Self-portraits are interpreted through the concepts of crisis, trauma, and memory. The iconographic/iconological and visual discourse analysis method was applied to the self-portraits of Ahmet Öner Gezgin. Accordingly, it has been demonstrated how a language that can be perceived as more avant-garde and experimental compared to the pre-1980 period has transformed alongside a local historical rupture. Thus, Melike Öztürk's typology-based approach, which encompasses a broad perspective, has been analyzed through a more local and crisis-focused interpretation. In Öztürk's thesis, the concepts of subject, performance, and role are considered together with the identity of the "actor-photographer." In this sense, self-portraiture is interpreted as a kind of performance, a theatrical event based

on staging and scripting. In addition, the work discusses anti-narcissism as a self-perception that oscillates between narcissism and anti-narcissism, and discusses the sub-types of anti-narcissism based on psychological strategies such as concealment, uglification, and staying in the background, as well as their effects. In the context of crisis, the study discusses how self-portrait reveals the ontological structure of the subject, the time-dependent development of the crisis, and its traumatic aspects, as well as its social, psychological, and political effects. Accordingly, self-portrait is not merely a role but a traumatic self-witness and a strategy of resistance and subjectification. This situation has deepened Öztürk's performative typology in the context of the production conditions of crisis.

As a result, in the theoretical dimension of the work, it can be said that self-portraits take on the functions of leaving a mark, recording, and reminding in times of crisis. In this way, reference is made to the representation of the unrepresentable due to censorship caused by the crisis, and thus trauma is symbolized and put into circulation. In addition, the idea has emerged that the frame and composition themselves have been transformed into a formal field of struggle with tears, shadows, silhouettes, and reflections. The elements that make this struggle possible can be evaluated not only as aesthetic preferences but also as attempts to recognize the crisis in visual terms, to oppose it, to disrupt it, and to reconstruct it. Finally, it can be said that in self-portraits, the subject stands in a blurred position between withdrawing from the scene by becoming completely anonymous and centering themselves by declaring their identity. From this perspective, it can be argued that the authority that constructed the coup also stands in a blurred position. Of course, the scope of this study is limited to that of an article. The analysis focused on specific works in terms of sampling, thus preventing a broader and more comparative analysis. It would also be important to compare other artists who worked on self-portraits and self-portraits after 1980, but this issue has been left to future texts as a subject for independent study. In conclusion, this study has determined that the crisis that emerged after the September 12, 1980 coup led to the emergence of the artist's subjectivity in the context of self-portraits. It has been concluded that Ahmet Öner Gezgin's self-portraits do not merely represent the crisis; they also express the conditions and possibilities of the crisis in a fragmented, multi-layered, and open-to-interpretation language, in the same way that the crisis itself is fragmented, multi-layered, and open to interpretation. In this sense, these works are able to transform personal testimony into collective memory. Thus, a vision that is introspective yet intense, indirect yet assertive, fragile yet persistent has been identified in Gezgin's photographs. This vision is recorded as a decisive, experimental, and fictional contribution to Turkish photography after 1980 through the medium of self-portraiture.

**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:*** No new datasets were created or analyzed in this study. The visual materials discussed (published reproductions and publicly available images on the artist's website) are openly accessible; additional analysis notes 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

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# Discourse in AI-Generated and Journalist-Produced News: A Comparative Analysis Based on the PKK's Symbolic Disarmament Ceremony

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## Abstract

*This study comparatively examines the discourse structures of news texts generated by artificial intelligence and those created by professional journalists in traditional media. As a case study, the symbolic disarmament ceremony of the terrorist organisation PKK in the Sulaymaniyah region of Iraq on 11 July 2025 was selected. The event was chosen because it generated widespread repercussions in the Turkish media and provoked various reactions among political actors. The study was conducted using the newspapers Hürriyet, Sözcü, and Yeni Şafak, representing different editorial policies in Turkey, along with the AI-based news platform Dipnot.tv. The analysis was structured around the themes of 'the presentation of terrorist actors in the media,' 'the official discourse of the state,' and 'opposition reactions,' based on van Dijk's Critical Discourse Analysis model. The findings show that events are not merely reported in either traditional or AI-based news, but framed through discursive preferences. While traditional media reflects discourse aligned with ideological orientations noted in the literature, AI news employs a more neutral style with short sentences, passive structures, and limited commentary. Content ranking and thematic emphasis also serve a guiding function in AI texts. Therefore, it is concluded that AI journalism, like traditional media, does not merely convey information but also functions as a mechanism that constructs discourse.*

**Keywords:** *Artificial intelligence journalism, traditional media, discourse analysis*

## Öz

*Bu çalışmada, yapay zekâ tarafından üretilen haber metinleri ile geleneksel medyada profesyonel gazeteciler tarafından oluşturulmuş haber içeriklerinin söylem yapıları karşılaştırmalı olarak incelenmektedir. Örnek olay olarak, 11 Temmuz 2025'te Irak'ın Süleymaniye bölgesinde gerçekleşen terör örgütü PKK'nın sembolik silah bırakma töreni seçilmiştir. Bu olay, Türkiye medyasında geniş yankı uyandırması ve farklı siyasi aktörler arasında çeşitli tepkilere yol açması nedeniyle örneklem olarak tercih edilmiştir. İnceleme, Türkiye'de farklı yayın politikalarını temsil eden Hürriyet, Sözcü ve Yeni Şafak gazeteleri ile yapay zekâ tabanlı haber platformu Dipnot.tv üzerinden yürütülmüştür. Analiz, van Dijk'in Eleştirel Söylem Analizi modeli temelinde, "terörist aktörlerin medyada sunumu", "devletin resmî söylemi" ve "muhalefet tepkileri" temaları çerçevesinde yapılandırılmıştır. Bulgular, hem geleneksel hem de yapay zekâ temelli haber üretiminde olayların yalnızca aktarılmadığını, aynı zamanda söylemsel tercihlerle çerçevelendiğini göstermektedir. Geleneksel medya, söylemlerinde literatürde işaret edilen ideolojik yönelimlerle örtüşen tercihleri yansıtırken, yapay zekâ tarafından üretilen haberlerde kısa cümleler, edilgen yapılar ve sınırlı yorumlarla daha nötr bir üslup izlenimi ortaya çıkmaktadır. İçerik sıralaması ve tematik vurgular, yapay zekâ metinlerinde de yönlendirici işlev taşımaktadır. Dolayısıyla, yapay zekâ haberciliğinin de geleneksel medya gibi yalnızca bilgi aktarmakla kalmayıp söylemi inşa eden bir mekanizma olarak işlediği sonucuna varılmıştır.*

**Anahtar Kelimeler**: *Yapay zeka haberciliği, geleneksel medya, söylem analizi*



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## Introduction

With the shift to digital technologies, news production processes have undergone radical transformation. Artificial intelligence (AI)–supported content tools now reshape how news is produced and presented, raising debates about journalism's core principles—objectivity, impartiality, and accuracy. In traditional journalism, discourse is shaped by editorial preferences, institutional policies, and socio-political contexts; in AI-supported journalism, it emerges from algorithmic and automated processes. Revealing these discursive differences is key to understanding how news discourse is being redefined. This study therefore compares the discourse structures of AI-generated and journalist-produced news texts.

Algorithmic editorial systems redesign both form and content. According to Diakopoulos (2019, p.1) notes, algorithms transform news production, distribution, and consumption, creating a paradigmatic shift in media. Their role makes it essential to examine what media texts convey and how, particularly whether they function as ideological constructs. AI systems that organize language production and reception increasingly attract attention for their sociocultural implications—especially regarding power, ideology, and inequality. Gillespie (2014) emphasizes that algorithms are deeply cultural rather than merely technical, carrying implicit ideological premises. Consequently, "objective" news texts are produced within value systems embedded in algorithms and their designers (Bucher, 2018, p.114). Thus, AI in journalism represents not only automation but also discursive and ideological reconstruction.

This study investigates the ideological patterns in AI-generated versus journalist-written news through comparative discourse analysis. As a case study, it examines the PKK terrorist organisation's symbolic disarmament ceremony held on 11 July 2025 in Sulaymaniyah, Iraq, following the announcement of the group's dissolution by Abdullah Öcalan, the leader of the terrorist organisation. The event drew extensive coverage from major Turkish media and AI-based platforms alike. Dipnot.tv - a leading AI-driven news outlet in Türkiye - published eight real-time reports on the disarmament.

The ceremony was framed differently across political actors, making ideological positions discursively visible in news coverage. Using purposive sampling, this research analyzes Dipnot.tv's reports alongside those of three national newspapers - Hürriyet, Sözcü, and Yeni Şafak- representing distinct ideological orientations (Sine Nazlı & Yılmaz, 2024) and among Türkiye's most circulated dailies (Boomsocial.com, 2025). The analysis employs Teun A. van Dijk's critical discourse approach to reveal how AI-based and traditional reporting frame, construct, and position the event ideologically, uncovering the underlying structures of meaning.

## The Concept of Ideology and Its Relationship with Discourse

The concept of ideology emerged after the French Revolution to describe materialist ideals and was termed the "science of ideas" by Antoine Destutt de Tracy in 1796. Initially positive, it later acquired a pejorative meaning and, since Marx, has been linked to "false consciousness"(Çelik, 2005). From the 19th to mid-20th century, it referred to political "-isms" such as liberalism, socialism, and fascism, later gaining broader everyday usage (Verschueren, 2015).

In the Marxist view, ideology legitimizes ruling-class interests. Marx argued that the working class acts under the dominant ideology (Fiske, 2003). Eagleton (2015) defines ideology as the process shaping social life and legitimizing elite interests through distortion. Althusser (2001) sees it as a mechanism positioning individuals in the social order, reproduced through institutions like the family, religion, education, and media.

Ideology manifests through discourse (Üşür, 1997). Practices accepted as "natural" in daily life reflect ideological judgments that define what is embraced or rejected (Althuser, 2014). Eagleton (2015) considers discourse both a reflection and reproduction of ideology, while power operates through inclusion and exclusion within discourse (Beşe & Baykara, 2019).

Foucault's discourse theory links ideology to power and knowledge, arguing that discourse constructs meaning and legitimizes power (Foucault,

1998). van Dijk (2006) argues that ideologies are primarily expressed through discourse, yet discourse analysis alone may not always uncover underlying ideological beliefs. Interpretation varies with tone, emphasis, and loudness; therefore, the ideology–discourse relationship must be examined empirically, theoretically, and contextually. Similarly, Verschueren, in Discourse and Ideology, conceptualizes ideology as multilayered—manifested not only in content but also in linguistic choices, syntactic constructions, emphasis, and contextual strategies. From this view, analyzing the linguistic mechanisms, social contexts of production, and the actors made visible or invisible enables a comprehensive understanding of how ideology operates within discourse.

**News as Discourse and Ideological Construction in the Media**

The media, a key channel of information, transforms events into discourses shaped by ideological judgments. Although news claims objectivity, it never fully reflects reality (Poyraz, 2002, p. 12). News discourse should thus be viewed not as mere transmission but as construction of social reality (Dursun, 2011). Media discourses serve as instruments through which dominant powers secure public consent. As Torfing (1999, p. 220) notes, dominant discourse establishes regimes of value defining right and wrong. Counter-discourses require political and economic power; marginalized voices remain underrepresented, and even oppositional outlets often reproduce dominant narratives (Kartal, 2022).

According to Erdoĝan and Alemdar (2002, pp. 404–407), media's ideological function evolves historically. Even in advanced democracies, where neutrality and professionalism are claimed, discourse reflects dominant ideology. Media not only reports facts but assigns meaning through symbolic codes. Events gain significance only within these ideological frameworks. Journalists rarely choose such codes consciously; they operate within interpretive conventions perceived as "natural." Thus, the ideological role of media is concealed under narratives of neutrality while continually reproducing dominant meaning systems.

From political economy approach, media operates as an industrial structure that reproduces power through discourse. Golding and Murdock (1979, p. 15) argue that news functions as a capitalist commodity. Profit motives align editorial agendas with political interests, producing selective emphasis and omission (Devran, 2010, p. 120). Alternative perspectives appear only insofar as they can be neutralized by dominant frames. Consequently, the media reconstructs social reality (İnal, 1996, pp.100–115).

Stuart Hall (1980) encoding/decoding model illuminates the ideological nature of media texts. Content is ideologically encoded during production and decoded differently by audiences. Media is not a neutral conveyor but a discursive form embedded in power. "Raw" events are transformed into ideologically charged narratives that reinforce dominant meanings. Ideology operates not only through content but also via narrative form, lexical choice, and selective inclusion or exclusion of voices. Although audiences may accept, negotiate, or oppose these messages, all decoding reveals the ideological foundation of dominant discourse.

Teun A. van Dijk (1988a, pp.175–177) established a framework for analyzing news as discourse. He argues that news cannot be understood solely through institutional routines; it requires examining journalists' cognitive structures shaping production. Ideological analysis thus involves both textual and cognitive dimensions. News texts exhibit distinctive grammatical, structural, and lexical features that position actors ideologically. Passive constructions, for example, obscure agency, while lexical choices frame responsibility. Yet textual analysis alone is insufficient—it must be linked to the social cognition of both producers and audiences to uncover the full ideological process.

**Artificial Intelligence Journalism and Ideological Encoding**

AI refers to computer systems capable of imitating human cognitive abilities such as learning, reasoning, and inference. Conceptualized by Alan Turing in the 1950s, AI advanced rapidly after the 1980s through algorithmic modeling of expert

knowledge First conceptualized by Alan Turing in the 1950s, AI gained momentum after the 1980s, leading to major theoretical and practical advances (McCorduck & Cfe, 2004, pp.280–281; Newquist, 1994, p. 271). Its efficiency has enabled widespread use across sectors such as healthcare, finance, logistics, and defense (Copeland, 2025; Maslej et al., 2024).

Journalism is among the key domains transformed by AI. Initially used for automated financial and sports reports in the early 2000s, AI has become integral to newsroom operations. With natural language generation (NLG) systems, algorithms analyze large datasets, detect patterns, and autonomously produce news through templates and predictive models(Diakopoulos, 2019). This automation, while improving speed and output, has raised concerns over transparency, bias, and accountability(Wang, 2021; Loconsole & Panarari, 2025). Accordingly, AI's role must be evaluated not only technologically but also regarding its impact on knowledge production, representation, and ideological encoding.

Central to these debates are questions of data ownership and value prioritization: Whose data underlie these outputs? Which interests are reinforced? De Ruvo (2025) warns that algorithms operated by major technology firms may privilege private or dominant interests while marginalizing alternative perspectives, necessitating critical scrutiny of embedded ideological agendas.

The datasets, linguistic patterns, and selection criteria driving AI systems make ideological encoding unavoidable, producing systemic epistemic bias. What AI-generated news highlights or omits reflects underlying ideological choices. As Foucault (1980) observed in his knowledge–power framework, knowledge production is inseparable from power and never politically neutral. AI, therefore, functions not merely as a processor but as an agent that defines what counts as knowledge, reshaping representation regimes and the social construction of meaning. Consequently, AI journalism must be viewed as a multidimensional phenomenon requiring ethical, political, and ideological analysis.

**PKK's Disarmament Attempts and Peace Process Experiences**

The Kurdish issue, rooted in the late Ottoman period, laid the foundation for armed organizations during the Republican era, particularly in the 1970s. Abdullah Öcalan and his associates initiated organizational activities in Ankara in 1974, and in 1978, Öcalan founded the terrorist organisation PKK. Seeking to separate Türkiye's eastern and southeastern regions to form an independent state spanning parts of Iran, Iraq, and Syria (Ceylan, 2012), he group began armed attacks in 1984, becoming one of Türkiye's most persistent security threats (Kuzu, 2009).

Türkiye pursued military methods for years and occasionally attempted political solutions. The first major initiative, led by President Turgut Özal, produced a PKK ceasefire on March 20, 1993 (Birand & Yalçın, 2012), but it collapsed following Özal's death (Marcus, 2009). After Öcalan's capture in 1999, the PKK declared a "non-conflict" period that the media framed as a victory (Çandar, 2012). Subsequent debates on the Kurdish issue adopted a more reformist tone emphasizing citizens' rights.

During the AK Party era, EU accession efforts encouraged reform and revived hopes for peace. The Third Harmonization Package (August 3, 2002) legalized broadcasting and education in non-Turkish languages, including Kurdish, signaling Türkiye's first multicultural policy framework. Limited Kurdish broadcasts began in 2004, and TRT 6 (later TRT Kurdî) launched in 2009. The ensuing "Democratic Opening" and "Peace Process" expanded cultural rights—legal defense in one's mother tongue, Kurdish studies programs in universities, and the legalization of previously banned letters (w, q, x)—representing steps toward democratization (Çeliktürk, 2011; Oran, 2004; as cited in Ay, 2017, pp. 130-182). However, after the 2015 Ceylanpınar attack that killed two police officers, the process collapsed. Renewed urban clashes and military operations continued until 2024, confining the PKK largely to Iraq and Syria.

A new phase emerged in late 2024 when MHP leader Devlet Bahçeli declared that the terrorist organisation PKK had lost its capacity and function.

In early 2025, the terrorist organisation leader Öcalan issued a directive supporting disbandment and the end of armed struggle. Reactions varied: nationalist circles and families of martyrs remained cautious, while pro-peace NGOs and parts of the Kurdish electorate viewed the move positively (Boynukara et al., 2025). Nonetheless, doubts persisted regarding internal divisions and possible manipulation of the process. On July 12, 2025, PKK members symbolically burned their weapons in Iraq's Sulaymaniyah region, an event widely reported as part of the group's disarmament.

**Method**

This study aims to reveal the discursive structures of AI-generated news texts and those produced by professional journalists through a comparative analysis.

In this study, the symbolic disarmament ceremony carried out by the PKK terrorist organization in Iraq's Sulaimaniyah region on July 11, 2025, is examined as a case study. This ceremony took place following the dissolution announcement made by the organization's founder, Abdullah Öcalan. Öcalan's statement was framed within the 'Terror-Free Türkiye' process, described by President Recep Tayyip Erdoğan, and traced back to the call issued by Nationalist Movement Party (MHP) leader Devlet Bahçeli during his parliamentary group address on October 22, 2024. In that speech, Bahçeli declared that Türkiye had entered a new phase in its more than forty-year struggle against terrorism (Duman, 2025). Accordingly, the symbolic disarmament ceremony held on July 11, 2025, approximately nine months after Bahçeli's call, represented a concrete step that materialized this process within a sequential context. The chosen topic carries both political and symbolic significance. The act of burning weapons received considerable attention in both traditional media and digital news platforms. Indeed, the AI-supported news platform Dipnot.tv, which constitutes the focus of this study, published eight news articles concerning the terrorist organization PKK's weapon-burning act. These news reports not only conveyed information regarding the symbolic disarmament but also produced discursive frameworks around political positions, public reactions, and debates on democracy.

In this study, the data consist of the front-page news reports of newspapers with different ideological orientations, dated July 12, 2025. In line with Van Dijk's critical discourse analysis approach, texts were selected that allow for the comparison of how a specific event was reported, and the analysis was conducted on these news items. Accordingly, the aim was not to achieve representativeness but to carry out a detailed examination of news texts in order to reveal discursive strategies. Within this framework, the sample consisted of Dipnot.tv, one of the first Turkey-based news platforms to experiment with AI-generated journalism through the 'News Curator' application developed by Matnon, as well as three national newspapers (Hürriyet, Sözcü, and Yeni Şafak) reporting on the same event. The masthead of the next-generation news platform Dipnot.tv indicates that its news content is produced via the AI-supported 'News Curator' application, which provides a comprehensive database by scanning various sources, including RSS feeds, news platforms, APIs, and scraping methods. Accordingly, the content published on Dipnot.tv serves as an analytical basis for comparing the discursive structure of news produced by professional journalists in traditional media. Hürriyet was selected as a representative of mainstream journalism, while Sözcü was included as a newspaper with an opposition stance, and Yeni Şafak as one with a pro-government editorial policy, according to classifications frequently employed in the literature (Newman et al., 2022; Özdemir, 2020; Tok, 2025). The comparison focuses on how these outlets represented and framed the same event, analyzed within the framework of Teun A. van Dijk's Critical Discourse Analysis. In line with Van Dijk's model, the study examines discursive structures such as thematic organization, schematic features, lexical choices, and rhetorical devices.

The data were manually collected from newspaper archives and the Dipnot.tv website. The news articles examined were limited to those published on July 12, 2025 — one day after the case event — since newspapers typically publish their

initial coverage the following day. Furthermore, only front-page news stories were analyzed, as front pages represent areas of highest editorial priority and public visibility. In each newspaper, all front-page content that directly or indirectly referred to the disarmament ceremony of the PKK terrorist organization was included in the analysis. For Dipnot.tv, all articles related to the same event were examined. In this way, the study sought to reveal how the event was represented and discursively framed in the earliest stage of reporting. As emphasized in the literature, news articles published immediately after an event are considered critical for discourse analysis, since they reflect the initial framings that shape public understanding (van Dijk, 1988b).

In the research, critical discourse analysis method was used. Specifically, the critical discourse analysis model developed by Teun A. van Dijk was preferred, as it enables the analysis of the ideology-language relationship on both micro and macro levels. This model analyzes media discourse as a tool that reproduces power relations. According to (van Dijk, 1988a), news texts should be evaluated as multi-layered structures. During the analysis process, the texts are examined on both macro and micro structural levels. Macro structures include the thematic content of the news, encompassing sections such as headlines, subheadings, leads, and introductions. This level of analysis aims to identify which themes are emphasized, how the narrative is constructed, and through what schemas the themes are conveyed. The schematic structure under the macro level is generally examined under two subcategories: "situation" and "comment." The "situation" section covers the central event in the news, its consequences, and the contextual elements that form its background. The "comment" section includes statements from news sources and assessments by the actors involved in the event (van Dijk, 1988b, pp. 53–54).

Van Dijk's micro-structural analysis involves the examination of linguistic elements. In addition, the rhetorical structure of the news is analyzed, with particular attention to the expressions selected to reinforce or legitimize meaning within the text. At this level, the study evaluates how the same event is narrated differently, the variations in discourse forms, and the ideological orientations and meanings conveyed through those variations (Devran, 2010; Şeker, 2014).

The starting point of the analysis in this study was to identify the general themes of the news articles about the PKK's disarmament ceremony published on the front pages of the newspapers included in the sample and on the AI-based news platform Dipnot.tv. Three main themes were determined: "the presentation of terrorist actors," "the official discourse of the state," and "reactions from the opposition." Within the framework of these themes, the discursive structures of the news reports were analyzed comparatively. In this context, a total of 11 news reports published under the mentioned categories by the selected media outlets were examined.

## Findings

### The Representation of Terrorist Actors

This section analyzes news coverage of the "symbolic disarmament ceremony" organized by the terrorist organisation PKK on July 11, 2025, in Iraq's Sulaymaniyah region. The event appeared as the lead story and was visually emphasized in all three newspapers—Hürriyet, Sözcü, and Yeni Şafak. The AI-based platform Dipnot.tv also reported on the same event. These reports were examined using Teun A. van Dijk's Critical Discourse Analysis framework to assess how terrorist actors were represented, how the ceremony's rituals were framed, and how ideological orientations and visual elements shaped journalistic discourse. The headlines and lead statements of the analyzed reports are summarized in Table 1.

In the July 12, 2025 issue of Hürriyet, the PKK terrorist organisation's disarmament ceremony was framed through the metaphor of "the last fire." The report centred on the hope for an end to armed conflict, articulated in the subheading: "Now the only wish of 85 million is for the bloody weapons to fall silent forever." The PKK is depicted as the actor performing the weapon-burning ritual, while the event is framed as a symbolic performance. Subheadings such as "15 Women, 15 Men" and "I Was the Closest to the Fire" stress

both the group's gender composition and the journalist's eyewitness authority. Detailed temporal and spatial references underline the gravity of the occasion. Comments like "Everyone who participated was positively affected. Faces were smiling." convey emotional resonance and frame the act as a gesture of collective hope.

At the micro-structural level, the report identifies the PKK terrorist organisation group as the explicit subject, described by gender, age, and status. Lexical choices—"bloody weapons," "to fall silent forever," "order and harmony," "positive effect," and "faces were smiling"—enhance expressiveness and historicize the event.

*Table 1. News Headlines Related to the Disarmament Ceremony*

| | News Headline | Spot |
|---|---|---|
| **Hürriyet** | Bu Son Ateş Olsun (Let This Be the Last Fire) | PKK'lı bir grup Süleymaniye kırsalında Jasana Mağarası'nın bulunduğu bölgede silah bıraktı. Silahlar özel kazanda yakıldı.Şimdi 85 milyonun tek temennisi, kanlı silahların ebediyen susması (A group of PKK members laid down their arms in the rural area of Sulaymaniyah, where the Jasana Cave is located. The weapons were burned in a special cauldron. Now, the sole wish of 85 million people is that the bloody weapons remain silent forever) |
| **Sözcü** | 47 Yıllık İhanete Yarım Saatlik Şov (47 Years of Betrayal, Half-Hour Show) | Bahçeli'nin çağrısıyla başlayan yeni açılım sürecinde PKK, dün Kuzey Irak'taki Canna Dağı'nda sembolik bir törenle silah bıraktı. (In the new opening process initiated by Bahçeli's call, the PKK laid down its arms yesterday in a symbolic ceremony on Mount Canna in Northern Iraq) |
| **Yeni Şafak** | 47 Yıllık Terörün Bitmesi İçin İlk Adım PKK Silah Bırakmaya Başladı (The First Step for Ending 47 Years of Terror) | Terörsüz Türkiye sürecinde kritik eşik aşıldı. Güvenlik güçlerinin Irak'taki operasyonları ile hareket edemez hale gelen terör örgütü PKK, Öcalan'ın çağrısı ve bölgesel dengelerin değişmesiyle fesih kararı almıştı. Dün Süleymaniye'de 30 kişilik PKK'lı grup, silahlarını kazana atıp yakarak silah bırakma sürecini başlattı.( PKK Started to Lay Down Arms. A critical threshold was crossed in the Terror-Free Türkiye process. The PKK terrorist organization, which became unable to act due to the operations of the security forces in Iraq, had decided to dissolve with Öcalan's call and the change of regional balances. Yesterday in Sulaymaniyah, a group of 30 PKK members started the disarmament process by throwing their weapons into a cauldron and burning them.) |
| **dipnot.tv** | PKK Savaşçıları Silahsızlanma Sürecini Başlattı (PKK Fighters Started the Disarmament Process) | Kuzey Irak'ta toplanan PKK savaşçıları, silahlarını ateşe atarak sembolik bir silahsızlanma eylemi gerçekleştirdi.( PKK fighters gathered in Northern Iraq carried out a symbolic disarmament act by throwing their weapons into the fire) |

Hürriyet
KANLI SILAHLAR BÖYLE YAKILDI
BU SON ATEŞ OLSUN
BESE HOZAT'LA MÜNALİFLERE MESAJ VERİLDİ
ERBİL'DE DE SÜLEYMANİYE'DE DE YÜZLER GÜLÜYOR
ATEŞE EN YAKIN NOKTADAYDIM
BU ÖNEMLİ ADIM HAYIRLI OLSUN
GELİŞMELER BİR MİLATTIR
TERÖRÜN BİTMESİ ORTAK İRADEMİZ
SAM'LA ANLAŞMA ZAMANI

*Figure 1: Hürriyet Newspaper, July 12, 2025*

The figure codenamed Bese Hozat is portrayed as the leader, signalling the organisation's hierarchy and symbolic order. Rhetorically, the large-font headline "Let This Be the Last Fire" marks the ceremony as a moment of symbolic closure.

Visually, the first photograph beside the headline captures the weapon-burning moment with the caption "Bloody Weapons Were Burned Like This," directly invoking the organisation's violent legacy. The second image, central to the layout, shows members throwing weapons into a cauldron, serving as the visual focal point. A third wide-angle shot depicts the group's arrival, while the final image foregrounds the Hürriyet journalist as on-site observer, visually reinforcing the narrative of witnessing.

*Figure 2. Sözcü Newspaper, July 12, 2025*

In the July 12, 2025 issue of Sözcü, the lead story titled "A Half-Hour Show for a 47-Year Betrayal" framed the PKK terrorist organisation's disarmament ceremony through an overtly negative and accusatory lens. Using terms such as "betrayal," "show," and "theater," the article dismissed claims of a peace-oriented gesture and instead constructed a narrative of deception. The expression "a half-hour show" foregrounded the assumption of pure performance, situating the coverage within an explicitly oppositional stance.

At the schematic level, the situation section presented basic details—location, participants, and sequence—through cues that evoke distrust. The comment section relied less on direct actor quotations, reflecting instead the newspaper's evaluative framing. Phrases like "victory manifesto," "giant Apo poster," and "a storm of ululations and applause" rhetorically exaggerated the ceremony's spectacle, assigning grandeur to underscore insincerity. The secondary headline, "The Villainy Behind the Curtain of the Theater," linked the event to an image of a fallen soldier, amplifying outrage through emotional framin.

Linguistically, the report employed short, often passive sentences - "The victory manifesto was read," "Rifles were thrown into the cauldron"- backgrounding agency and emphasizing ritual. The active line "They returned to the cave as they came" attached a spatially negative metaphor to the group. Lexical items like "show," "theater," and "betrayal" conveyed moral judgment, while "giant Apo poster" and "high-ranking terrorist" questioned legitimacy and reinforced criminal identity. The headline term "betrayal" combined with martyr imagery produced emotional intensity. Visually, a large image of participants contrasted with smaller photos of rifles being discarded—captioned "new and unused weapons" and "no ballistic examination was conducted"—heightening the perception of staging and falsity.

*Figure 3. Yeni Şafak Newspaper, July 12, 2025*

In the July 12, 2025 issue of Yeni Şafak, the disarmament ceremony was framed as a major national development. The headline "The First Step to Ending 47 Years of Terror: The PKK Begins to Disarm" appeared in large font, emphasizing the event's historical weight. Thematically, the report framed the PKK's act as the beginning of its dissolution and a hopeful step toward "a future free of terrorism." At the schematic level, detailed information on the location, process, and actors was provided, contextualized by references to Öcalan's call and shifting regional dynamics. The lead phrase "a critical threshold has been crossed" po-

sitioned the event as a political milestone. Additionally, the phrase "the terrorist organization PKK, which has become unable to act," includes an overt evaluative commentary. It creates the impression that the organization did not make a voluntary decision, but was compelled to act due to the operational pressure of the security forces. This representation emphasizes the state and its coercive power as the active subject, portraying the PKK as a passive and helpless actor.

Stylistically, the report used short, verb-driven sentences such as "PKK started to lay down arms" and "They threw the weapons into the cauldron and set them on fire," foregrounding action and agency. In contrast, "A document containing the serial numbers of the weapons was delivered to the delegation" employed the passive voice to highlight institutional oversight. This variation underscored both the ritual and the state's supervisory authority. Lexical choices like "47 years of terror" linked the organization's history to violence, while "a Turkey without terror" reinforced state-centered security discourse. The repeated term "the terrorist organization PKK" delegitimized the group, and the subheading "They threw them into the cauldron" accentuated ritual symbolism. References to political figures and "the weapons list was delivered to MIT" highlighted institutional control.

***Figure 4. dipnot.tv, July 12, 2025***

Rhetorically, the headline's historical framing constructed the event as a turning point. Subheadings organized the narrative around key scenes, chronology, and institutional action, while photographs depicting PKK members' arrival and weapon burning visually reinforced the report's ritualized and state-centered framing.

On the AI-supported digital news platform Dipnot.tv, the news article titled "PKK Fighters Begin the Disarmament Process," published on July 12, 2025, constructs its thematic structure around the disarmament act. In the article, the ceremony is presented as a sign of the peace process, and the event is emphasized as an important step toward ending the conflict and establishing regional stability. The frame of the theme conveys an optimistic approach toward peace. On the schematic level, the "situation" section summarizes how the disarmament act physically unfolded, stating that fighters of the terrorist organization PKK came together and symbolically threw their weapons into the fire. The "comment" section follows the subheadings "The Symbolic Meaning of Disarmament" and "Regional Impacts." These parts evaluate the ceremony's contribution to the peace process, its potential for stability, and the possible reactions of other actors. The sentences are short, clear, and simple. Complex or multi-layered structures are avoided, and both active and passive forms appear. Phrases such as "a sign of the peace process," "an important step," and "regional stability" show how the article linguistically frames the event in positive terms aligned with peace-oriented discourse.

According to the lexical-level analysis, one of the most striking points is the consistent avoidance of adjectives such as "terrorist," and the repeated use of the term "PKK fighters" throughout the text. As van Dijk emphasizes, such lexical choices may reflect the ideological position of the system that produces the news. Since Dipnot.tv is a platform where content is generated entirely by artificial intelligence without human intervention, the choice of the word "fighter" should be understood as an outcome of automated language generation. This suggests that the system may rely on English-based datasets where the word "fighter" often carries connotations of heroism or resistance, creating

a framing different from the "terrorist" label typically used in national newspapers. In addition, positive connotation phrases such as "a symbolic act of disarmament," "peace process," "ending the conflict," and "ensuring stability" contribute to the impression that the news is positioned in favor of peace and resolution. Rhetorically, the news story is notably weak and plainly written. It lacks linguistic devices that could create strong emotional impact or enhance persuasiveness, such as parallelism, metaphor, or analogy. The sentences are short and neutral, minimizing dramatic effect.

any news articles in this category. In the analyzed news articles, how the official position of the state is represented, through which linguistic strategies the framework of legitimacy is constructed, and how the event is framed through discourse structures have been analyzed.

When reviewing the Hürriyet front page of July 12, 2025, two reports reflecting official state discourse were identified. The first, "May This Significant Step Be Auspicious," features President Erdoğan's statement on the PKK terrorist organisation's disarmament.

*Table 2. News Headlines Related to the Official Discourse of the State*

| | News Headline | Spot |
|---|---|---|
| **Hürriyet** | Bu Önemli Adım Hayırlı Olsun (This Important Step Shall Be Auspicious) | Cumhurbaşkanı Erdoğan, PKK'lı bir grubun silah bırakmasına ilişkin sosyal medya hesabından açıklama yaptı.( President Erdoğan issued a statement on his social media account regarding the disarmament of a group of members of the terrorist organization PKK) |
| | Gelişmeler Bir Milattir (The Developments Constitute a Milestone) | MHP Lideri Bahçeli, kara bir dönemin kapanması hususunda tarihi nitelikli gelişmeler yaşanmaya başladığını vurgulayarak, "Pozitif ve yüreklere su serpen gelişmeler bir milattır ve bu kapsamda mahşeri vicdan memnuniyet duymaktadır" dedi. (MHP Leader Bahçeli emphasized that historically significant developments have begun to unfold concerning the closure of a dark era, stating, "The positive and heartening developments are a milestone, and in this respect, the collective conscience is content.") |
| **Sözcü** | - | - |
| **Yeni Şafak** | Bugün atılan adım hayırlara vesile olsun (May Today's Step Be Auspicious) | PKK'lı ilk grubun silah bırakmasından sonra MHP Lideri Bahçeli, Cumhurbaşkanı Tayyip Erdoğan'ı arayarak memnuniyetini dile getirdi. DEM Parti'li Pervin Buldan da Erdoğan ve Bahçeli'yi arayarak teşekkür etti.( Following the disarmament of the first group of members of the terrorist organization PKK, MHP Leader Bahçeli called President Tayyip Erdoğan to express his satisfaction. Pervin Buldan of the DEM Party also contacted both Erdoğan and Bahçeli to convey her gratitude.) |
| | Kara bir dönem kapanıyor (The Closing of a Dark Era) | MHP Lideri Devlet Bahçeli, yaptığı yazılı açıklamada, terörsüz Türkiye hedefinin sağlam ve sağlıklı hamlelerle mesafe aldığını ifade etti. (In a written statement, MHP Leader Devlet Bahçeli noted that the goal of a Turkey free from terrorism has made progress through firm and sound measures.) |
| **dipnot.tv** | Cumhurbaşkanı Erdoğan: Terörsüz Türkiye Hedefine Adım (President Erdoğan: A Step Toward a Terror-Free Turkey) | PKK'lı 30 kişinin silah bırakması sonrası Cumhurbaşkanı Erdoğan, terörsüz bir gelecek için dualarını paylaştı.( Following the disarmament of 30 members of the terrorist organization PKK, President Erdoğan shared his prayers for a future without terrorism.) |

**The Official State Discourse**

In this category, news articles concerning the statements made by senior state officials, government representatives, and the leaders of parties within the People's Alliance regarding the PKK's act of burning weapons have been examined. While two news articles were published in Hürriyet and Yeni Şafak, and one in Dipnot.tv, Sözcü did not feature

The headline's prayer-like tone conveys affirmation, while the lead -"President Erdoğan made a statement on his social media account regarding the disarmament of PKK"- sets an objective frame. Nearly all of Erdoğan's words are quoted directly, maintaining thematic unity between headline and opening. The article foregrounds concepts of peace, unity, and prayer, presenting the state as the

actor managing the process. Structurally, the "situation" section consists of official statements with no journalistic commentary. The note that Erdoğan phoned MHP leader Devlet Bahçeli signals political coordination and strengthens contextual depth.

At the micro level, the report uses short, active sentences emphasizing state agency. Lexical items such as "A Terror-Free Türkiye," "lasting peace," and "May Allah grant us success" blend national and religious motifs, enhancing emotional appeal and legitimacy. Religious expressions reinforce the ideological dimension of Erdoğan's discourse. The language is persuasive and legitimizing, forming a strong rhetorical state narrative. A chest-level portrait of Erdoğan visually underscores authority, formality, and determination.

Another Hürriyet article under the "official state discourse" category, titled "These Developments Mark a Turning Point," features MHP leader Bahçeli's statements in the right-hand column. The headline directly summarizes Bahçeli's words; "turning point" signals a historically significant milestone and implies a positive, future-oriented value judgment. Although there is no news spot, the opening sentence serves as the main contextual element. Bahçeli's statement is presented directly, framing the event dramatically through phrases such as "closure of a dark period," "developments of historical nature," and "positive and heartening developments." The thematic structure combines positivity, historical importance, and societal tranquility in line with the official state discourse, constructing a narrative that affirms the developments politically and socially. The event is portrayed as hope against past darkness, a historical rupture, and a symbol of social peace. Though concise, the article uses strong discursive concepts to convey the theme intensely.

According to the schematic structure analysis, the "situation" section consists entirely of the primary definer's words, and no journalist commentary appears. The micro-structural analysis shows complex and rhetorically ornate constructions. The sentence "the social conscience feels satisfaction" employs a collective agent, associated with an abstract rather than passive actor. Lexical items - "turning point," "dark period," "developments of historical nature," "positive," "heartening," and "collective conscience" - function as evaluative terms highlighting the event's significance and reinforcing the speaker's viewpoint. These choices heighten emotional impact and persuasive force. The accompanying shoulder-level portrait of Bahçeli, facing the camera directly, constructs a rhetoric of authority and sincerity, fostering trust in the leader.

Yeni Şafak allocated space on its front page for two news articles reflecting the official state discourse. One, includes President Erdoğan's statements and is titled "May Today's Step Be Auspicious." The headline, news spot, and introduction display a strong thematic hierarchy. The headline, a direct quotation from Erdoğan's social media post, constitutes the main theme, emphasizing that the government embraces the ceremony of the terrorist organization PKK within the "a Terror-Free Türkiye" process. The spot notes that MHP leader Bahçeli and DEM Party MP Pervin Buldan also called Erdoğan to express satisfaction, thereby expanding the theme of shared approval and discursive harmony. Concepts such as "a Terror-Free Türkiye," "peace," "lasting stability," and "regional security" form a semantic chain from general to specific. Schematically, the article summarizes Erdoğan's social media message, with the narrative built on his initial reaction to the terrorist organization PKK's disarmament and subsequent discussions with Bahçeli and Buldan. The "evaluation" section is limited, mostly direct quotations, positioning the article as informative rather than interpretive. At the micro level, the sentences are long but clear; Erdoğan's statements, quoted directly, reflect the natural patterns of political discourse. Active subjects and verbs are attributed directly to Erdoğan. Lexical choices such as "a Terror-Free Türkiye," "peace," "stability," and "the security of our nation" convey positive state goals, while religious phrases like "Allah Almighty" and "may [He] grant" resonate with conservative readership. Rhetorical elements emerge through Erdoğan's quotations; the supplicatory phrase at the end expands the text into a religious-rhetorical sphere. The accompanying photo shows Erdoğan in a shoulder-level portrait, a classic statesman representation, where the lack of a clear expression

emphasizes symbolic presence rather than personal emotion.

The second article, titled "A Dark Era is Coming to an End," features Bahçeli's statements. The headline conveys the perception that a long-standing threat to Türkiye is ending; it is short, striking, and dramatic. The spot reflects MHP's support for the process. In the introduction, Bahçeli's remarks are presented. The phrase "as of today, the separatist terrorist organization has begun surrendering its weapons in groups" highlights the concreteness of the "a Terror-Free Türkiye" process, while "developments of historical nature are taking place regarding the end of a dark era" frames the developments positively in line with state policy. Thus, the event is presented as a historical turning point. In the schematic structure, factual elements form the "situation" section, while Bahçeli's interpretive remarks construct the "evaluation" section. At the micro level, the introduction employs active constructions. Lexically, expressions such as "dark era," "developments of historical nature," "goal of a Terror-Free Türkiye," and "firm and sound steps" affirm state actions, frame the process as a success, and generate positive connotations. Rhetorically, dramatic expressions enhance discursive impact; terms like "developments of historical nature" and "collective conscience" increase credibility and emotional appeal. Drawn from Bahçeli's words, these expressions show the article not only informs but also seeks to build consent for the state's stance. The accompanying photo portrays Bahçeli at shoulder level, emphasizing decisiveness, seriousness, and trustworthiness.

Sözcü newspaper, on the other hand, did not include any news articles falling under the category of "official state discourse" on its front page. Instead, the coverage focused only on the act of burning weapons carried out by the terrorist organization PKK, presenting it as a symbolic performance. This orientation does not indicate engagement with the legitimizing framework of the state discourse but remains limited to reporting and framing the symbolic dimension of the act itself.

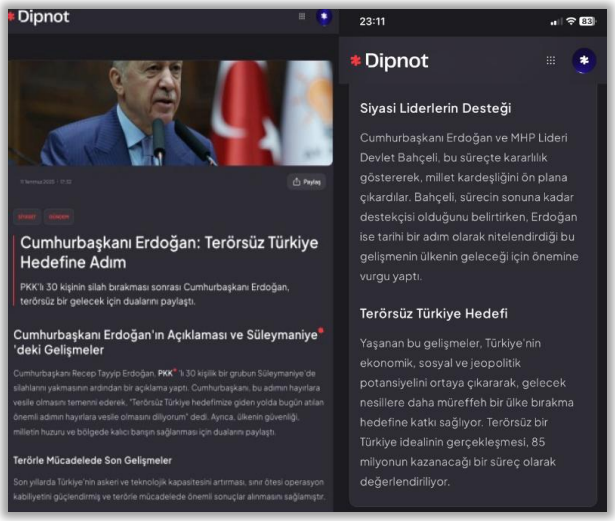


*Figure 5. dipnot.tv, July 12, 2025*

On the AI-supported news platform dipnot.tv, a news article was published under the category of official state discourse, featuring the statements of President Erdoğan and Bahçeli, a partner of the People's Alliance. The article, published under the headline "President Erdoğan: A Step Toward the Goal of a Terror-Free Türkiye," emphasizes in its macrostructure, thematically, the notion of a step taken toward the ideal of a Terror-Free Türkiye. In the article presented with the news spot "Following the disarmament of 30 PKK members, President Erdoğan shared his prayers for a future without terrorism," attention is drawn to a tone of affirmation based on religious and moral references such as peace, tranquility, and prayer. It is observed that similar expressions are repeated in the opening sentence of the article. At the schematic level, in the "situation" section of the article, the headline, spot, and lead summarize Erdoğan's statements, while the main text consists of information concerning the main event and its background. However, it has been noted that Erdoğan's statement, "May Allah Almighty grant us success in achieving our goals on this path we walk for our country's security, our nation's peace, and the establishment of lasting peace in our region," was not included. The "situation" section reports Erdoğan's phone call with Bahçeli and Bahçeli's expression of support for the process. The "evaluation" section, however, reflects features of automated text generation. Considering that Dipnot.tv's content is produced entirely by artificial

intelligence without human intervention, and consistent with findings in the literature (Carlson, 2015), the recurrence of superficiality, lack of context, monotonous language, and source-free evaluative statements suggests that these passages are typical outputs of algorithmic language generation. For example, "These recent developments reveal Türkiye's economic, social, and geopolitical potential…" and "The realization of the ideal of a Terror-Free Türkiye is considered a process from which all 85 million citizens will benefit" appear as commentary without attribution. Syntactically, official statements are conveyed in the active voice, while evaluative parts employ passives such as "is considered," which conceal the agent and present inference as objectivity. Rhetorically, credibility is established through quotations early in the text, whereas the evaluative section seeks to persuade by articulating idealized goals, as in "leaving a more prosperous country to future generations." The accompanying photo of Erdoğan, serious-faced with the Turkish flag, reinforces state legitimacy and ideological unity by merging leader and national symbol in a single frame.

**Opposition Reactions**

In this category, news articles concerning the reactions of opposition parties to the PKK's act of burning weapons have been analyzed. While Hürriyet and dipnot.tv each included one news article within this category, it has been determined that no such articles were published on the front pages of Yeni Şafak and Sözcü newspapers.

In Hürriyet's July 12, 2025 front page, a news article titled "Ending Terrorism is Our Common Will," based on CHP leader Özgür Özel's social media post, appears under "opposition reactions." Positioned in a single column at the bottom right, it highlights Özel's positive stance toward the peace process. The headline emphasizes societal consensus, reflecting the opposition's attempt to claim ownership of the process and contribute to legitimacy.

Schematically, the article consists only of Özel's statements in quotation marks, directly responding to the disarmament of the terrorist organization PKK. With no commentary, it functions as an informative piece. Microstructurally, active subject-verb constructions dominate, with Özel as the agent. Simple syntax ensures clarity. Lexically, "peace," "common will," and "heavy price" stress unity and shared responsibility, while the metaphor "complete silence of weapons" signals a transition from violence to peace. Rhetorically, the headline's emphasis on "our common will" broadens the call from CHP to society at large.

Yeni Şafak and Sözcü newspapers, on the other hand, did not include any news articles under the category of "opposition reactions" on their front pages. In its coverage of the terrorist organization PKK's disarmament, Yeni Şafak focused on statements by state actors such as President Erdoğan and MHP leader Bahçeli, as well as on the weapon-burning ceremony. No statements from opposition figures were included in this coverage. In the case of Sözcü, opposition reactions were likewise absent from the front page, and the newspaper did

*Table 3. Headlines of News on the Opposition's Reactions to the Terrorist Organization PKK's Weapon-Burning Act*

| | News Headline | Spot |
|---|---|---|
| **Hürriyet** | Terörün Bitmesi Ortak İrademizdir (The End of Terrorism Is Our Common Will) | "Partimiz barışın yanındadır" diyen CHP Genel Başkanı Özel, "Ülkemize çok ağır bedeller ödeten terörün ilelebet son bulması ortak irademizdir. Bu adımın artık silahların tamamen susacağı bir dönemin başlangıcı olmasını diliyoruz" dedi.( "CHP Chairman Özel, who said "Our party stands by peace," stated: "It is our common will that terrorism, which has inflicted very heavy costs on our country, comes to an end forever. We hope this step will mark the beginning of a period in which weapons will fall completely silent.") |
| **Sözcü** | - | - |
| **Yeni Şafak** | - | - |
| **Dipnot.tv** | CHP ve DEVA Partisi PKK'nın Silah Yakma Törenini Destekledi (CHP and DEVA Party Supported PKK's Weapon-Burning Ceremony) | CHP ve DEVA Partisi, PKK'nın silah yakma törenini desteklerken, İYİ Parti ve Demokrat Parti'den tepkiler geldi. (While CHP and DEVA Party supported PKK's weapon-burning ceremony, reactions came from İYİ Party and Democrat Party.) |

not feature content related to this dimension of the event.

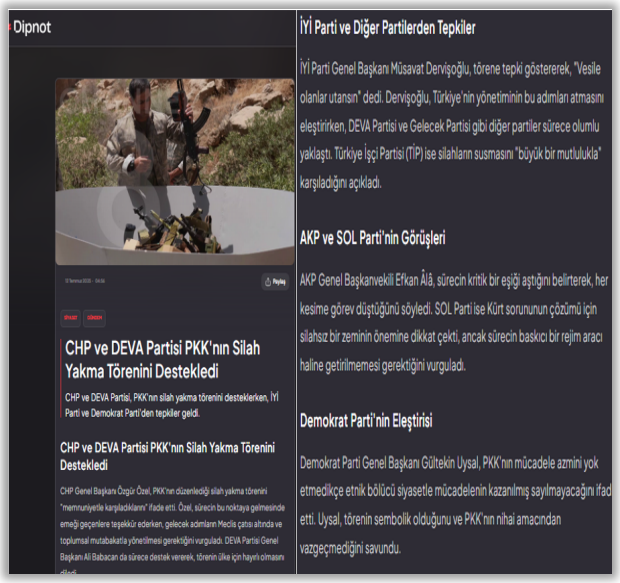


*Figure 6. dipnot.tv, July 12, 2025*

On the AI-supported news platform Dipnot.tv, a news article published under the category of "opposition reactions" and titled "CHP and DEVA Party Supported the PKK's Weapon-Burning Ceremony" thematically aims to present the positions of opposition actors regarding the terrorist organization PKK's act of disarmament. The headline emphasizes the actors who endorsed the process. In the subsequent article text, the reactions of the parties are conveyed in sequence through very brief quotations. However, this brevity results in superficial representations. For example, CHP leader Özel's statement that they "welcomed it with satisfaction" and his emphasis on "social consensus" are addressed in only two sentences. Similarly, DEVA leader Babacan's statement is reduced solely to a message of goodwill: "may it be auspicious." The reaction of the İYİ Party is conveyed through the short expression, "Shame on those responsible." The statement of the Left Party (SOL Parti), which supported the terrorist organization PKK's act of disarmament but also warned that the process should not be turned into a tool of an oppressive regime, is also summarized. The criticisms of the Democrat Party, which took a stance against the process, are mentioned in a single sentence.

In the thematic structure of the article, positive reactions are presented first and in slightly greater detail, while critical reactions are summarized more briefly toward the end. Although the article does not include evaluative commentary and gives the impression of objectivity by presenting political leaders' statements through direct quotations, this order of presentation constructs a framework that highlights supportive voices more prominently.

At the syntactic level, the news sentences are constructed in the active voice, and no passive constructions are observed. At the lexical level, terms such as "supported," "welcomed with satisfaction," "shame on those responsible," "may it be auspicious," "ultimate goal," and "ethnic separatist politics" clearly categorize the political positions of the actors. In addition, more inclusive expressions such as "with great joy" and "every segment has a role to play" are also present, indicating both polarizing and unifying elements. At the rhetorical level, the headline and the structure of the first paragraph emphasize the support expressed by CHP and the DEVA Party, thereby legitimizing the process. In the visual analysis, the only image shows a member of the terrorist organization PKK throwing a weapon into a large cauldron. The individual's face is not visible, only the shoulder and waist areas are shown, which anonymizes the act and underscores its symbolic nature.

## Discussion and Conclusion

In this study, the discursive structures of news texts produced by artificial intelligence and by professional journalists were comparatively analyzed. As a case study, the news items on Dipnot.tv, one of the Türkiye-based AI-supported news sites, and on Hürriyet, Sözcü, and Yeni Şafak, which have different editorial policies, concerning the symbolic disarmament ceremony of the terrorist organization PKK held on 11 July 2025 in the rural area of Sulaymaniyah, Iraq, were examined under the themes of "Official State Discourse," "Opposition Reactions," and "Representation of Terrorist Actors," by applying van Dijk's Critical Discourse Analysis method.

In the context of "Official State Discourse," Hürriyet and Yeni Şafak presented the disarmament ceremony as a development aligned with the

goals of the state and included the statements of state actors. By contrast, on the examined front page of Sözcü, content directly reflecting the state discourse was not included, and the statements of state actors were not reported. Dipnot.tv, on the other hand, presented the official discourse in a descriptive style with a neutral tone through short quotations and predominantly passive structures. The placement of official actors as "primary definers" in the headline/lead in journalistic texts shows consistency with Bennett's indexing approach; Sözcü's failure to include official statements is interpreted as a deliberate deviation from the indexing range (Bennett, 1990). It is observed that the report on Dipnot.tv is also aligned with the indexing approach in a similar manner to the reports in Hürriyet and Yeni Şafak, but that this alignment is established not through rhetoric but through textual organization. This situation overlaps with the observations that automated journalism relies on "rigid templates/formal conformity" and produces "human-like but generalized" narratives (Carlson, 2015).

Differences were also observed in the theme of "Opposition Reactions." While Yeni Şafak and Sözcü did not include the statements of opposition actors on their front pages, Hürriyet published a short statement by Özgür Özel, the leader of the main opposition party. Dipnot.tv included the views of more than one opposition party, but presented these views quite briefly. Supportive statements (CHP, DEVA) were given in detail in the headline and standfirst; critical statements (İYİ Party, Democrat Party) were shortened and placed at the end of the text. This sequencing created differences in visibility. In the journalist-written text (Hürriyet), the opposition voice is present but short and in a lower position; in the AI text (Dipnot.tv), more than one opposition voice is present, but support comes first, while criticism appears last. In the AI-written report, pushing the reactions of opposition parties into the background -through shortening and positioning, as in reports written by human journalists- is associated with the framework that the selection of data, template design, and threshold/sequencing rules determine the presentation at the interface and thus normatively shape the frame. Therefore, the layout and shortening preferences in the Dipnot.tv report can be interpreted as the result of design-governance decisions rather than a technical necessity. Therefore, the algorithms that determine the frame of the report published on Dipnot.tv render visible one dimension of the issue of neutrality, which is among the most debated topics regarding AI news. Indeed, Diakopoulos (2019, p. 19) states that algorithms are not neutral and objective, and that they consistently apply the values of developers and institutions through encoded rules.

In the theme of "Representation of Terrorist Actors," lexical contrasts became more pronounced. Sözcü described the PKK's weapon-burning ceremony with strong terms such as "betrayal," "show," and "theater." By contrast, Hürriyet and Yeni Şafak presented the same act as a positive development within the "Terror-Free Türkiye" process. Yeni Şafak used the expression "terrorist organization" once in reference to the PKK; Hürriyet completely avoided this terminology. Dipnot.tv, on the other hand, preferred the expression "PKK fighters" and did not use the labels "organization/terrorist." This terminological choice distinguished Dipnot.tv from Sözcü and Yeni Şafak, which explicitly labeled PKK members as "terrorists." Human-written texts produce value connotations through lexis, whereas AI texts produce label substitution. Therefore, the label choice observed in the Dipnot.tv example should be read as the result of design and governance decisions rather than a technical necessity.

In light of the general findings, it is understood that traditional journalism exhibits more visible and explicit ideological stances; whereas news produced by AI stands out with brevity, neutralized syntax, and limited commentary. At the same time, content sequencing and lexical choices in AI news also construct meaning; it is observed that algorithmic production is not entirely independent of discursive frameworks. While professional journalism often displays a tendency to polarize events along state-centered or opposition-centered axes, AI news presents the event in a more technical and low-conflict manner. These findings show that elements such as event representation, word choice,

narrative sequencing, and visual preferences contribute to meaning construction in both human journalism and AI production.

These findings open the way not only to discussions concerning the discursive features of the analyzed news texts but also to broader debates in the context of media studies, journalistic ethics, and democratic theory. Notwithstanding Habermas's (1989) conceptualization of the media as a public sphere in which different perspectives are made visible and citizens can produce collective understanding through rational deliberation, when Slevin's (2000, p. 76) observation that, due to commercialization and state interventions, this remains a "fantasy" in practice is taken into account, it is understood that —as in traditional media journalism—the public sphere function in artificial intelligence journalism can likewise be weakened by algorithmic and institutional choices through "artificial neutrality," data/template selection, and sequencing–threshold decisions. In the Dipnot.tv case, where content is produced without human intervention, this "artificial neutrality" carries the risk of weakening the media's democratic-deliberative capacity. Superficial, decontextualized, and agent-effacing narratives narrow access to critical information and constrain democratic decision-making processes. Moreover, the algorithmic structure is not independent of cultural and political contexts; it can reproduce the social values and power relations in which it is coded (Gillespie, 2014; Bucher, 2018). Therefore, the role of AI journalism should be evaluated not only by criteria of technical efficiency and speed, but also in terms of the quality of public discourse, journalistic ethics, and the sustainability of democratic deliberation.

This study was conducted through Dipnot.tv, a pioneering platform for AI journalism in Türkiye. However, the fact that only a single AI-based platform and a single event were examined limits the direct generalization of the findings to the entirety of "AI journalism." Different algorithms, training datasets, and editorial policies may produce different outputs. Therefore, the results primarily carry validity within the context of this platform and event; for broader generalizations, future comparative studies across various AI-based news production examples are needed.

## 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:*** The analysis draws on publicly available news texts and images (national newspapers and Dipnot.tv). The de-identified coding sheets and derived analysis outputs generated during the study 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

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# Environmental Sustainability and the Climate Crisis: A Qualitative Study on Institutional Preparedness and Individual Awareness

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## Abstract

*Climate change and environmental sustainability are increasingly recognized as critical issues within healthcare systems. However, there is limited understanding of how healthcare professionals perceive and experience these challenges in their daily practice. This study aims to explore healthcare professionals' perceptions, experiences, and attitudes toward environmental sustainability and climate change within public hospitals. Designed as a descriptive phenomenological study, the research was based on Giorgi's phenomenological approach. Data were collected through semi-structured, in-depth interviews with 10 healthcare professionals (physicians, nurses, and technicians) working in public hospitals. The interview form was developed by the researchers through a comprehensive literature review and expert validation. Interviews were audio-recorded and analyzed in five stages using Giorgi's descriptive phenomenological method: holistic reading, identification of meaning units, transformation into psychological expressions, construction of the essential structure, and thematic coding. The findings revealed common themes related to environmental awareness, institutional practices, perceived barriers, and proposed solutions for climate-resilient healthcare. Participants' statements converged around themes such as environmental sustainability awareness, institutional practices, encountered barriers, and proposed solutions. Understanding healthcare professionals' lived experiences provides a foundation for promoting climate-resilient healthcare practices. The findings can inform institutional policies, training programs, and future research aimed at strengthening environmental sustainability in healthcare settings.*

**Keywords:** *Environmental sustainability, climate change, healthcare professionals, phenomenology, qualitative research*

## Öz

*İklim değişikliği ve çevresel sürdürülebilirlik, sağlık sistemleri içinde giderek önem kazanmaktadır. Ancak sağlık çalışanlarının bu konudaki algı ve deneyimlerine yönelik bilgi sınırlıdır. Bu çalışma, kamu hastanelerinde görev yapan sağlık çalışanlarının çevresel sürdürülebilirlik ve iklim değişikliğine yönelik algılarını, deneyimlerini ve tutumlarını anlamayı amaçlamaktadır. Tanımlayıcı fenomenolojik desende yürütülen araştırma, Giorgi'nin (2005) fenomenolojik yaklaşımı temel alınarak yapılandırılmıştır. Veriler, yarı yapılandırılmış görüşme formu ile kamu hastanelerinde çalışan 10 sağlık çalışanı ile yapılan derinlemesine birebir görüşmelerle toplanmıştır. Görüşme formu literatür ve uzman görüşleri doğrultusunda hazırlanmış, ses kaydı ile toplanan veriler Giorgi'nin beş aşamalı analiz yöntemi kullanılarak çözümlenmiştir: bütüncül okuma, anlam birimlerinin belirlenmesi, psikolojik yönelimli dönüştürme, temel yapının oluşturulması ve tematik kodlama. Katılımcıların ifadeleri, çevresel farkındalık, kurumsal uygulamalar, karşılaşılan engeller ve çözüm önerileri gibi temalarda bütünleşmiştir. Sağlık çalışanları, iklimsel sürdürülebilirlik açısından bireysel farkındalıkların artırılması, kurumsal destek mekanizmalarının geliştirilmesi ve sürdürülebilir uygulamaların teşvik edilmesi gerektiğini vurgulamıştır. Sağlık çalışanlarının yaşantısal deneyimlerinin anlaşılması, iklim dirençli sağlık hizmetleri uygulamalarını desteklemek açısından önemlidir. Bulgular, kurumsal politikalar, eğitim programları ve gelecekteki araştırmalar için yol gösterici olabilir.*

**Anahtar Kelimeler**: *Çevresel sürdürülebilirlik, iklim değişikliği, sağlık çalışanları, fenomenoloji, nitel araştırma.*



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## Introduction

Climate change is recognized not only as an environmental threat but also as one of the greatest risks to public health. Moreover, the view that the climate is increasingly changing and that human activities play a decisive role in this change is widely accepted among scientists (Intergovernmental Panel on Climate Change [IPCC], 2013). Although the health sector is dedicated to protecting life and well-being, it also significantly contributes to climate change through its carbon footprint, resource consumption, waste generation, and energy use, creating an urgent need for sustainable practices in healthcare (Greenwald et al., 2023; Karliner & Boyd, 2019; Watts et al., 2023). Within this framework, the World Health Organization [WHO] (2023) emphasizes the global threat of climate change to health, highlighting how its consequences—such as extreme heat, water and air pollution, food security risks, and the spread of infectious diseases—directly affect both individual health and health systems. In this process, health professionals directly experience the negative consequences of climate change and serve at the frontline in combating its effects (Amoadu et al., 2023; Luque-Alcaraz et al., 2024).

Understanding the perceptions and experiences of health professionals—who are key actors in the health sector—regarding environmental sustainability is of critical importance. Their central role in both managing the health consequences of climate change and implementing sustainable practices in health institutions highlights the need for such investigations. This study is guided by the central research question: *"How do health professionals perceive the impacts of climate change on health and the environment?"* Accordingly, the aim of this research is to explore the perceptions and experiences of health professionals regarding environmental sustainability and climate change within the framework of a descriptive phenomenological approach.

## Health Systems and the Role of Health Professionals in the Context of the Climate Crisis

Climate change can alter human lives in positive, negative, or neutral ways (Ebi & Semenza, 2008: 501). These changes affect human health both directly and indirectly. Environmental factors such as heat waves, air pollution, waterborne diseases, and food security risks pose significant threats, especially for older adults and individuals with chronic illnesses, leading to an increase in allergic reactions as well as respiratory, cardiovascular, neurological, and psychological disorders (Agache et al., 2023; Cianconi et al., 2020; Kinay et al., 2019; Trombley et al., 2017; World Health Organization [WHO], 2023). At the same time, health institutions are increasingly striving to reduce the environmental impacts of the climate crisis and to enhance their sustainable performance in line with the demands of stakeholders such as government agencies, service users, competitors, and health professionals (Martins et al., 2021). Indeed, the growing awareness of the adverse effects of the climate crisis and the rising number of initiatives underscore the necessity of strengthening the resilience and adaptive capacity of health systems. In this regard, the WHO (2023), in its report *Operational Framework for Climate-Resilient Health Systems,* proposes a strategic roadmap that includes strengthening infrastructure, establishing early warning systems, developing environmental monitoring mechanisms, and training health professionals to build climate-resilient health systems. Similarly, Ansah and colleagues (2024) examined the preparedness of health systems for climate change on a global scale, emphasizing that structural deficiencies, resource constraints, and managerial shortcomings pose particularly severe risks in low- and middle-income countries.

Climate change creates adverse impacts on human health, health-related emergencies, migration flows, health security, and health systems, further complicating existing health problems and paving the way for new health risks to emerge (Irmak & Serin, 2023: 747). The damage caused by the climate crisis is not limited to health but also deepens socioeconomic inequalities. The disproportionate effects on vulnerable groups—such as older adults, migrants, and low-income individuals—must be evaluated within the framework of climate justice, emphasizing principles of fairness and equity (Kaya, 2017). In this context, strengthening health

systems against climate change is critically important not only for disaster management and preparedness but also for ensuring sustainability, equity, and access to health services. Community-based adaptation is crucial in addressing the negative health impacts of climate change (Ebi & Semenza, 2008). They argue that communities can build resilience against climate-related health risks through social capital, and that this process should be supported by stakeholder engagement, storytelling techniques, and multi-stakeholder collaborations.

Healthcare professionals do more than provide medical services. Empowered by their professional authority, they are highly trusted individuals in society and play important roles in advocacy and knowledge dissemination on climate change. In this respect, healthcare professionals have the potential to communicate information on environmental risks to the public and to contribute to policy-making processes in this field (Charles et al., 2021). Moreover, enhancing the knowledge and awareness of healthcare professionals is considered a key determinant in developing effective strategies to address the climate crisis (Luque-Alcaraz et al., 2024; Maibach et al., 2015). However, efforts to intervene in the health impacts of climate change have not been sufficiently effective due to institutional fragmentation, lack of coordination, and low stakeholder participation within the health sector (Boyer et al., 2020). Therefore, it is important to investigate through qualitative research how healthcare professionals are involved in environmental sustainability practices, and how developers fail to develop—their capacity to cope with the climate crisis.

## Methods

This study, which aimed to explore healthcare professionals' perceptions and experiences regarding environmental sustainability and climate change, was designed as a qualitative descriptive phenomenological study. Guided by Giorgi's (2005) descriptive phenomenological approach, the study focused on understanding individuals' subjective experiences of environmental sustainability and followed a systematic process of analysis to capture the "essence" of these experiences. In this approach, researchers seek to interpret participants lived experiences in their own words while scientifically identifying the essence of the phenomenon.

In line with the aim of the study, a semi-structured interview form was used to collect data. The form was developed by researchers based on a review of literature. In constructing the interview guide, key concepts such as environmental sustainability, climate change, impacts on healthcare services, and institutional practices were considered. In addition, reports of the WHO (2023) on climate-resilient health systems and current academic publications on environmental sustainability in the health sector were examined to shape the interview questions.

The questions in the interview form were prepared in an open-ended format, allowing healthcare professional participants to freely express their experiences. While some questions addressed demographic information (e.g., age, years of service in the current institution, and unit of work), others were organized under thematic categories such as individual awareness and attitudes, institutional practices, observations, encountered barriers, and suggestions. The questions were formulated in a neutral, non-directive manner, and probing follow-up questions were added to the main questions to enable in-depth data collection.

The draft form was evaluated for content validity by two academics specializing in qualitative research, and necessary revisions were made in line with their feedback. For pilot testing, preliminary interviews were conducted with two healthcare professionals to assess the clarity, sequencing, and duration of the questions. Following these assessments, the final version of the interview form was produced and subsequently used in the data collection process.

### Ethical Considerations

This study was conducted with the approval of the Ethics Committee, dated 31 July 2025 and numbered 175/7. Informed consent was obtained from all participants, who voluntarily agreed to take

part in the research. Participants' identities were kept confidential, the data were used solely for scientific purposes, and principles of voluntary participation, confidentiality, and privacy were strictly adhered to throughout all stages of the study.

**Participants**

The study was conducted included healthcare professionals working in hospitals across various regions of Turkey. A total of 10 healthcare professionals from various branches and occupational groups (e.g., physicians, nurses, technicians) working in public hospitals participated in the study. Participants were selected through purposive sampling, ensuring diversity in professional roles, gender, and work units. Data collection was carried out between 1 August and 7 August 2025, in accordance with the principle of saturation; the process was concluded once data repetition was observed.

Data was collected through in-depth, face-to-face individual interviews using a semi-structured interview guide. With the permission of the participants, all interviews were audio-recorded, and each session lasted approximately 30 to 45 minutes. Both written and verbally informed consent was obtained prior to participation. Of the 10 participants who agreed to take part and met the inclusion criteria, 6 were women and 4 were men. Demographic characteristics of the participants are presented in Table 1.

*Table 1. Participant Information*

| Participant | Gender | Age | Experience | Profession |
|---|---|---|---|---|
| P1 | Female | 26 | 4 years | Physician |
| P2 | Male | 29 | 5 years | Nurse |
| P3 | Female | 42 | 20 years | Nurse |
| P4 | Female | 25 | 3 years | Nurse |
| P5 | Female | 31 | 9 years | Emergency Radiology Technician |
| P6 | Male | 28 | 5 years | Radiology Technician |
| P7 | Male | 35 | 6 years | Radiology Technician |
| P8 | Male | 45 | 22 years | Radiology Technician |
| P9 | Female | 30 | 11 years | Physician |
| P10 | Female | 31 | 4 years | Physician |

**Data Analysis**

The data in this study were analyzed using Giorgi's (2012: 5–6) five-step descriptive phenomenological analysis method. The analysis process consisted of the following stages:

1. ***Holistic Reading:*** The researcher read the interview transcripts multiple times to gain a comprehensive perspective on the data. The purpose of this step was to develop familiarity with the overall meaning of participants' experiences.
2. ***Identification of Meaning Units:*** The transcripts were carefully reviewed from beginning to end, and points where shifts in meaning occurred were marked. The data were then divided into meaning units. These units were identified not on a theoretical basis but rather on experiential and contextual grounds, considering the transformation points that captured the researcher's attention.
3. ***Transformation into Psychologically Oriented Descriptions:*** Each meaning unit was rephrased in a way that remained faithful to the participants' expressions while reflecting the psychological dimension of the phenomenon. In this way, the psychological meaning underlying the experience was revealed based on participants' narratives.
4. ***Constitution of the Essential Structure:*** Through the restructured expressions, the technique of imaginative variation was applied to identify the invariant dimensions of the experience. The aim of this step was to uncover the shared and essential core of the phenomenon across different participant accounts.
5. ***Coding and Thematic Structuring:*** In the final stage, the data were recorded in line with the essential structure, common patterns were identified, and the findings were integrated under meaningful themes. The resulting themes were presented in a way that elucidated the essence of the phenomenon.

Throughout the analysis, the researchers adhered to the principle of phenomenological reduction, taking care not to introduce their own preconceptions into the process. Each analytical step was conducted with methodological rigor, and the themes were structured and supported directly by participants' statements.

## Results

*Table 2. Themes and Sub-Themes*

| Themes | Sub-Themes |
|---|---|
| Impacts of Climate Change on Health and the Environment | Effects of environmental pollution on health<br>Health risks of seasonal and climatic changes<br>Climate-related infectious and chronic diseases |
| Reflections of Climate Change on the Health System | Increased demand, inequality, and rising costs in healthcare services<br>Impacts on infrastructure and workforce<br>Resource scarcity and inefficiency |
| Institutional Barriers and Needs | Lack of education, knowledge, and awareness<br>Insufficient managerial support and incentives<br>Deficiencies in institutional sustainability practices |
| Examples of Practices and Opportunities | Waste management, recycling, and carbon reduction<br>Renewable energy and technological transformation |
| Individual Awareness, Attitudes, and Participation | Individual environmental responsibilities |
| Political and Systemic Approaches | Government policies and environmental governance in healthcare<br>Digitalization, information dissemination, and communication |

In this study, the perceptions, experiences, and practices of healthcare professionals regarding environmental sustainability and climate change were examined through thematic analysis. Based on the coding process, the findings were organized into six main themes, considering common patterns and thematic coherence. These themes are:

1. Impacts of climate change on health and the environment
2. Reflections on climate change on the health system
3. Institutional barriers and needs
4. Examples of practices and opportunities
5. Individual awareness, attitudes, and participation
6. Political and systemic approaches

### Impacts of Climate Change on Health and the Environment

Climate change affects individuals' health both directly and indirectly through various environmental factors. These effects manifest as health problems caused by air, water, and soil pollution; risks associated with seasonal and climatic changes; and the rising incidence of climate-related infectious and chronic diseases. Most healthcare professionals in this study evaluated the impacts of climate change on human health as severe and multidimensional. They particularly emphasized that air pollution, contamination of water and soil resources, food safety risks, and seasonal variations contribute to diverse health problems. In addition, participants shared clinical observations regarding the increasing prevalence of infectious diseases, respiratory disorders, psychological effects, and environmentally driven chronic conditions. Some of their statements are as follows:

> *"I think people are not fully aware, but the number of infectious diseases is increasing every day. Over the next 20–30 years, as water scarcity worsens, we will feel this even more." (P1, physician)*
>
> *"…for example, we see that cancer rates are increasing significantly. It also worsens conditions like COPD and respiratory infections. I think this is due to climate change and the contamination of the food we eat." (P2, nurse)*
>
> *"Climate change may increase diseases; for example, rising temperatures linked to pollution are associated with more flu and respiratory infections." (P9, physician)*
>
> *"The more we harm the environment, the more it affects us negatively in return. This inevitably deteriorates human health… It also has psychological effects. For example, when the weather is cloudy, some people experience negative moods, while sunny and lively weather creates a positive effect." (P5, emergency radiology technician)*

**Reflections of Climate Change on the Health System**

Healthcare professionals emphasized that climate change affects not only the environment but also health systems directly. Participants reported that these effects are reflected in concrete outcomes such as an increase in patient admissions to healthcare facilities, a deepening of health inequalities, and rising healthcare costs. They also noted experiencing difficulties in effectively managing interventions related to the climate crisis due to factors such as increased workload and inefficient resource utilization. Some participant statements are as follows:

*"As individual illnesses increase, the healthcare system is also affected. Because there is a greater need for healthcare services. To meet this need, more resources are used, which leads to waste, creating a cycle that negatively affects both people and the environment." (P2, nurse)*

*"We are reaching different levels of intensity in healthcare. Normally, there used to be seasonal declines or increases. Now, this is unpredictable. It feels like we are constantly overloaded." (P7, radiology technician)*

*"…when climate change affects food and agriculture, it leads to poverty and deprivation. Over time, this can cause nutrient imbalances and hormonal disorders in people who lack access to sufficient food." (P9, physician)*

*"This is important as climate change affects individual health, health infrastructure and service delivery, while also increasing costs and creating a serious economic burden for countries." (P3, nurse)*

**Institutional Barriers and Needs**

Healthcare professionals indicated that their institutions' efforts toward achieving environmental sustainability were inadequate. Among the most frequently cited institutional issues were a lack of knowledge and awareness, the absence of regular training on environmental topics, insufficient managerial support, and the lack of effective monitoring and incentive mechanisms. Some participants also emphasized that the lack of institutional support for their individual efforts negatively impacted their motivation. Sample participant statements are presented below:

*"…as I mentioned, we only have waste management training once a year. Is that enough? Well, in terms of training, yes. But in terms of implementation, I'm not sure. Maybe a few more posters or brochures could help." (P10, physician)*

*"Protecting the environment requires efficient use of resources, reducing waste, and reducing carbon emissions. However, careless human behavior is hindering this process. Furthermore, I haven't received any training or resources on this topic." (P4, nurse)*

*"I don't have much information. I try to use what I know to do better — especially in my personal life. I try to do good things, like using public transportation more. I also pay more attention to recycling. But while I can integrate these habits into my personal life, I can't seem to integrate them into my work life." (P5, emergency radiology technician)*

*"I haven't received any training or resources to increase my level of knowledge and awareness." (P6, radiology technician)*

*"I only know what I hear from places like social media or television." (P8, radiology technician)*

**Examples of Practices and Opportunities**

Healthcare professionals emphasized that while various practices aimed at recycling, waste segregation, and energy conservation exist in their institutions, these practices are often limited in scale and not part of a systematic environmental sustainability policy. Participants also highlighted the significant potential for advancing environmental sustainability, stressing that institutional support and structured strategies are necessary to effectively implement this potential. Below are sample statements from participants:

*"In my institution, the process is a bit different since we work in a hospital. We have to separate medical waste, so waste management is quite good. They do it because it's mandatory for hospitals. In addition, we also have separate bins*

*for battery waste, so I think they are doing their best… For example, there's also been a shift from paper filing systems to more electronic formats." (P10, physician)*

*"In our hospital, there used to be a very good initiative at the beginning under the name of recycling. They showed that they valued recycling, especially in terms of waste segregation." (P2, nurse)*

*"Well, in our institution, all the waste is already segregated. Of course, this is not something unique to my institution; many hospitals already do waste segregation. All the chemical substances that could harm the environment are separated and disposed of properly. But of course, this isn't something that can be handled solely within our institution." (P4, nurse)*

**Individual Awareness, Attitudes, and Participation**

Most healthcare professionals expressed that they feel a sense of personal responsibility toward environmental sustainability. In this context, everyday practices such as recycling, reducing paper consumption, and adopting environmental sustainability practices were frequently highlighted. Several participants emphasized their efforts to translate their environmental awareness into tangible actions. However, despite high levels of individual awareness, some healthcare professionals reported feelings of inadequacy and isolation due to the lack of organizational support. Below are selected participant statements reflecting this theme:

*"I try to pay attention to environmental cleanliness, waste management—all of it, as much as I can… I also try to encourage those around me to be mindful of these issues. But there's only so much I can do. I'd say I have some personal awareness on this matter." (P10, physician)*

*"Well, I can give many examples, like not throwing even a single piece of trash on the ground, installing filters on factory chimneys, using solar energy more often… I think we need to pay attention to all of these. Even something as simple as not throwing waste into the sea can make a huge difference." (P6, radiology technician)*

*"Protecting the environment requires collective responsibility; while individual efforts are valuable, meaningful progress can only be achieved when more people take part" (P9, physician)*

*"Individual behaviors are building blocks of society; positive actions improve the environment and inspire others, while negative ones contribute to its degradation. We become role models for others." (P3, nurse)*

**Political and Systemic Approaches**

Healthcare professionals emphasized that the health system's current level of preparedness for the climate crisis is insufficient, highlighting the need for environmental sustainability to be prioritized more prominently at the level of state policies. Participants also pointed to the lack of informational tools and initiatives to raise awareness among healthcare workers, gaps in digitalization and systemic governance, and the need for increased scientific research in this area. These findings indicate the necessity of multi-level interventions to transition toward environmental sustainability and planetary health. Some illustrative participant statements include:

*"As far as I know, apart from the existing ones, no additional policies have been implemented. Perhaps a complete shift from paper to electronic systems could be a positive step. There could also be changes to ventilation systems." (P10, physician)*

*"Employees need to be more informed, encouraged, and educated on this issue. There should be more planning, practices, and events related to reducing the carbon footprint. Brochures should be available, and the tools we use in hospitals should be designed in a way that supports practical and sustainable solutions." (P2, nurse)*

*"Every professional group working in the institution, from nurses to physicians to emergency technicians, should receive regular training." (P3, nurse)*

*"Hospitals could switch to renewable energy sources. For example, they could produce their*

*own energy and implement more comprehensive recycling practices." (P5, emergency radiology technician)*
*"Installing solar panels could be a good step forward." (P6, radiology technician)*
*"Air conditioning systems are used excessively in hospitals. I think this fluctuation in temperature negatively affects the environment. Technology should be utilized to minimize this environmental impact, and its importance should be emphasized. Additionally, there should be more training on waste segregation and the negative impacts of climate change on human health. Brochures summarizing these issues and survey results should be distributed frequently. For example, until now, no one has ever provided me with such information. These efforts could be improved." (P9, physician)*
*"There are many projects like the Zero Waste initiative. I think the public should be made more aware of these efforts." (P7, radiology technician)*

## Discussion

As the profound impact of climate change on health becomes increasingly evident, the intersection of healthcare and environmental sustainability has gained significant importance (Allarakhia, 2022; Luque-Alcaraz et al., 2024). In this study, healthcare professionals' experiences and awareness regarding environmental sustainability and climate change were explored using a qualitative approach. The analysis, supported by subthemes, yielded six overarching themes: (1) the effects of climate change on health and the environment, (2) its implications for the health system, (3) institutional barriers and needs, (4) examples of practices and opportunities, (5) individual awareness, attitudes, and participation, and (6) political and systemic approaches.

Healthcare professionals described the effects of climate change on human health as a serious and escalating threat. They highlighted factors such as air and water pollution, food safety risks, and seasonal changes, along with the rising prevalence of health problems including respiratory diseases, infections, and cancer in recent years. This awareness aligns with findings in the literature identifying healthcare professionals as trusted sources of information (Kreslake et al., 2017; Maibach et al., 2015). These findings reflect a strong awareness of the health impacts of deteriorating environmental conditions caused by climate change. International reports also highlight similar risks, addressing air and water pollution (Environmental Protection Agency [EPA], 2025a; European Environment Agency [EEA], 2022; WHO, 2023). Recent research highlights the impacts on infectious diseases and health inequalities (Agache et al., 2023; Rocque et al., 2021). Individuals with chronic conditions are particularly vulnerable to heatwaves, poor air quality, and water- and food-borne health problems associated with climate change. For instance, heatwaves can diminish the physiological responses to medications in older adults, while rising temperatures can increase susceptibility in individuals with weakened immune systems (EPA, 2025b). In a study by Kotcher et al. (2021), 93% of healthcare professionals reported that they believed climate change would cause moderate or severe harm to future generations, 81% to society, 77% to their patients, and 66% to themselves. Many participants in the present study also noted the increasing risks of displacement, hunger, heat-related illnesses, water- and food-borne infectious diseases, and disruptions to healthcare services. In addition, the psychological impacts of climate change were underscored, with participants referencing emotions such as anxiety, stress, helplessness, and fear—commonly described in the literature as "eco-anxiety" or "climate anxiety," a stress response linked to environmental changes (Clayton et al., 2017; Marazziti et al., 2021; Vergunst & Berry, 2022). These findings align with previous research, suggesting that healthcare professionals' concerns about the negative health impacts of climate change extend beyond personal observations and reflect a broader, evidence-based awareness.

Healthcare professionals emphasized that climate change significantly impacts not only individual health but also the broader healthcare system. These findings align with existing literature demonstrating that climate change places significant pressure on healthcare systems by increasing inequalities in access to care and increasing service

costs. Such pressures highlight the importance of health system resilience and preparedness. Increased workloads and inefficient use of resources were also noted as factors that negatively affect staff capacity to respond effectively to these challenges. Consistent with these findings, the literature highlights that climate change exerts substantial pressure on the service capacity of healthcare institutions, threatening the resilience of health systems (Ansah et al., 2024; MacNeil et al., 2021; Romanello et al., 2021). This underscores the need for health systems to be resilient to crises (Patz et al., 2014; Watts et al., 2023; WHO, 2023). Climate variability and extreme weather events exacerbate the frequency and severity of natural disasters, leading to increased demand for healthcare services and amplifying systemic pressures. Such environmental disasters can disrupt communication and operational processes, cause power outages, and indirectly result in income and productivity losses, which in turn escalate healthcare and social service costs (Mboera et al., 2012: 10). Moreover, climate change threatens population health while deepening social inequalities, with low-income and vulnerable populations disproportionately affected by these adverse impacts (Romanello et al., 2021). The WHO (2023: 8) emphasizes the urgency of preparing health systems for climate-related risks by adapting infrastructure, technology, and supply chains, and by enhancing the overall performance of health services. Addressing these challenges requires reinforcing health system preparedness and building institutional capacities that integrate the realities of climate change's impacts on both communities and healthcare delivery.

Participants also highlighted institutional barriers that hinder the effective implementation of environmental sustainability initiatives within healthcare organizations. Commonly reported issues included limited access to reliable information, low awareness levels, insufficient environmental training, inadequate managerial support, and weak enforcement and incentive mechanisms. Literature supports these observations, indicating that the absence of knowledge, awareness, and institutional backing serves as a critical barrier to the adoption of sustainable practices among healthcare professionals. For example, Aljabre et al. (2002) reported that healthcare workers often lack awareness of the harmful environmental and health impacts of institutional waste and that existing training programs, administrative support, and control mechanisms are inadequate. Importantly, education and training initiatives addressing climate change not only enhance healthcare professionals' knowledge but also help mitigate the ecological grief and anxiety that often accompany environmental crises (Cunsolo et al., 2020). Equipping healthcare professionals with the necessary knowledge, skills, and attitudes to effectively advocate for environmental sustainability is critical. In this context, integrating themes such as environmental sustainability and planetary health into medical and health education curricula is widely recommended (Salas et al., 2020; Shaw et al., 2021). Indeed, Koşan et al. (2023) found that while medical students' general knowledge of the health impacts of climate change is high, they are not sufficiently aware of its impact on certain health problems, such as sexual dysfunction/infertility, cataracts/conjunctivitis, and post-traumatic stress disorder. Besides this, as highlighted by Howard et al. (2023: 2175), effective leadership within healthcare organizations plays a pivotal role in the success of sustainability initiatives. Leaders can foster a culture of continuous engagement by motivating staff and ensuring that sustainable practices are maintained. To institutionalize environmental sustainability effectively, specific organizational conditions must be established. The literature consistently points to the need for robust policies and leadership frameworks to drive and sustain environmental sustainability practices within healthcare institutions (Leal Filho et al., 2019; Lenzen et al., 2020; Salas et al., 2020).

According to the findings, healthcare professionals reported that environmental initiatives such as waste segregation and recycling were present in their workplaces; however, these efforts were often implemented on a limited scale and managed in a non-systematic manner. This reflects that environmental practices within institutions have yet to be embedded within a structured strategic framework. Globally, the healthcare sector accounts for approximately 4.6% of total greenhouse gas emissions (Watts et al., 2023). Indeed,

Karliner and Boyd (2019: 10), in their report on the climate footprint of the healthcare sector, highlight this reality by stating, *"If the global healthcare sector were a country, it would be the fifth-largest emitter of greenhouse gases on the planet."* The same report further emphasizes that awareness of the healthcare sector's significant contribution to greenhouse gas emissions remains strikingly low, both among healthcare stakeholders and within climate communities. This highlights the necessity of transforming health systems in alignment with the goals of the Paris Agreement, reinforcing the importance of integrating sustainability into healthcare operations. Both the report and participants' perspectives revealed that certain healthcare institutions have initiated practices such as recycling, waste management, carbon reduction strategies, and energy-saving initiatives. However, the findings underscore the need for these initiatives to be scaled up institutionally and supported through sustainable, policy-driven frameworks to achieve meaningful impact. Some participants also noted that their institutions have started leveraging digitalization and technological solutions as part of sustainability efforts. In line with these observations, the literature documents that health facilities have successfully reduced carbon emissions and lowered energy costs by adopting energy efficiency measures and renewable energy strategies (Pichler et al., 2019; Watts et al., 2023). Furthermore, advancements such as digital health records, online communication platforms, and energy-efficient infrastructure are recognized as effective strategies for reducing the environmental footprint of the healthcare sector.

Healthcare professionals reported a certain level of awareness regarding recycling, the use of public transportation, energy conservation, and environmental sustainability practices at the individual level. However, they also emphasized that these personal efforts lack organizational support, thereby limiting their overall impact. Existing studies highlight that individual environmental behaviors play a critical role in sustainability initiatives, but when these behaviors are not reinforced by institutional strategies, individuals' motivation tends to decline (Hausner et al., 2023: 7; Whitmarsh et al., 2013: 11). Building collective transformation requires individual awareness as a fundamental starting point. Therefore, the development of behavioral change strategies that actively encourage healthcare professionals' engagement in the process is essential. In this regard, participants' perspectives provide important insights into the preparedness of health systems in addressing environmental sustainability. Debbık (2024) similarly found that while healthcare professionals are aware of environmental sustainability, there are significant gaps in practical implementation. Given their pivotal role in institutional transformation, equipping healthcare professionals with sufficient education and training is crucial for the effective implementation of low-carbon healthcare solutions (Mirow et al., 2024). In this context, enhancing the resilience of health systems to the climate crisis will require training healthcare personnel on environmental sustainability and climate-related crisis management, developing guiding policies, and strengthening digital infrastructures.

One of the key themes highlighted by healthcare professionals was the insufficiency of policy and systemic approaches to environmental sustainability. Participants emphasized that, in terms of the health system's preparedness for the climate crisis, current policies remain inadequate and that this issue should be prioritized at the state level. Although there have been some initiatives in digitalization, gaps in implementation, limited informational tools, and the lack of comprehensive strategies to reduce carbon footprints suggest that the impacts of the climate crisis on the healthcare sector are not being taken seriously enough. Participants' views reveal that Turkey's health system still faces structural and policy-level deficiencies in terms of environmental sustainability. Elements such as the absence of robust digital infrastructures, limited mechanisms for raising awareness, and the inability to scale up sustainable practices point to the system's vulnerability to climate-related threats. These findings align with the WHO's (2023) ten-component framework for climate-resilient health systems, which aims to enhance the resilience of health systems to climate change, protect public health, reduce greenhouse gas (GHG) emissions, and optimize resource use. Within this framework, the training of the health workforce,

effective governance, and the establishment of strong information systems are emphasized as critical areas. Among the recommendations of the participants were practices such as the use of solar energy, zero-waste projects, and waste segregation training—initiatives that could contribute both to individual awareness and to institutional transformation. These suggestions are consistent with Baytaş and Aydın's (2022: 352) study, which underscores the role of renewable energy use in enhancing the sustainability of healthcare services and addressing global environmental challenges. These global findings are consistent with pioneering studies in the Turkish context that demonstrate healthcare professionals' awareness and the policy actions needed to address climate-health issues. In the Turkish context, Yılmaz Altun (2025) examined physicians' awareness of climate change and health risks through a self-developed survey. While the study only covered a single professional group and was limited in its representativeness, it demonstrates that awareness of the climate-health relationship is beginning to be addressed in national research. Addressing the health impacts of climate change in Turkey requires policy-based actions and requires national authorities to pursue concrete strategies (Olgun and Kantarlı, 2020).

## Conclusion

This study explored healthcare professionals' awareness, perceptions, and experiences regarding climate change and environmental sustainability. The findings indicate that healthcare workers are aware of the multifaceted impacts of climate change on both the physical and psychological health of individuals, as well as on the healthcare system itself. However, gaps in knowledge, insufficient training, weak incentive mechanisms, and inadequate digital infrastructure emerged as key factors limiting their participation in sustainability-driven practices. The observed disconnect between individual awareness and systemic support highlights the need to establish a comprehensive institutional framework for environmental sustainability within healthcare organizations. Participants emphasized that strengthening environmental sustainability policies and enhancing the preparedness of Turkey's healthcare system are of critical importance. Although healthcare workers demonstrated high levels of individual awareness and consciousness, the study revealed that healthcare institutions often lack sufficient guidelines, strategies, and monitoring mechanisms to promote sustainability. For example, initiatives such as the "zero-waste" policy have not been effectively integrated into healthcare institutions, and healthcare workers reported insufficient training or information about such initiatives. Strengthening institutional support for individual efforts is therefore a critical step toward reducing the sector's carbon footprint. In this context, the individual efforts of healthcare workers must be supported by strong institutional policies, management, and systems.

Considering the study's findings, medical curricula and in-service training programs should be updated to include content focused on environmental sustainability (Salas et al., 2020; Shaw et al., 2021). Strategies and monitoring mechanisms that promote sustainability within healthcare institutions should be revisited to ensure that practices such as recycling, carbon reduction, and energy conservation are systematically implemented and aligned with organizational objectives (Karliner & Boyd, 2019). The use of digital record systems, energy-efficient infrastructures, and technological communication tools should be prioritized to help reduce hospitals' carbon footprints (Pichler et al., 2019). Additionally, national health policies should include regulatory frameworks that incentivize and guide the transition to environmentally friendly health systems (WHO, 2023). Finally, healthcare managers should embrace environmental sustainability goals, actively motivate their staff, and adopt leadership models that incorporate employee perspectives into decision-making processes (Howard et al., 2023). Individual environmentally friendly behaviors should also be recognized and rewarded at the institutional level.

While some studies in Turkey have examined healthcare workers' awareness of climate change and its health impacts (e.g., Koşan et al., 2023; Altun, 2025; Olgun & Kantarlı, 2020), there is a need to increase the generalizability of the findings with

larger and more diverse samples. Integrating validated measurement tools in future research could increase the power of measurement. Furthermore, including diverse stakeholders such as healthcare administrators, patients, policymakers, and environmental experts in the research groups will provide more in-depth comparative insights into institutional preparedness and individual awareness.

## 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 on 31 July 2025 (Approval No.: 175/7). The research adhered to institutional and national ethical standards.

***Informed Consent:*** Written and verbal informed consent was obtained from all participants prior to the interviews. Participation was voluntary, anonymity and confidentiality were ensured, and audio recordings were used solely for scientific purposes.

***Data Availability:*** Due to privacy and confidentiality considerations, raw interview recordings and full transcripts are not publicly available. De-identified excerpts and analysis materials can be obtained 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:*** All authors contributed to the conception and design of the study, data collection, analysis and interpretation, and manuscript writing; all authors approved the final version.

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# The Trolley Problem Revisited: Crisis Ethics, Gender, and Media Discourse after the February 6 Earthquakes in Turkiye

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## Abstract

*This study examines the reflections of crisis ethics and gender in media discourse following the February 6, 2023 earthquakes. Building on the Trolley Problem metaphor, it explores how resource allocation and ethical dilemmas intersect with gender dimensions in times of disaster. The research was conducted through a big data analysis based on the GDELT GKG dataset, quantitatively assessing news density, sentiment tone, and gender-related themes. The findings reveal that news intensity was significantly higher in Hatay compared to other provinces, that sentiment tone generally remained stable with a focus on information delivery, and that gender themes attained only limited and fragmented visibility. These results demonstrate that, in times of crisis, media prioritized operational information over emotional or equality-oriented discourse, and that women's specific needs were insufficiently represented. The study underscores how the Trolley Problem highlights ethical and gender-based vulnerabilities in crisis management; it further argues that media discourse and related crisis management practices should be evaluated not only in terms of quantitative intensity but also through the lens of qualitative equity. In doing so, the study contributes to the development of an ethical crisis management model capable of transforming the post-disaster social imagination.*

**Keywords:** *Crisis Ethics, Trolley Problem, February 6 Earthquake, Gender, GDELT.*

## Öz

*Bu çalışma, 2023 yılındaki 6 Şubat depremleri sonrasında kriz etiği ve toplumsal cinsiyetin medya söylemindeki yansımalarını incelemektedir. Vagon Problemi metaforundan hareketle, afet anlarında kaynak tahsisi ve etik ikilemlerin toplumsal cinsiyet boyutuyla nasıl kesiştiği araştırılmaktadır. Araştırma, GDELT GKG veri setine dayalı büyük veri analizi yoluyla yürütülmüş; haber yoğunluğu, duygu tonu ve toplumsal cinsiyetle ilişkili temalar nicel olarak değerlendirilmiştir. Bulgular, Hatay'da haber yoğunluğunun diğer illere kıyasla anlamlı ölçüde daha yüksek olduğunu, haber tonunun genellikle bilgi aktarımına odaklanan istikrarlı bir seyir izlediğini ve toplumsal cinsiyet temalarının yalnızca sınırlı ve parçalı bir görünürlük kazandığını ortaya koymaktadır. Bu sonuçlar, kriz dönemlerinde medyanın duygusal veya eşitlikçi bir dil yerine operasyonel bilgiye öncelik verdiğini ve kadınların özgül ihtiyaçlarının yeterince temsil edilmediğini göstermektedir. Çalışma, Vagon Problemi'nin kriz yönetiminde etik ve toplumsal cinsiyet temelli kırılganlıkları görünür kıldığını vurgulamakta; medya söyleminin ve buna bağlı kriz yönetimi pratiklerinin yalnızca nicel yoğunlukla değil, aynı zamanda nitel eşitlik boyutlarıyla da değerlendirilmesi gerektiğini ileri sürmektedir. Bu yolla, kriz sonrasında toplumsal tahayyülü dönüştürmeye katkı sağlayabilecek etik bir kriz yönetimi modelinin geliştirilmesine katkıda bulunmaktadır.*

**Anahtar Kelimeler**: *Kriz Etiği, Vagon Problemi, 6 Şubat Depremi, Toplumsal Cinsiyet, GDELT.*



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## Introduction

On February 6, 2023, Turkiye witnessed one of the most devastating disasters in its modern history. The earthquakes centered in Kahramanmaraş caused tens of thousands of deaths, left hundreds of thousands homeless, and triggered a major humanitarian crisis. This catastrophe not only revealed the collapse of physical infrastructures but also made visible how decision-making mechanisms function during crises. Questions about which regions, which social groups, and which priorities should receive resources suddenly became both vital and ethical issues. In this context, ethical decision-making in crisis management—especially in moments when gender inequalities become more pronounced—has come under renewed debate. Women's safety, the prioritization of their needs, and their level of representation have often been relegated to the background in crisis-related decisions. The Turkish case offers a unique context in which the dominant capacity of the central state and the rapid mobilization of civil society coexisted. This dual structure intensified both coordination opportunities and social tensions in post-disaster decision-making processes. It also brought to the forefront the applicability of ethical theories and philosophical dilemmas—particularly scenarios such as the "Trolley Problem"—to crisis management.

The crisis management literature generally evaluates decision-making processes during disasters in terms of logistical efficiency, resource optimization, and operational speed (Comfort, 2007; Kapucu, 2008). However, these technically oriented approaches often fall short at the intersection of crises with ethics and social inequalities (Enarson & Meyreles, 2004; Bradshaw, 2015). From a gender perspective, crises create more specific and intense risks for women; yet women's representation in decision-making mechanisms of crisis management typically remains limited.

Meanwhile, the "Trolley Problem" analogy—long debated in moral philosophy—has been widely used to illustrate the moral dilemmas faced by decision-makers in crisis situations, such as sacrificing one to save many. Yet this analogy has mostly been discussed in contexts such as medical ethics, algorithmic decision-making in artificial intelligence, or moral psychology, and has remained limited in its application to disaster management and gender (Bago et al., 2022). What is critical here is clarifying which concrete decision moments in disaster contexts the Trolley Problem analogy corresponds to. The dilemma of "sacrificing one to save many" directly reflects decisions about which region or group should receive scarce resources. For instance, decisions regarding which collapsed building search-and-rescue teams should prioritize, which districts logistical corridors should open to, which groups should be allocated tents and medical services, or how to balance team safety with public benefit, all represent real-world projections of this analogy (Savulescu et al., 2020). At this point, the gender dimension becomes critical; postponing women's specific needs (hygiene, caregiving, protection from violence, security) can have disproportionately severe consequences (Enarson & Meyreles, 2004; Bradshaw, 2015). Admittedly, the Trolley Problem does not perfectly overlap with disaster management, as no direct "killing" act is involved. However, it serves as a useful abstraction to make visible the ethical structure of trade-offs and prioritizations decision-makers must confront under conditions of scarcity. Thus, in the disaster context, the Trolley Problem is not merely an abstract thought experiment but rather a reflection of concrete ethical trade-offs in resource allocation and prioritization.

This overall picture highlights the need for an integrated framework that systematically analyzes both ethical dilemmas and gender dimensions in crisis management. Methodologically, the study employs big data approaches to examine post-earthquake media discourse. Drawing on GDELT's news corpus for the provinces of Adıyaman, Hatay, and Kahramanmaraş, the data were processed via BigQuery/Colab, and V2Tone-based sentiment measurements were analyzed through historical and regional comparisons.

Accordingly, this study aims to examine the ethical dilemmas arising in crisis management following the February 6, 2023 Kahramanmaraş-centered earthquakes, with particular attention to the gender perspective. By employing the "Trolley Problem" analogy within the framework of crisis

ethics, it interrogates how women's needs, safety, and representation were considered in post-disaster decision-making processes. The gender literature on disasters demonstrates that women are disproportionately at-risk during crises and remain underrepresented in decision-making mechanisms (Enarson & Meyreles, 2004; Enarson & Chakrabarti, 2009). The crisis ethics literature, meanwhile, presents extensive debates through normative theories, particularly in situations where resource scarcity and sacrifice decisions generate ethical dilemmas (Kamm, 2016; Gutmann &Thompson, 2012). Within this context, the main contribution of this study is to integrate the crisis ethics literature with the domains of disaster management and gender, thereby uncovering how normative approaches in decision-making mechanisms operate in practice. Specifically, the reinterpretation of the Trolley Problem in disaster contexts through a gender perspective expands ethical debates at the theoretical level while providing an original empirical contribution grounded in media representations.

Thus, three main contributions of this study can be highlighted:

- Conceptual Contribution: By integrating theories of ethical decision-making with gender inequalities in the context of disaster management, it proposes an interdisciplinary approach to crisis ethics literature.
- Methodological Contribution: By applying big data-based content and sentiment analytics (GDELT, BigQuery/Colab, V2Tone) across three provinces, it offers methodological diversity.
- Practical Contribution:For policymakers and crisis managers, it develops strategic recommendations to enhance gender sensitivity in post-disaster resource allocation and prioritization processes.

In this regard, as invited by the OPUS special issue, this study aims to provide an empirical basis for reimagining the social dimension within the crisis spiral by analyzing the social and ethical dimensions of a disaster through an interdisciplinary feminist perspective and big data analyses.

## Conceptual Framework and Literature Review

### Crisis Ethics

Crisis ethics has emerged as a sub-discipline aimed at understanding and resolving the moral dilemmas faced by decision-makers in extraordinary situations. This approach provides an opportunity to test the applicability of ethical theories particularly in relation to life-saving decisions, resource allocation, and prioritization. Crisis ethics creates a unique ground for discussion by blending mainstream ethical perspectives—such as normative ethics, utilitarianism, and deontology—with the practical necessities of crisis contexts (O'Sullivan et al., 2022). In the specific context of the February 6 earthquakes, Beşpınar & Beşpınar (2023) further highlight how gender inequalities intersect with ethical dilemmas in disaster response.

### The Trolley Problem and Ethical Dilemmas

The Trolley Problem was first systematically introduced by Foot (1967) and Thomson (1985) and has since become one of the most widely applied thought experiments in the crisis ethics literature. The central question can be summarized as: "Is it ethical to sacrifice one person in order to save many?" This analogy has frequently been examined in contexts such as medical ethics and algorithmic decision-making in artificial intelligence (Bago et al., 2022). However, when considered alongside disaster management and gender perspectives, a significant gap remains in the literature (Atlı & Ateş, 2023).

### Gender and Disaster Management

In post-disaster crisis environments, women's safety, the prioritization of their needs, and their representation in decision-making processes are frequently noted in the literature as insufficient. Integrating a gender perspective into crisis management processes is not only an ethical necessity but also a strategic priority for ensuring fairness in resource distribution. In this regard, examining the Trolley Problem analogy through the lens of gen-

der can be considered an original conceptual approach within the crisis ethics literature (Enarson & Meyreles, 2004; Bradshaw, 2015).

**Previous Studies**

Research on disaster management in Turkiye has long focused on logistical capacity, operational preparedness, and response efficiency. By contrast, the integration of ethical dimensions and gender sensitivity into crisis processes still occupies a limited space in the literature. For example, Altıparmak & Birel (2024), based on a field study conducted in Turkiye after the February 6, 2023 earthquakes, identified inequalities in women's access to services in disaster zones but emphasized the lack of decision-support models based on these findings. At the international level, gender-sensitive disaster management approaches are more widely discussed. The IFRC's "gender-sensitive disaster response framework" provides a practical model for policymakers by promoting equity in resource allocation (Geale, 2012). Within the emergency relief and disaster management literature, crisis ethics discussions often revolve around triage, prioritization, and ethical responses to resource scarcity. In Turkish political science literature, Altıparmak & Birel (2024) highlighted how utilitarian approaches in post-disaster decision-making may conflict with social justice. Similarly, Savulescu et al. (2020) offered normative models to address ethical dilemmas such as ICU bed shortages during the COVID-19 crisis. By analogy, these utilitarian dilemmas in pandemic ethics can shed light on similar prioritization challenges in disaster management contexts, where scarce resources must be allocated under urgent conditions.

The "Trolley Problem" analogy has appeared in only a limited number of disaster management studies. In Turkiye, Yılmaz (2024) was among the first to adapt this analogy to post-earthquake resource allocation debates. Bago et al. (2022) demonstrated experimentally how such ethical scenarios influence cognitive decision-making processes. In the international literature, Redhead & Smallman (2024) brought the Trolley Problem into crisis ethics, questioning how ethical dilemmas are communicated in life-saving decisions. In the context of management and organization, decision-making mechanisms in Turkiye during disasters are generally described as centralized and hierarchical (Atlı & Ateş, 2023). In contrast, Kapucu and Van Wart (2015) in the international management literature argue that themes such as network governance, participatory decision-making, and ethical leadership address crisis ethics from more practical and organizational perspectives.

In conclusion, although post-February 6 studies in Turkiye show promise, empirical research that integrates crisis ethics and gender perspectives while employing big data and media/discursive analyses remains scarce. This article aims to fill this gap by utilizing GDELT-based analyses focused on Adıyaman, Hatay, and Kahramanmaraş.

**Research Questions**

This section outlines five research questions designed to define the focal points of the study and to guide the data collection and analysis techniques applied in the methodology:

1. Within the framework of crisis ethics, which ethical principles come to the fore in post-disaster decision-making processes?
2. How does a gender perspective influence post-disaster resource allocation and prioritization decisions?
3. In the specific context of the February 6, 2023 earthquakes, how are the themes of crisis ethics and gender represented in media discourse across the provinces of Adıyaman, Hatay, and Kahramanmaraş?
4. Is there a significant correlation between crisis ethics and gender themes in GDELT data?
5. How do the results of data analysis provide practical implications for disaster management policies and decision-support systems?

**Methodology**

This section explains the data sources, analytical techniques, and implementation steps employed in the research.

**Research Design**

This study adopts a quantitative research design focusing on the analysis of media discourse in the provinces of Adıyaman, Hatay, and Kahramanmaraş following the February 6, 2023 earthquakes, through the lens of crisis ethics and gender. The quantitative analysis utilized the GDELT GKG dataset. This approach is consistent with the methodological principles commonly accepted in content analysis and sentiment measurement techniques (Field, 2018).

**Data Sources**

GDELT GKG: News texts covering the post-earthquake period were filtered using keywords such as "women, gender, violence, security, care work, resource allocation, triage." The analysis employed GDELT GKG 2.1, with queries limited to Turkish and English news sources. Keyword searches also included English and Turkish synonyms and variations (e.g., "women, gender, security, care work, resource allocation, triage"). To enhance content quality, news items shorter than 50 words were excluded from the dataset. During data cleaning, duplicate records were eliminated, and non-earthquake-related content (e.g., disaster reports from other countries) was manually removed. The final dataset consisted of 148 observations across three provinces (Adıyaman, Hatay, and Kahramanmaraş) and three phases (pre, response, and recovery). While the dataset comprises 148 news observations, this should not be interpreted as a limitation of scope but rather as a reflection of the structural characteristics of GDELT's Turkish-language coverage. The GDELT database operates primarily through automated web crawlers and machine translation pipelines that are more comprehensive for English-language sources. As a result, Turkish media content tends to be underrepresented compared to global datasets. Nevertheless, the dataset remains analytically valuable as it captures temporal fluctuations, tone distributions, and gender-related discourse patterns across regions. In this sense, the study treats GDELT as a representative sample of media dynamics rather than a fully exhaustive corpus, acknowledging the inherent constraints of big data applications in non-English contexts.

Timeframe: February 6, 2023 – May 31, 2023. The study was structured around three phases: Pre (February 6–12, 2023, early response period), Response (February 13–March 31, 2023, intervention period), and Recovery (April 1–May 31, 2023, recovery period). Given that the GDELT database relies on daily/weekly global news flows, event intensity exhibited significant fluctuations during certain periods. As a result, the high standard deviations reported in the tables stem from this structural characteristic of the data. The mean and standard deviation values reported in Table 1 were calculated directly from the raw dataset and verified accordingly. For transparency, descriptive distributions including median, IQR, and min–max values are additionally presented in Supplementary Table 1.

**Analytical Methods**

***Quantitative Analysis:***

- Theme intensity (frequency analysis)
- Sentiment analysis (V2Tone)
- Cross-platform correlation

V2Tone Measurement: In this study, GDELT's V2Tone (Version 2 Tone) metric was used to measure sentiment in news texts. V2Tone expresses the emotional intensity of a news text on a scale ranging from -100 (extremely negative) to +100 (extremely positive). This scale is calculated based on whether words and sentences carry positive, negative, or neutral emotional tones. In the analysis, the average of these values was taken to generate an overall sentiment profile for each province and period. The narrow range of average tone values presented in Table 1 (e.g., "0.502 ± 0.267") indicates that during the crisis the media largely adopted a neutral or stable language. This suggests that the destruction caused by the earthquake was primarily reflected through news intensity ("quake hits"), while the emotional and ethical dimensions were pushed into the background (Field, 2018). By analogy, utilitarian dilemmas highlighted in pandemic ethics (Savulescu et al., 2020) also illustrate how ethical considerations may be downplayed in crisis-related discourseV2Tone scores are reported by

GDELT within the range of -100 to +100. In this study, values were normalized to the range [-1, 1], where 0 represents neutral, positive values indicate positive tone, and negative values indicate negative tone. It should be noted that V2Tone's lexicon-based algorithm was primarily developed for English-language news and may exhibit limitations when applied to Turkish texts. Turkish's agglutinative morphology and contextual sentiment shifts can lead to underestimation or overgeneralization of emotional tone. Although GDELT's multilingual processing partially mitigates these issues through machine translation and n-gram analysis, residual bias remains possible. Therefore, the interpretation of sentiment scores in this study should be considered cautiously and primarily as a comparative indicator rather than an absolute measure of emotional tone.

***Qualitative Analysis:***

- Discourse analysis to interpret the contextual reflections of ethical dilemmas and gender-related themes
- Examination of crisis ethics analogies (Trolley Problem) through sample texts

In the qualitative analysis, discourse samples were drawn from 90 headlines and articles selected from the GDELT corpus. The coding process was based on two main axes: (i) ethical dilemmas (e.g., resource allocation, rescue prioritization, sacrifice decisions), and (ii) gender-related themes (e.g., security, care work, hygiene, risk of violence, lack of representation). The coding scheme was independently applied by two researchers, followed by a reliability check (Cohen's $\kappa = 0.82$). This framework was employed to highlight the reflections of the "Trolley Problem" analogy within media discourse.

AI-Assisted Analytical Process: In certain stages of content analysis and discourse coding, artificial intelligence-based large language model (LLM) tools were employed. Specifically, AI support was utilized for (i) detecting duplicate records during data preprocessing, (ii) generating preliminary sentiment and thematic labels for news texts, and (iii) ensuring terminological consistency across English–Turkish synonyms. All outputs were manually reviewed, verified, and, where necessary, corrected by the researchers. Thus, AI functioned solely as a supportive tool; the research design, coding scheme, interpretation, and final decisions were carried out entirely by the researchers.

Ethical Considerations

The data were obtained from publicly accessible sources, contained no personal information, and were analyzed in anonymized form. The study falls within the scope of secondary data analysis and does not require ethics committee approval. AI-based large language model (LLM) tools were employed in some stages of the analysis process, and all outputs were carefully monitored and verified by the researchers.

## Findings and Discussion

This section presents the reflections of crisis ethics and gender themes in media and social media discourse, based on the quantitative and qualitative analysis results of the study. First, theme intensity and sentiment (tone) analyses obtained from GDELT data will be examined, followed by a discussion of the role of crisis ethics principles and the gender perspective in disaster management in light of discourse analysis findings.

### *Quantitative Analysis Findings*

***Table 1. Descriptive statistics by province and period (mean ± SD)***

| Province | Period | N | Avg tone (mean ± SD) | Quake hits (mean ± SD) |
|---|---|---|---|---|
| Adıyaman | Pre | 12 | 0.502 ± 0.267 | 8.5 ± 14.9 |
| Adıyaman | Response | 30 | 0.484 ± 0.033 | 941.1 ± 708.2 |
| Adıyaman | Recovery | 30 | 0.495 ± 0.045 | 302.8 ± 157.2 |
| Hatay | Pre | 10 | 0.496 ± 0.236 | 3.9 ± 3.1 |
| Hatay | Response | 30 | 0.511 ± 0.060 | 3761.4 ± 2892.5 |
| Hatay | Recovery | 30 | 0.494 ± 0.031 | 800.1 ± 321.2 |
| Kahramanmaraş | Pre | 6 | 0.548 ± 0.200 | 2.5 ± 1.0 |
| Kahramanmaraş | Response | 30 | 0.489 ± 0.053 | 905.6 ± 1077.4 |
| Kahramanmaraş | Recovery | 30 | 0.500 ± 0.065 | 101.8 ± 44.5 |

As shown in Table 1, the average sentiment score remained highly stable across all phases and provinces, fluctuating only within a narrow margin (±0.05). This stability indicates that, despite dramatic increases in the intensity of earthquake-related news, the overall tone of media coverage did not undergo any significant change. In contrast, the "quake hits" metric (news density) exhibited pronounced fluctuations: in particular, Hatay experienced a sharp increase during the response phase (M = 3761.4, SD = 2892.5), followed by a marked decline during the recovery phase.

These descriptive patterns reveal that crisis dynamics were reflected more prominently through news density rather than sentiment tone. To assess the statistical significance and magnitude of these differences, inferential tests were conducted. While the descriptive statistics in Table 1 highlight the increase in news density and high variance observed in Hatay during the response period, such descriptive observations alone cannot demonstrate statistical significance. Therefore, Kruskal–Wallis and post-hoc tests were applied, as reported in Table 2, to verify which provinces and phases exhibited statistically significant differences. In this study, the choice between parametric and non-parametric tests was based on assumption checks, and both post-hoc comparisons and effect sizes were reported (Field, 2018).

test ($\chi^2(2) = 9.37$, $p < .01$). Post-hoc analyses revealed that news density in Hatay during the response phase was significantly higher than that of Kahramanmaraş and Adıyaman in the recovery phase. The effect size was moderate ($\varepsilon^2 = 0.086$). Reporting post-hoc comparisons and effect size measures alongside non-parametric test results such as Kruskal–Wallis is recommended for methodological transparency (Tomczak & Tomczak, 2014).

In response to the research questions, the correlation between crisis ethics and gender-related themes in GDELT data was weak. Cross-platform correlation analysis yielded low coefficients ($r < 0.20$), indicating that gender-related themes surfaced in a fragmented manner and were not systematically aligned with overall news density. These findings demonstrate that while the emotional tone of media coverage (V2Tone) remained relatively stable and neutral throughout the crisis, the intensity of news coverage ("quake hits") reflected crisis dynamics more clearly. This outcome aligns with utilitarian approaches frequently discussed in the crisis ethics literature, where post-disaster prioritization decisions tend to be shaped by logistical efficiency and operational speed (Comfort, 2007; Kapucu, 2008).

***Table 2. Kruskal–Wallis and Post-hoc Test Results***

| Variable | Test Used | $\chi^2$ / F (df) | p-value | Post-hoc Significant Differences | Effect Size ($\eta^2$ / $\varepsilon^2$ / r) | Interpreta-tion |
|---|---|---|---|---|---|---|
| avg_tone_all | **Kruskal-Wallis** | **$\chi^2(2) = 1.42$** | **0.490** | **None** | $\varepsilon^2 = 0.012$ | Small / negligible |
| total_quake_hits | **Kruskal-Wallis** | **$\chi^2(2) = 9.37$** | **0.009 **** | **Hatay (Response) > Kahramanmaraş (Recovery); Hatay (Response) > Adıyaman (Recovery)** | $\varepsilon^2 = 0.086$ | Moderate effect |

*Note: *p < .05, **p < .01, ***p < .001*

As shown in Table 2, no statistically significant differences were found between groups in terms of average news tone (avg_tone_all) ($p > .05$). This result demonstrates that, across provinces and phases, media discourse remained consistent in terms of tonal orientation during the post-earthquake period. In contrast, the "quake hits" metric yielded significant results in the Kruskal–Wallis

At the same time, qualitative discourse analysis results reveal that the visibility of gender themes varied across provinces and phases. For example, while Hatay experienced a peak in news density, limited attention was given to issues such as women's security and care work—illustrating the gender dimension of the Trolley Problem in concrete terms. The insufficient representation of

women's specific needs in the media agenda reflects their "invisibility" in crisis management, echoing findings in the qualitative literature (Enarson & Meyreles, 2004; Bradshaw, 2015). In sum, the empirical evidence underscores that the gender dimension constitutes a critical variable in the ethical dilemmas faced during post-disaster decision-making processes. Moreover, the results demonstrate that the visibility of the disaster in media discourse was especially concentrated in Hatay during the response phase, while remaining comparatively lower in other provinces and stages. This confirms that the dynamics of crisis media shifted more prominently along the axis of "intensity" rather than "tone."

**Contextual Interpretation and Elaboration of Findings**

The quantitative analyses provide significant insights into how crisis dynamics were reflected in the media. The stability of news tone (V2Tone) across provinces and phases indicates that media discourse focused more on information delivery than on adopting an emotional language. This is a common phenomenon in crisis communication, reflecting the urgent demand for operational information. However, this stability also suggests that the media underreported the human and ethical dilemmas of the crisis, particularly gender inequalities (Enarson & Meyreles, 2004; Bradshaw, 2015). This finding aligns with arguments in disaster management literature that equality often recedes during moments of crisis (Gaillard et al., 2017).

Meanwhile, the dramatic differences observed in the news density metric ("Quake Hits") reveal that media visibility of the crisis was not homogeneous. The exceptional spike in Hatay during the response phase demonstrates how the province became a symbolic center of the disaster and the focal point of national and international media. Several factors may account for this: (i) its proximity to the epicenter and the severity of destruction, (ii) Hatay's multicultural social structure providing ground for solidarity narratives, and (iii) heightened visibility of aid calls on social media amplifying media interest (Comfort, 2007; Kapucu, 2008).

In this context, the limited media attention to women's issues—such as safety, hygiene, and care work—even at the peak of coverage in Hatay, illustrates the gendered dimension of the Trolley Problem. The relegation of women's specific needs to secondary importance during resource distribution highlights how ethical dilemmas in crisis management generate gender-based vulnerabilities. This finding resonates with utilitarian challenges discussed in pandemic ethics (Savulescu et al., 2020), which, by analogy, can be extended to post-disaster decision-making. Thus, the findings demonstrate that in crisis media, qualitative discourse is as ethically significant as quantitative intensity. These overall results underscore the need to examine in detail how gender-related themes varied across provinces and phases.

*Table 3. Illustrative Headlines from Regional News Coverage*

| Province | Phase | Example Headline or Phrase (Translated) | Gender Relevance |
|---|---|---|---|
| **Hatay** | Response | "Women demand safe shelters after repeated aftershocks" | ✓ Direct |
| **Hatay** | Response | "Volunteers call for hygiene kits for mothers and infants" | ✓ Direct |
| **Kahramanmaraş** | Recovery | "Teams focus on debris removal and rebuilding logistics" | ✗ Indirect |
| **Adıyaman** | Recovery | "Emergency response centers prioritize heavy equipment dispatch" | ✗ Indirect |
| **Hatay** | Recovery | "Civil groups emphasize protection of women from post-disaster violence" | ✓ Direct |

Discourse analysis findings further corroborate the trends indicated by quantitative data. In Hatay, headlines frequently highlighted expressions such as "calls for help," "women's security demands," and "hygiene crisis," while in Kahramanmaraş and Adıyaman, discourse was more heavily centered on "debris removal" and "operational procedures." This divergence reveals a critical ethical dilemma in the context of the Trolley Problem: which groups and which needs are prioritized when resources are scarce. The absence of women's specific needs in the discourse of some provinces suggests that unequal representation is reproduced at the discursive level in crisis management. These

findings empirically reinforce the analytical value of the Trolley Problem analogy, illustrating how moral trade-offs in crisis decision-making are mirrored in patterns of media visibility and gendered prioritization.

These examples, extracted from the discourse analysis corpus, illustrate how gender-related concerns appeared sporadically and were often overshadowed by operational narratives. While Hatay's coverage included explicit references to women's safety and hygiene, other provinces displayed a predominantly technical framing of the disaster. This pattern reinforces the argument that gendered invisibility persisted even within high-intensity media contexts.

Regional and Temporal Analysis of Gender Themes

The quantitative and qualitative analyses demonstrate that gender-related themes were unevenly distributed in media discourse. Women's specific needs during disasters (shelter, hygiene, safety) and their roles in crisis management varied substantially across provinces and temporal phases. This finding resonates with arguments in the crisis management literature that vulnerable groups tend to become "invisible" during crises (Enarson & Meyreles, 2004; Bradshaw, 2015).

- High Visibility in Hatay: Findings indicate that women and gender-related themes were more visible in Hatay's media coverage compared to other provinces. The severity of destruction, the province's multicultural social fabric, and the prominence of solidarity discourse contributed to greater discussion of issues such as women's safety, care work, and hygiene conditions. For example, [Table X / sample headlines] confirm that these themes were especially salient in Hatay. In the context of the Trolley Problem, this suggests that women's needs were more frequently acknowledged in resource allocation debates in Hatay.
- Low Visibility in Kahramanmaraş and Adıyaman: By contrast, in the earthquake's epicenter provinces of Kahramanmaraş and Adıyaman, gender themes were far less represented in the media. Coverage in these provinces concentrated more on rescue operations, debris removal, and general casualties, overshadowing women's specific issues. This illustrates that even in the central disaster zones, gender inequalities did not achieve sufficient media visibility, thereby increasing the risk of invisibility in post-crisis policy processes.
- Decline After the Response Phase: Findings also show a decline in the overall visibility of gender themes after the immediate response phase. While issues such as safety, care work, and hygiene were initially prominent, they receded as the recovery phase unfolded. This indicates that women's longer-term challenges—such as loss of livelihoods, psychosocial impacts, and the renegotiation of social roles—dropped out of the media agenda.

***Table 4. Regional variation of gender-related themes in media coverage***

| Province | Most Frequent Gender-related Themes | Illustrative Contexts |
|---|---|---|
| **Hatay** | Safety, caregiving, hygiene | Prominent in urgent appeals, shelter and aid distribution debates |
| **Adıyaman** | Violence, lack of representation | Limited visibility in mainstream coverage, overshadowed by rescue operations |
| **Kahramanmaraş** | Women's labor, loss narratives | Media focus on operational aspects; gender issues remained marginal |

Table 4 highlights that gender-related themes were not evenly distributed across provinces. While issues of safety and caregiving were salient in Hatay due to high media visibility and urgent aid appeals, Adıyaman and Kahramanmaraş showed much lower representation of women's specific needs, with coverage dominated by operational narratives. This uneven distribution demonstrates that the practical implications of crisis ethics are contingent upon local contexts and that gender dimensions risk invisibility in certain regions.

In conclusion, the regional and temporal variations in gender-related themes demonstrate that crisis media is shaped not only by quantitative news density and tone but also by qualitative dif-

ferences in content. These findings provide a critical analytical framework for understanding how women's needs are either prioritized or overlooked in post-crisis reconstruction processes.

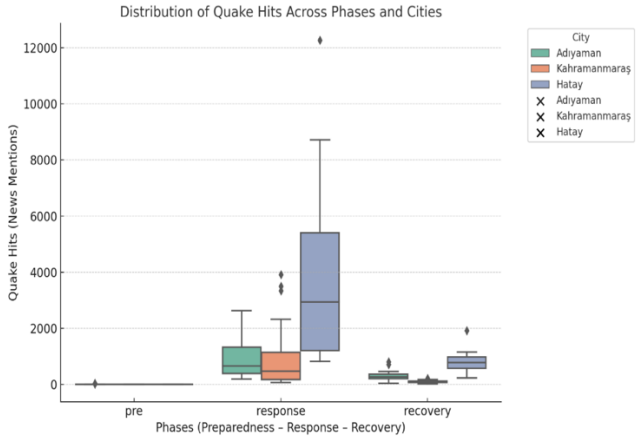


***Figure 1. Distribution of Quake Hits Across Phases and Cities***

Figure 1 illustrates the distribution of earthquake news intensity (*quake hits*) across provinces and phases. As shown, Hatay's response phase displays statistically significantly higher values than all other groups. By contrast, Kahramanmaraş and Adıyaman exhibit relatively lower news intensity during the recovery phase. This pattern reveals that post-disaster media attention was concentrated in specific geographic and temporal focal points.

**Overall Evaluation of Findings**

The statistical analyses conducted in this study reveal how news agendas, ethical dilemmas, and gender dimensions diverged in the context of post-earthquake crisis management. First, the news emphases observed across the three provinces (Hatay, Kahramanmaraş, and Adıyaman) varied markedly across different disaster phases (preparation – response – recovery). Post-hoc tests and effect size measurements indicated significant differences, particularly between provinces during the response and recovery stages. This finding highlights that post-disaster public discourse and decision-making processes were not spatially homogeneous but instead varied according to local contexts.

Moreover, effect size analyses revealed that the differences identified were not only statistically significant but also practically meaningful. Notably, news coverage focusing on women's needs and safety often receded during the initial response phase in some provinces, while in others it became more prominent during the recovery stage. This finding demonstrates that the gender perspective in the context of crisis ethics was not systematically integrated but instead followed a fluctuating trajectory shaped by local conditions and media agendas. Similar conclusions are echoed in previous studies emphasizing the insufficient integration of gender into crisis management decision-making (Enarson & Morrow, 1998; Fothergill, 1996; Enarson, 2012; Gaillard, Gorman-Murray, & Fordham, 2017).

Finally, graphical visualizations demonstrated that these differences were not only numerical but also structural in distribution. Boxplots and violin plots revealed, for example, that Hatay's news agenda displayed a wide range of distribution, while Kahramanmaraş exhibited a more concentrated pattern. Likewise, the literature emphasizes the critical role of visualizations in disaster studies for uncovering complex data distributions and local contextual differences (Tufte, 2001). These patterns indicate that provinces confronted different forms of "ethical burdens" in post-crisis decision-making processes. Overall, the findings demonstrate that crisis ethics is not merely an abstract conceptual framework but a phenomenon that is observable, measurable, and directly connected to gender dimensions within disaster management practices. Accordingly, the study provides contributions at both the normative level (ethical dilemmas) and the empirical level (big-data-based analysis).

In response to the research questions, the findings can be summarized as follows:

1. Media tone (V2Tone) remained largely stable across provinces and phases, with no significant differences observed.
2. News intensity (quake hits) differed significantly between provinces, particularly in favor of Hatay.
3. The visibility of gender-related themes was uneven across provinces and phases,

higher in Hatay but lower in Kahramanmaraş and Adıyaman.
4. Discourse analysis revealed that women's specific needs were largely relegated to the background.
5. Correlation analysis showed a weak association ($r < 0.20$) between crisis ethics (news density/prioritization) and gender-related themes, indicating that gender themes surfaced independently and in a more fragmented manner within media coverage.

*Table 5. Research Questions and Key Findings*

| Research Question | Key Findings |
|---|---|
| Which ethical principles emerge in post-disaster decision-making processes within the framework of crisis ethics? | Media tone (V2Tone) remained largely stable across provinces and phases, showing no significant differences. |
| How does a gender perspective influence post-disaster resource allocation and prioritization decisions? | Gender perspective was weakly integrated; women's needs often relegated to the background in decision-making. |
| How are the themes of crisis ethics and gender represented in media discourse across Adıyaman, Hatay, and Kahramanmaraş after the February 6, 2023 earthquakes? | Gender themes appeared unevenly, with higher visibility in Hatay and lower in Kahramanmaraş and Adıyaman. |
| Is there a significant correlation between crisis ethics and gender themes in GDELT data? | Correlation between crisis ethics (news density/prioritization) and gender themes was weak ($r < 0.20$). |
| How do the results of data analysis provide practical implications for disaster management policies and decision-support systems? | Findings emphasize need for gender-sensitive crisis management; media and policies should move beyond quantitative intensity to equity-focused approaches. |

## Discussion in the Context of Current Literature

The findings of this study make the normative debates in the crisis ethics literature visible through a concrete case. Traditional approaches to crisis ethics generally frame resource allocation and prioritization problems within utilitarian or deontological perspectives. However, as the present study demonstrates, post-disaster decision-making processes are shaped not only by abstract ethical principles but also by gender inequalities and local contextual dynamics. In this respect, the study advances crisis ethics debates toward a more inclusive and context-sensitive ground.

From a gender perspective, the disproportionate impacts of disasters on women have long been highlighted in the literature (Enarson & Morrow, 1998; Fothergill, 1996). Yet much of this discussion has relied on qualitative fieldwork and case studies. By contrast, this research adds a new dimension by employing big data-based methods (e.g., news agenda analytics, GDELT data) to provide quantitative evidence for these debates. In particular, the finding that women's needs were relegated to the background in the media agenda in some provinces statistically corroborates the "invisibility" problem highlighted in the literature.

In disaster management studies, process models focusing on preparedness, response, and recovery have often dominated (Tierney, 2014; Alexander, 2013). The findings of this study show that these phases are not merely technical processes but are also intertwined with ethical dilemmas and issues of representation. For example, the observation that resource distribution during the response stage was shaped by a more "pragmatic" approach, while gender dimensions became more visible during the recovery stage, aligns with the recurring thesis in disaster management literature that equality tends to recede in moments of crisis.

In conclusion, this study provides threefold contributions to both crisis ethics and gender-focused disaster literature:

1. Theoretical Contribution: It allows for a reconsideration of normative ethical debates through the lens of gender.
2. Methodological Contribution: It bridges the gap between big-data-based quantitative analysis and the predominantly qualitative literature.
3. Practical Contribution: It offers a strong foundation for policy recommendations aimed at increasing the visibility of women in post-disaster decision-making processes.

## Theoretical and Practical Contributions

This section outlines the study's original contributions to both academic literature and the policy/practice domain.

### *Theoretical Contributions*

- An Interdisciplinary Approach to Crisis Ethics: The study applies the "Trolley

Problem" analogy beyond a purely philosophical debate, situating it in the context of disaster management. In doing so, it joins the small body of literature that integrates crisis ethics with disaster studies in an interdisciplinary manner.

- Incorporating the Gender Dimension: While disaster management research has often focused on logistical and operational dimensions, this study places gender inequalities at the center, deepening crisis ethics debates. It highlights that decision-making processes must be analyzed not only through "rational" criteria but also through lenses of equality and ethics.
- Big Data Methodological Contribution: By integrating GDELT-based news agenda analysis into crisis ethics, the study provides a quantitative foundation for theoretical debates. This demonstrates that normative ethics can be supported not only through philosophical abstraction but also by data-driven analysis.

***Practical Contributions***

- Guidance for Policymakers: The findings emphasize that women's needs must be made more visible in post-disaster resource allocation and prioritization. This provides strategic guidance for local governments and agencies such as AFAD. Specifically, operational protocols should include concrete actions addressing women's specific needs—for example, mandatory distribution of hygiene kits for women and the allocation of safe spaces for women and children.
- Crisis Communication and Media Management: News agenda data revealed that gender themes were marginalized in some provinces. This underscores the need to reform crisis communication policies. Media framing can serve as a critical tool for fostering awareness of equity in the aftermath of disasters.
- Strengthening Social Resilience: The study demonstrates that resilience in post-disaster contexts depends not only on infrastructure and logistics but also on ethically grounded decision-making processes. This offers a practical roadmap for future disaster policy.

**Limitations and Future Research**

***Limitations***

- Data Sources: The dataset (GDELT-based news agenda) reflects media visibility, which may not fully capture gender dynamics on the ground. Media agendas are often influenced by editorial and political choices. Alternative sources such as social media, personal testimonies, and local networks may highlight gender-based issues overlooked by mainstream media. Thus, this study captures only the mediated dimension of the crisis.
- Sample Scope: The study is limited to the provinces of Hatay, Kahramanmaraş, and Adıyaman. As such, findings cannot be generalized to all earthquake-affected regions in Turkiye, which may display different dynamics.
- Analytical Method: While big data-based analyses provide methodological advantages, sentiment and thematic indicators derived from news texts offer only a partial view of ethical and human dimensions. To fully understand decision-making motivations and actors' lived experiences, qualitative data (e.g., interviews, focus groups, field observations) would be necessary.
- Temporal Scope: The analysis focuses on short-term media reflections in the immediate aftermath of the disaster. Long-term effects, such as the evolution of gender equality over the years following the event, fall outside the scope of this study.

***Future Research***

- Interdisciplinary Approaches: Future studies could develop broader models integrating crisis ethics, disaster sociology, media studies, and gender scholarship.

- Comparative Studies: Cross-national comparisons of disaster management practices with respect to gender and ethics could enrich the findings of this study.
- Integration of Multiple Data Sources: Combining social media data, survivors' narratives, and field observations with media analysis would provide a more holistic understanding of crisis discourse.
- Inclusion of Qualitative Research: In-depth interviews and surveys with women survivors and decision-makers would complement numerical analyses with lived perspectives.
- Exploring Long-Term Impacts: Research should extend to post-reconstruction phases to analyze how gender relations evolve in the aftermath of disasters.
- Monitoring Policy Implementation: Future studies could evaluate whether the policy strategies proposed in this research are implemented and whether they foster gender equity in practice.

**Conclusion**

This study examined the ethical dilemmas in crisis management following the February 6, 2023 earthquakes through the lens of the "Trolley Problem" analogy and a gender-sensitive perspective. Big data-based content analysis (GDELT news flows) revealed that disaster decision-making processes are shaped not only by technical and operational criteria but also by ethical principles and equity considerations.

Three core results stand out:

- Crisis Ethics and Gender Nexus: Analyses revealed that women's safety, needs, and representation achieved only limited visibility in post-disaster processes, underscoring the need to strengthen ethical decision-making with a gender equality perspective.
- Methodological Contribution: The applicability of big-data analyses (news frequency, sentiment tone, statistical tests across phases) to disaster management literature was successfully demonstrated, allowing the capture of large-scale trends beyond traditional qualitative approaches.
- Policy and Practical Contribution: Findings show that gender sensitivity remains weak in post-disaster resource allocation and prioritization. Therefore, policymakers and crisis managers should develop more inclusive strategies addressing women's needs and representation.

In conclusion, this study provides an interdisciplinary framework combining crisis ethics, disaster management, and gender studies. It not only contributes theoretically but also offers practical strategies for transforming ethical principles and equality objectives into actionable measures. In this sense, the research aims to serve as a reference point for both future academic inquiry and applied policy.

**Declarations**

***Funding:*** No funding was received for conducting this study.

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

***Ethical Approval:*** This article does not involve any studies with human participants or animals performed by the authors; the research relied exclusively on publicly accessible secondary data and therefore did not require ethics committee approval.

***Informed Consent:*** Not applicable.

***Data Availability:*** The analyses are based on the publicly accessible GDELT GKG news corpus. The cleaned subsets, codebooks, and derived analysis outputs produced during the study are available from the corresponding author upon reasonable request.

***AI Disclosure:*** Large language model–based tools were employed in limited, supportive roles for duplicate detection during preprocessing, prelimi-

nary sentiment/theme labeling, and ensuring English–Turkish terminological consistency. All outputs were manually reviewed, verified, and, where necessary, corrected by the authors; study design, coding scheme, interpretation, and final decisions were conducted by the researchers.

***Authors' Contributions:*** Both authors contributed to study conception and design, data processing and analysis, interpretation of results, and manuscript writing; both authors approved the final version.

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## Appendices

Appendix Table 1. Descriptive Distribution for Quake Hits

| Province | period | N | Median | IQR | Min | Max |
|---|---|---|---|---|---|---|
| Adıyaman | pre | 12 | 3.5 | 3.75 | 1 | 52 |
| Adıyaman | recovery | 30 | 272.5 | 156.0 | 41 | 811 |
| Adıyaman | response | 30 | 668.5 | 925.25 | 188 | 2635 |
| Hatay | pre | 10 | 3.0 | 5.75 | 1 | 9 |
| Hatay | recovery | 30 | 782.5 | 404.5 | 230 | 1924 |
| Hatay | response | 30 | 2944.5 | 4191.0 | 825 | 12256 |
| Kahramanmaraş | pre | 6 | 2.5 | 1.0 | 1 | 4 |
| Kahramanmaraş | recovery | 30 | 100.5 | 57.0 | 17 | 221 |
| Kahramanmaraş | response | 30 | 473.0 | 966.5 | 70 | 3911 |

*Note: This table is based on the raw distribution of daily quake hits data. The median, IQR, minimum, and maximum values were calculated directly from the GDELT GKG dataset.*

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RESEARCH ARTICLE

OPUS Journal of Society Research

# Educational Practices of Syrians in Türkiye on Facebook and the Formation of a Digital Diaspora: A Netnographic Study

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## Abstract

*This study focuses on the educational activities carried out by Syrians in Türkiye in the digital environment, within the theoretical framework of "diasporic education." Diasporic education, which refers to the transmission of language, history, and cultural values that migrants reside outside their homeland and try to preserve and pass on to subsequent generations in the host country through formal and informal means, brings members together around shared values. However, due to both financial constraints and sociological reasons in Türkiye, these activities, which mostly take place in the digital sphere, also necessitate consideration of the "digital diaspora" debate among Syrians. At this point, groups established through Facebook's sharing network enable scattered migrants to communicate and interact, unite around fundamental values, and make efforts to preserve their shared identity codes and sense of belonging in a more economical and easier way. Based on data obtained from these Facebook groups, the study claims that Syria is conveyed among migrants on a nostalgic basis and that the values of the homeland are presented in an idealized manner. To such an extent that religious, cultural, historical, or language teaching activities by different groups aim to provide collective identity and belonging while also ensuring that the perception of the homeland is kept alive in the target audience. In this context, educational activities targeting different groups are carried out through decentralized and independent Facebook groups. The data collected through a netnographic method between April and December 2025 were analyzed within a sociological framework*

**Keywords:** *Syrians in Türkiye, Digital Diaspora, Diasporic Education, Collective Conscious*

## Öz

*Bu çalışma "diasporik eğitim" teorik arka planında Türkiye'deki Suriyelilerin, dijital ortamda gerçekleştirdikleri eğitim faaliyetlerine odaklanmaktadır. Göçmenlerin anavatan toprakları dışında ikamet ederken ev sahibi ülkede yaşatmaya ve sonraki kuşaklara aktarmaya çalıştıkları dil, tarih ve kültürel değerlerin formel ve enformel yollar ile aktarımına işaret eden diasporik eğitim, üyelerin ortak değerler etrafında bir araya gelmelerini sağlamaktadır. Ancak gerek maddi imkanlardan gerekse de Türkiye'deki sosyolojik nedenlerden dolayı ekseriyetle dijital alanda gerçekleşen bu faaliyetler, Suriyelilerde "dijital diaspora" tartışmalarını da düşünmeyi gerektirmektedir. Bu noktada Facebook paylaşım ağı üzerinden kurulan gruplar ile dağınık göçmenlerin iletişime ve etkileşime geçmeleri, temel değerler etrafında birleşmeleri, ortak kimlik kodlarını ve aidiyetlerini yaşatma girişimleri daha ekonomik ve kolay olmaktadır. Çalışma, söz konusu Facebook gruplarından elde edilen veriler doğrultusunda göçmenler arasında Suriye'nin nostaljik bir zeminde aktarıldığını ve anavatana ait değerlerin ideal zeminde sunulduğunu iddia etmektedir. Öyle ki, farklı gruplar tarafından dini, kültürel, tarihi veya dil öğretimi faaliyetleri kolektif kimlik ve aidiyetin sağlanmasını hedeflerken, anavatan algısının hedef kitlede canlı tutulmasını da sağlamaktadır. Bu kapsamda, merkezsiz ve bağımsız Facebook grupları üzerinden farklı hedef gruplarına yönelik eğitim faaliyetleri gerçekleştirilmektedir. 2025 yılının Nisan ve Aralık ayları arasında Netnografik bir yöntem ile elde edilen veriler sosyolojik bir zeminde analiz edilmiştir.*

**Anahtar Kelimeler**: *Türkiye'deki Suriyeliler, Dijital Diaspora, Diasporik Eğitim, Kolektif Bilinç*



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## Introduction

Education among migrants, particularly within the context of diaspora discussions, assumes a prominent and multifaceted role. This is because education holds an indisputable position in the construction of collective identity among individuals dispersed through migration (Witenstein & Saito, 2015, p.118; Popyk, 2023, p.72). Education, whether delivered in formal or informal settings, distinct from the dominant culture, can unify different migrant generations around shared codes linked to their homeland. This process facilitates the idealization of the homeland and the construction of a nostalgic framework, enabling individuals to coalesce around common elements such as history, culture, language, and religion. Consequently, such narratives integrate the language of the diaspora into education. In this regard, mother-tongue education or instruction in the native language plays a crucial role in fostering diaspora consciousness (Moskal & Sime, 2016; Elmerrakchi, 2023). Indeed, individuals distinctly separate themselves from the dominant society and reconstruct their identities within the framework of "otherness," primarily through the tangible medium of the native language they learn or use.

On the other hand, education provided by migrants within their communities can facilitate a smoother and more gradual integration into the host society. Media opportunities, in this context, enable migrants to integrate into their host societies while preserving their cultural values, participate in the diaspora, and establish transnational "network societies" (Van Dijk, 2020). Migrants coming together on digital platforms around shared codes related to their homeland transcend the traditional constraints of physical locality, positioning themselves as agents of a "global culture" (Elias & Lemish, 2010, p.10). Moreover, it is evident that migrants equip themselves with modern technologies to overcome the challenges of integration into the host society, leveraging these tools as facilitators of adaptation. In this way, migrants use digital resources to create diasporic educational spaces by forming virtual groups centered around shared codes distinct from the dominant culture. Simultaneously, they develop policies aimed at aligning with the new society. In this regard, the construction of a collective identity among migrants is one of the primary functions of education. While earlier periods relied on traditional methods tied to physical spaces, recent advancements in internet-based communication technologies have shifted these activities to digital platforms, enabling outreach to a broader audience. At this point, the process of constructing an "imagined community" (Anderson, 1995), which transcends certain criteria and is based solely on individuals claiming a shared identity, has gained significant traction both domestically and internationally. Migrants who come together around identity markers such as shared historical memory, homeland, language, and religion idealize their homeland and abandoned cultural values while reconstructing them on a nostalgic foundation.

In this context, it is plausible to argue that the millions of Syrians who fled to Türkiye and dispersed across various provinces due to the war that began in their country in 2011 are engaging in a diasporic process by reconnecting on digital platforms around shared values and codes (Aşkın, 2024). Especially with today's communication technologies, immigrants can meet in virtual groups and receive education based on language, history, religion, and culture, while also developing new educational policies to integrate into the dominant Turkish society (Adıgüzel & Hepkon, 2023). Accordingly, this study employs a netnographic approach to analyze the communication, mutual aid, and educational activities of Syrians residing in Türkiye through the virtual groups they establish. It also examines the diasporic meanings attributed to these educational endeavors.

## Diaspora: Conceptual Framework

Diaspora, in its broadest definition, refers to migrant groups living in countries different from their homeland yet maintaining networks of communication with their homeland through a collective consciousness they develop. In the literature, two primary approaches to defining the concept of diaspora are recognized: traditional and modern. The traditional definition confines the concept of diaspora to migrant groups whose departure from

their homeland is attributed to a tragic cause (Shefer, 2003) and emphasizes a shared historical connection among its members. Often associated with Safran's (1991) perspective, this definition originally referred to the Jewish exile from their homeland, highlighting the etymological roots of the term in the Greek words *dia* (separation) and *sperio* (dispersion). While initially used to describe the Jewish experience, the concept later encompassed similar cases, including those of Black communities, Greeks, and Armenians. Over time, however, the term underwent semantic expansion due to mass migrations, the influence of the capitalist economic system, and advances in transportation and communication technologies (Dufoix, 2008, p.106; Bruneau, 2010, pp.36–37; Tölölyan, 1991, p.4). The modern approach to diaspora reflects this expanded meaning, emphasizing the experiences of migrants who, despite leaving their homeland for social, cultural, economic, educational, religious, or other reasons, maintain an emotional attachment to it and express this through their relationships. This contemporary interpretation is often associated with Cohen's (1997) definition and is closely tied to the phenomenon of globalization. The semantic broadening of the term diaspora began primarily after the World Wars and the subsequent dissolution of the Soviet Union, events that brought the nation-state structure under critique. Consequently, today, diaspora activities encompass various national groups, such as Turkish, Arab, Polish, Hungarian, Black, and Iranian diasporas, especially in European countries (Taylor et al., 2014; Prinz & Siegel, 2019, p.14). However, the modern usage of the term has recently acquired a new dimension, shaped by contemporary developments. This novel diasporic aspect, predominantly facilitated by internet-based communication technologies, is referred to as the virtual/digital diaspora (Bernal, 2014; Brinkerhoff, 2009). It denotes the transfer of diaspora activities to virtual spaces, where individuals engage in diasporic practices using communication technologies. Digital diaspora thus signifies the transition of collective identity formation and activities such as social gatherings, mutual assistance, cultural practices, communication, and education, previously conducted in physical spaces, into virtual environments (Laguerre, 2010, p.49; Madianou & Miller, 2012; Tiryaki, 2023, p.1760).

In this alternative domain enabled by internet-based communication technologies, migrants idealize their homeland and find common ground in cultural, religious, and ethnic aspects associated with it (Ponzanesi, 2020, p.982). In this context, digital diaspora provides individuals with the opportunity to operate in a boundless space, fostering connections around shared codes and values. Beyond this, such environments, which reinforce collective consciousness and idealize the homeland, enable individuals to nostalgically reconstruct their homeland through a diasporic lens. Indeed, the integration of contemporary communication, transportation, and information-sharing technologies with the democratic structures of states ensures that connections with the homeland and its cultural codes are largely maintained through institutional or informal education. Such educational practices facilitate the upbringing of future generations within the diaspora in host countries while allowing the homeland to be reimagined through a nostalgic perspective.

**Diasporic education or Education in Diaspora**

The concept of diasporic education refers to the formal or informal methods by which dispersed populations living outside their homeland are brought together. However, this phenomenon presents itself as an important argument that transcends the borders of the host state. Specifically, individuals receiving education aligned with or similar to their national curricula, or participating in diasporic education centered around overarching national, cultural, or ethnic identities, foster the development of national consciousness. In this regard, diasporic groups often reproduce the "official knowledge" from their homeland (Apple, 1993, p.222), thereby maintaining the cognitive coherence of their members and constructing a more unified sense of movement and collective spirit. As Gholami (2023a, p.7) notes, this process, termed the "diasporisation of education", transforms even the physical structure, content, and existence of educational institutions into symbols of identity for

migrants. When these communities organize institutionally to provide such education, the dual influence of their host nation's educational system and their original national framework underscores the critical role and transformative potential of diaspora education in shaping new educational forms.

It is important to note, however, that diaspora groups residing within another state's jurisdiction do not exhibit homogeneity. Once overarching national identities are stripped away, these groups often fragment into smaller clusters based on socio-cultural, professional, ideological, or religious affiliations. As a result, such fragmented and irregularly structured diaspora groups exhibit what Webner (2002) describes as a "chaorder" dynamic, a blend of chaos and order. Without a centralized control system, these groups operate through small, pragmatic, and functional education clusters at the micro level, sometimes even experiencing conflicts over disagreements. In this light, it is evident that diasporic groups, particularly in the educational domain, strive to educate future generations by reinforcing shared values and constructing common ground among their members (Mitchell, 1997; Oldac & Fancourt, 2021; Popyk, 2022; Steenwegen & Vanhoof, 2002). Different diaspora organizations, even when referencing the same homeland, may claim to authentically represent the diaspora, further illustrating the fragmented yet competitive nature of diasporic educational practices.

Although diasporic education emerges from diverse contexts, concerns, and expectations, it shares certain fundamental characteristics. Foremost among these is its reliance on transnational connections. These activities, which incorporate elements of both the homeland and the host country, blend institutional affiliations from at least two nations within a single framework, allowing for the organization and regulation of education that reflects the priorities of both. Consequently, the educational content reflects the dual concerns of acceptance and recognition by both countries. Another essential aspect of diasporic education is its tendency to problematize and reconstruct the identity associated with the homeland, adapting it to address new concerns. This process aims to develop a pragmatic identity structure that balances the cultural codes of the homeland with the needs of the host country. The result is a hybrid identity that integrates diverse influences while addressing the practical realities of diaspora life. A notable dimension of diasporic education is the reinterpretation of the "space" where education occurs, imbuing it with diasporic meaning. Whether a physical institution or a virtual platform such as online education sites, these spaces are redefined and endowed with new significance. According to Gholami (2023a, p. 12), diasporic education not only reminds individuals in the host country of their distinct cultural heritage but also facilitates its reproduction. Additionally, it transcends the boundaries of the host country by fostering transnational connections and enabling the transmission of cultural, religious, historical, and national codes.

The transformation of education into a diasporic practice and institution plays a crucial role in preserving the values of migrant communities and maintaining historical, cultural, religious, and even national connections with the homeland. This transformation turns education into a functional institution that supports continuity with ancestral ties (Popyk, 2023, p.72; Dryden-Peterson & Reddick, 2019). Through such institutions, migrants can transmit their core values to future generations, fostering unity, coordination, and value integrity within their community while living in a foreign country. Gholami (2023, p.5) interprets the "diasporisation" of education as a process where schools, curricula, buildings, classrooms, and other educational components acquire new meanings in the diaspora context. In this regard, education becomes a new space for existence for migrants, enabling them to establish a sense of belonging and identity in their host country.

Beyond this, the intersection of migration, opportunity, exclusion, and acceptance necessitates rethinking education in diaspora, particularly as digital platforms allow migrants in different cities or countries to overcome physical barriers. These platforms enable migrants to communicate, collaborate, educate future generations, and specialize in

various fields, highlighting the importance of integrating digital diaspora with online education. Furthermore, the ability of migrants to connect digitally provides a layer of safety, helping them avoid potential threats (Çömlekçi & Bozkanat, 2019, p. 940; Georgiou, 2010). Brah (1996, p.197) argues that the homeland, in a diasporic context, becomes less of a physical place to return to and more of an idealized construct. Rather than prioritizing return, migrants often focus on building new lives, albeit with a persistent mental construct of the homeland as an idealized entity. This understanding perpetuates the notion of the homeland in the cultural and, to some extent, official discourses migrants maintain in their host countries. However, as Ahmed (2000, p. 90) observes, this idealization can evolve into a complex issue for future generations, potentially becoming a source of tension and conflict within the diaspora. This dual dynamic, rooted in both preserving cultural identity and adapting to new realities, underscores the intricate role of diasporic education as a means of navigating the challenges and opportunities of life in migration.

**Methodology of the Study**

Technological advancements in the digital realm necessitate the adoption of new methods and techniques in scientific research. In particular, internet-based communication technologies profoundly influence everyday life, allowing individuals to reconstruct symmetrical dimensions of their daily relationships within digital spaces. Such a development, evidently, compels a reconsideration of classical quantitative and qualitative methods. Indeed, the ethnographic method, widely used in social sciences and societal studies, offers significant insights through its emphasis on observation and participation, even for identities constructed in virtual environments (Kozinets, 2015, p.79). The possibility of closely observing and analyzing groups of interest in virtual settings via internet-based communication technologies, and the application of core ethnographic principles during this process, has led to the emergence of a new methodological approach known as netnography or online ethnography (Rokka & Moisander, 2009, p.2010). In response to this need, Robert V. Kozinets developed the netnographic method in the 1990s, initially to explore consumer behavior (Kozinets, 1998; 2015), though it has since been applied to various other digital groups. Adapted from traditional ethnography, netnography (Langer & Beckman, 2005) offers a crucial roadmap for understanding individuals who gather, socialize, organize, collaborate, educate, and receive education on digital platforms (Heinonen & Medberg, 2018).

In the context of this study, educational content shared within selected Facebook groups, established by Syrians and primarily enabling members to communicate, socialize, conduct commerce, and advertise their businesses, has been analyzed. These platforms, while bringing individuals together in a host country far from their homeland, also facilitate the construction of a diasporic identity in the digital sphere, thus fostering greater communication among members. The limited proficiency of these Syrian migrants in Turkish, their unfamiliarity with the Turkish education system, and their concurrent efforts to preserve their cultural values all contribute to the development of education within a diasporic context. In this regard, the fact that educational activities carried out among Syrians in Türkiye are conducted in Arabic, targeted at a specific group, constructed around notions of "otherness," and frequently reference the homeland, indicates that a significant portion of Syrians in Türkiye engage in intense digital communication and interaction, and conceptualize education within a diasporic framework.

Dozens of Facebook groups have been established by Syrians residing in Türkiye. However, several of these groups differ significantly in terms of membership size due to various factors, such as limited resources and information sharing, narrow target audiences or geographic scopes, insufficient visibility or promotion, and the passivity of group administrators in guiding and representing the group. Furthermore, considering the dynamic demographic structure of Syrians in Türkiye, and the ongoing possibility of return migration to Syria or resettlement in third countries, it is plausible that some virtual groups become inactive after their establishment. Within the framework of these dy-

namics, especially those indicating whether Facebook groups remain active or not, this study analyzes educational content shared in selected groups, categorized into two themes that reflect how Syrians' relationship with education in Türkiye has evolved over time.

Taking all of this into account, two categories were identified through criterion sampling from Facebook groups belonging to Syrians, and the groups from which data would be collected were determined. The first category includes posts shared in groups formed by Syrians who began arriving in Türkiye around 2011, which focus on adaptation to Turkish society through educational content. This content primarily provides information necessary for school-age children's enrollment in the Turkish education system and offers basic language education for adults to help them integrate into Turkish society. In this context, the study examines posts in two active Facebook groups: Syrian Community in Turkey (الجالية السورية في تركيا), with 23,932 members, and Arabturk Group (مجموعة عرب تورك), with 10,000 members. Posts in these groups generally revolve around coping with daily life challenges, sharing experiences, and establishing communication. Since the early days of migration, posts have included essential information about enrolling children in formal education and learning basic Turkish language skills to maintain everyday social interactions.

However, as the years have passed, the frequency of such posts has declined. In contrast, the emergence of new educational groups and a shift in the nature of educational content are noteworthy. The second category comprises early childhood education institutions, such as kindergartens and preschools, that focus on educating the next generation. These institutions often integrate an understanding of "homeland" specific to Syria, by offering Arabic-language instruction alongside some Turkish education. In this regard, the study examines the Facebook presence of Ajyal Kindergarten (روضة أجيال), with 9,000 members, and Yetenekliler (مركز الموهوبين), with 18,000 members. These educational initiatives reflect a new phase in the migration process, in which the future generation is being educated in a more structured and professional manner, with an emphasis on maintaining a diasporic connection to Syria. Given this information this study focuses on the questions: "How is education used among Syrians in Türkiye to build collective identity and bring members together around specific socio-cultural values?", "How does education use digital capabilities while aiming to bring scattered migrant groups together around a common consciousness?", "Does the mission assigned to education among Syrians in Türkiye change periodically?" In this context, the working data was collected from posts on Facebook groups identified between April and December 2024. Posts were regularly monitored during this period, and activities related to education were compiled and analyzed.

The primary criterion for selecting the groups in question is that the members are Syrians and that the target consumer audience of the posts consists of Syrians residing in Türkiye. It should be noted that in 2024, the year in which the data was collected, the active sharing of content[1], particularly related to education, in their native language by the members of the groups in question not only helped keep the perception of the homeland alive among Syrians in Türkiye, but also contributed to the reinforcement of a collective identity and ultimately provided a basis for a diasporic consciousness (Aşkın, 2024). The second reason for selecting the groups in question is that, in reference to Webner (2002), the education-related posts are not aimed at segmenting the target audience, but rather address the entire Syrian population residing in Türkiye. In this regard, attention was paid to whether the posts made by group administrators or members prioritized general well-being or service provision rather than reflecting a particular ideological stance. The third reason was that these groups offered a space for members to connect through shared cultural and linguistic codes that existed outside the dominant social framework of the host society. In particular, the prevalence of content shared in Arabic and aligned with Syrian

[1] *At this point, the ArabTurk Group can be considered an exception among the selected Facebook groups. A close examination of the group's content reveals that, since its inception, a significant portion of the posts have focused on basic Turkish language skills and related educational content. However, such posts have noticeably declined over time. Despite this decrease, the reason for including this group in the study is to illustrate the shifting perceptions, needs, and expectations of migrants over the course of their settlement journey.*

cultural values in these groups highlights the emergence of a collective identity. This orientation, in effect, excludes the local host population and instead seeks to address the specific needs and expectations of the target minority group.

Accordingly, this study evaluates the target audience, language, embedded meanings, and intentions of shared content through categorical analysis. Following this, educational content shared by Syrians in Türkiye across these virtual groups is analyzed using a netnographic method. The primary rationale behind selecting content from three distinct categories is to trace the historical evolution of how the Syrian migrant community in Türkiye relates to education. In the early stages of displacement, there was an urgent focus on adapting to the new system as a replacement for the abrupt rupture experienced during migration. The second category reveals a growing emphasis on educating the next generation within a diasporic framework, aiming to preserve cultural and ethnic heritage, which reflects both a level of settlement and an evolving approach to long-term community sustainability in Türkiye.

However, it must be acknowledged that the categorization of groups does not imply that all posts within a given group strictly fall into one category. Given that these groups are open to all members, there are also posts addressing current events or content that overlaps multiple categories. Therefore, while categories are used analytically, data for each category have been collected from across all selected groups. For instance, the *Syrian Community in Turkey* functions as a virtual hub where nearly every topic relevant to the community is discussed and shared. Nonetheless, this broad range of content does not undermine the purpose of the group's selection for this study, nor does it call into question the group's original objectives.

This study is significant in that it explores the educational content shared by Syrians in Türkiye on digital platforms from a diasporic perspective. While Syrian migration in Türkiye has often been treated under the framework of temporary protection or exclusion, the findings suggest that Syrians are now entering a new phase of migration, marked by the emergence of a nostalgic discourse centered on the homeland. In this regard, the study draws attention to the need to understand education and diaspora-related activities as interconnected, particularly emphasizing how digital educational practices among Syrians serve as tools for constructing collective consciousness in exile.

## Findings and Discussion

### Integration or the Construction of Collective Identity? Syrian Efforts to Learn Turkish and Engage in Education in Türkiye

Thanks to digital capabilities, increased communication opportunities ensure the preservation of collective identity and shared values among migrants. Despite being in different locations, such actions, which enable people to meet, see each other, and thus keep solidarity alive, create a foundation for individuals to come together around a shared memory and stay informed about developments. It should be noted that the information, announcements, and efforts related to education for Syrian migrants arriving in Türkiye since 2011 have evolved, shaped, and changed according to the needs over time. In the early stages of migration, individuals familiar with the Turkish educational system were more diligent in providing information to newcomers (Çömlekçi & Bozkanat, 2019, p.944), a trend reflected in Facebook group posts[2]. For instance, in the announcement of an event[3] aimed at introducing and familiarizing Syrian migrants with the Turkish education system, the organizer focused on answering questions related to admission to Turkish universities, both public and private, as well as accommodation in dormitories. Similarly, in the early phases of migration, Facebook groups even included open identity posts detailing which student would take the TÖMER (Turkish language proficiency exam) and where[4]. Another example, as seen in the announcement below[5], involved comparing and contrasting the differences and similarities between

[2] https://www.facebook.com/groups/syriansinturkey

[3] https://www.Facebook.com/events/256908861404334/?acontext=%7B%22event_action_history%22%3A[%7B%22surface%22%3A%22group%22%7D]%7D

[4] https://www.Facebook.com/groups/syriansinturkey/permalink/658843067471446

[5] https://www.facebook.com/photo/?fbid=1252244478239764&set=a.1050479885082892

the YÖS (Foreign Student Exam) in Türkiye and the SAT (Scholastic Aptitude Test) used for university admissions in the United States, in order to inform parents and students.

Considering the context of the period, it can be said that such pathways were preferred, given the difficulty of accessing these resources. However, beyond that, this form of solidarity indicates that Syrians developed a stronger sense of cooperation in virtual spaces during the early stages of migration, focusing primarily on integrating into Turkish society[6]. Subsequently, sharing exam results within the group can be seen as an important indicator of solidarity, fostering a spirit of togetherness and mutual support among members. A close examination of the announcement clearly shows that it targets a specific group. Such announcements have a significant impact on shaping and developing the sense of belonging and otherness of individuals living in a foreign country. Another notable point is that the name of the meeting place, Al-Farouk Educational Center[7] (مركز الفاروق التعليمي) also specifically addresses a certain group, enabling the construction of collective consciousness and a sense of belonging through this association.

In the early stages of migration, the prominence of Facebook group posts[8] focusing on learning Turkish reflects an emphasis on integration into the host society. A common language provides a vital foundation for social integration (Adserà & Pytliková, 2016). The common language, which enables individuals from different socio-cultural or ethnic backgrounds to live together (Pont-Grau et al., 2023), has consequently become a focal point for Syrian migrants. Recognizing the central role of Turkish language proficiency in integration into Turkish society, some internally driven initiatives have emerged to offer Turkish instruction at a more institutionalized level. One of the key institutions in this regard is Arabturk Group[9] which offers language support to individuals from Syria facing challenges in social integration. With over 10,000 followers[10], the group provides language courses for "Syrians/Arabs" in Türkiye, targeting various age groups and proficiency levels. Over time, the group has become an important educational center offering language lessons for various age groups and skill levels[11]. Initially providing services through virtual videos or DVDs, the group later began offering professional language services that emphasized alignment with the Turkish curriculum, clearly demonstrating the impact of the historical process on migrant individuals and communities. The key point to note here is that the page consciously or unconsciously incorporates messages that evoke the identity of the "other" and/or the migrant. As mentioned above, the diasporic dimension of education, as Gholami (2023a, p.5) states, can shift every entity included in it to a diasporic context.

This situation can sometimes be observed in advertisements for language courses as well as in shared images[12] [13]. For instance, the first noticeable aspect of the advertisement is that the posts and ads are made in Arabic[14], with a clear message indicating that the course is targeted at Syrians. Such posts help maintain and reinforce the sense of Syrian identity. On the other hand, when looking at the comments on the ads and the questions posed to the educational center, inquiries are often made regarding whether the instructors are Arab or Turkish, whether the course will facilitate obtaining a residence permit in Türkiye, and about the processes involved in the courses[15]. This reflects what Popyk (2023) expressed regarding diaspora activities in Lithuania and Poland, education taken separately from the dominant culture helps keep the individual's sense of homeland alive and distinguishes them from other members of society.

Similarly, as time has progressed, it is observed that in some courses either specifically for Syrians or employed by them, promotional materials that previously compared the SAT (Scholastic Aptitude Test) in the U.S. to the YÖS (Foreign Student Exam)

[6] https://www.Facebook.com/groups/syriansinturkey/permalink/623408437681576
[7] https://www.facebook.com/elfarukmerkezi?__rdr
[8] https://www.facebook.com/ArabturkGroup.istanbul
[9] https://www.Facebook.com/ArabturkGroup.istanbul
[10] https://www.facebook.com/ArabturkGroup.istanbul
[11] https://www.facebook.com/ArabturkGroup.istanbul/events
[12] https://www.facebook.com/photo/?fbid=1857475677612209&set=a.839406189419168
[13] https://www.facebook.com/photo/?fbid=1857349650958145&set=a.839406189419168
[14] https://www.facebook.com/photo/?fbid=16424020424529 08&set=a.839406189419168
[15] https://www.facebook.com/photo?fbid=1812787525414358&set=a.839406189419168

now predominantly focus on advertisements related to YÖS[16]. These developments, which represent a process and stage of integration, indicate that Syrians, whose identities were once marked by exclusion, have started to integrate into Türkiye's higher education system. Thus, while the initial focus was on language courses, over time this has shifted towards enrolling in higher education institutions and vocational training programs. This situation manifests in some cases[17] as courses specifically aimed at training YÖS candidates and focusing on the particular subjects they desire. These courses, offered by Syrian instructors, are a response to the needs of Syrian university candidates in Türkiye. Given that the courses are in Arabic, it is evident that they are not accessible to other students in Türkiye. Throughout this process, a noticeable trend is the increasing alignment of the courses with the Turkish education system, along with informational meetings. This shift shows that, in contrast to the initial phase of benefiting from a diasporic education system thought to be temporary, there has been a move toward engaging with mainstream institutional processes.

Indeed, some organizers in Türkiye are able to hold conferences on higher education and inform Syrian youth about the opportunities available. For instance, in the announcement[18] for the conference titled *"The Turkish Experience in Higher Education and the Development of Scientific Research"* (التجربة التركية في التعليم العالي و تطوير البحث العلمي في تركيا), it is emphasized that the university experience in Türkiye is very important, highlighting Türkiye's highly qualified academic staff and the state's efforts to mobilize support and resources in this regard. The announcement also reminds the audience that Türkiye's universities, through the Bologna Process, have accreditation agreements with European universities, enabling a training process aligned with European standards and opportunities. This reflects the modern understanding of diaspora (Cohen, 1997), where the migrant individual rethinks their presence in a foreign country in a diasporic context, constructing their homeland through a nostalgic lens. Additionally, the announcement points out that some charitable organizations in Türkiye offer scholarships, thereby facilitating educational opportunities and emphasizing the importance and ease of studying in Türkiye. When considering the entire content of this conference, which gives the impression of providing information about university institutions, it is clear that the conference is directed toward "Syrians in Türkiye", a group who share a common fate in a foreign country and are forced to live there.

Looking at the announcements, it can also be understood that at certain times[19], entrepreneurs have partnered with private universities in Türkiye to offer Syrian students opportunities for postgraduate studies. This partnership is designed to make it easier for more foreign "Syrian" students to choose university education. Similar organizations generally take place in locations designated by Syrians themselves, creating spaces for parallel educational models. These activities allow for the emergence of a cultural consciousness, a unique sense of belonging, and the formation of a separate identity from the dominant society. As a result, pathways are created for Syrians to foster collective consciousness and a sense of belonging to their homeland through shared codes. Indeed, the call tends to include one group while excluding another, which further emphasizes the creation of a diasporic identity.

Although the advertisements, belonging to Biroya Academy's Academic Institute, is an educational announcement[20], a sociological analysis reveals that it inherently constructs collective consciousness. Despite living in a foreign country, the advertisement and its announcements are directed toward a specific group and are presented in their native language, fostering a sense of belonging through a diasporic lens. In this regard, the online education initiatives among Syrians in Türkiye, which create awareness and a "parallel" path

[16] *https://www.facebook.com/profile/100066528101834/search/?q=y%C3%B6s*
[17] *https://www.Facebook.com/events/1684017721866589/?active_tab=discussion*
[18] *https://www.Facebook.com/events/902412886537235?active_tab=about*
[19] *https://www.Facebook.com/events/1004501352975545/?acontext=%7B%22event_action_history%22%3A[%7B%22surface%22%3A%22group%22%7D]%7D*
[20] *https://www.Facebook.com/moumayazonschool/photos/gm.1725336751035699/568569053312166/*

within their community, may lead to some obstacles in both integration and social cohesion. Rather than fostering conscious integration, this often results in individuals coming together in different spheres, sometimes driven by commercial concerns, while maintaining the feature of "otherness." In this way, by constructing diasporic perceptions through elements like language, shared history, and collective memory via digital means, individuals can reach a point of accepting "otherness" while maintaining peace with it.

**Education and Diaspora: Towards Collective Consciousness**

Given the importance of education in the reproduction of culture, the incorporation of a diasporic content in the education of a migrant group can be seen as an expression of an attitude toward the dominant culture (Gholami, 2023b; Alejo, 2022; Kim, 2009). Organized groups, while problematizing both the homeland and the host country through the mission assigned to education, construct themselves as different and "other." At this point, migrants tend to develop a more distant relationship with the country they reside in, while imagining their homeland as a nostalgic, ultimate destination. Looking at certain posts on a Facebook page[21] dedicated to Syrians in Türkiye, it is particularly evident in the early stages that posts centered around Syria conveyed the idea of returning to Syria. This reflects an emotional connection to Syria, indicating that plans and programs were aimed at facilitating this return. For instance, on April 2, 2015, a post shared a list of universities[22] recognized by the Syrian Higher Education Authority in Türkiye. This shows that the recognition of education obtained in Türkiye was taken into account in case of a return to Syria.

Similarly, a user who provides educational information or announcements expresses regret over the fact that thousands of high school graduates were unable to enroll in universities and continue their education following the start of the revolution in Syria. After stating this, they introduce themselves as the "Diaspora Homs Association" and explain that they have taken action on this issue[23]. However, the key point here is that the person sending the message on behalf of the Diaspora Homs Association emphasizes the need for an educated generation for the future of Syria, which they aim to rebuild. The association not only offers scholarship opportunities to Syrian students in Türkiye and Jordan but also seeks sponsors, stressing the importance of educating the diaspora's youth for the future of their homeland, Syria.

In this way, through a diasporic movement, supporting young people who will have a say in the future of a "free" homeland strengthens their sense of belonging and increases their tendency to group together and act collectively. The central emphasis of the announcement is the necessity of an "enlightened and educated" generation for the reconstruction of Syria. Thus, the focus and support provided are aimed not at the present but at building a new, legitimate homeland. At the end of the message, it is stated that if educational activities in this direction are not supported, the future of Syrians will be left to uneducated, vengeful, and hostile individuals. The announcement reflects the efforts to educate and raise awareness among Syrians far from their homeland, and it closes with a slogan celebrating the liberation of Syria and a call for an "Long Live Free Syria" (Yaşasın Özgür Suriye). This message reveals how a group, distanced from their homeland, presents itself virtually and seeks support for this cause.

Another notable point in the call for action is that, despite the association being based in Germany, it focuses on Syrians in Türkiye and Jordan. This trend suggests that Syrians dispersed across different countries express the diaspora discourse in a transnational context, indicating that they perceive themselves as members of a single group. At this point, considering the dimension of the virtual world that challenges the boundaries of physical space, migrants can come together through diasporic activities in different countries, support each other, and provide guidance. The lack of physical space in such digital groups minimizes

[21] *https://www.facebook.com/groups/254424951246595/search/?q=education*

[22] *https://www.Facebook.com/groups/syriansinturkey/permalink/891351794220571*

[23] *https://www.Facebook.com/groups/syriansinturkey/permalink/577569705598783*

the use of divisive and othering language by migrants, allowing them to adopt a higher-level discourse and reduce references to local realities. Comments on the announcement similarly demonstrate the irrelevance of spatial presence, showing that individuals from different countries can respond to the assistance and solidarity of others. Indeed, it can be observed that later on, a call for scholarships for Syrian students in Italy was also shared[24]. These types of posts also assist in encouraging individuals to benefit from those who meet the conditions, helping them evaluate alternative options rather than seeing each other as competitors. Similarly, the construction of collective consciousness among Syrians and activities aimed at the Syrian diaspora have made significant progress in European countries. For instance, diaspora activities of Syrians are noteworthy in countries such as Germany (Ragab et al., 2017), Austria (Albaradan & Papatheophilou, 2024), the United Kingdom (Caruso, 2018), and Italy (Al-Rawi&Fahmy,2018). During the early stages of migration, Syrians' concentration in large cities, particularly Istanbul, provided a conducive environment for them to initiate efforts to establish their own schools. This can be seen as an important factor, as these cities have a sufficient potential in terms of both educators and students, encouraging Syrians to start such activities. For example, on August 2, 2013, an announcement on a Facebook group informed that the "International Arab College[25]" would soon open and that services would be provided to Arabs in Türkiye.

The rapid coordination achieved in both education and teaching undoubtedly demonstrates the active use of social media. Indeed, the recruitment of teaching staff and the reaching of a sufficient student population necessitate intensive efforts in this regard.

**Resistance or Assimilation? Education of Future Generations Among Syrians in Türkiye**

As Faist (2018) suggests, migration not only involves the movement of individuals but also leads to a cultural encounter (Faist, 2018, p.6). This encounter, in turn, inevitably produces the concept of "minority," advancing the process to a new stage. The initiation of educational activities by minority groups within their own communities notably reflects a form of "political resistance." This political resistance, undoubtedly, makes references to the homeland and, by extension, to the diaspora, embodying the notion of resisting assimilation and preserving cultural values while transmitting them to future generations. Collective identity among migrants is constructed through education, based on shared history, culture, language, religion, or different identity markers. The way education is approached by migrants/minorities is often a response to aspects of the mainstream educational system that are either rejected or fail to provide adequate answers to their concerns (Gerrard, 2013, p. 33; Warmington, 2014, pp. 51-52).

In the context of Syrians in Türkiye, the most notable aspect of their education is their efforts to educate their children without distancing them from their cultural values. Unlike the programs designed for adults, there is a strong emphasis on teaching Syrian/Arab culture to children and ensuring cultural transmission. This emphasis can be observed in various informational campaigns within the groups. For instance[26], some announcements focus on providing educational programs to ensure Syrian children are better informed and more qualified. In the private kindergartens established by Syrians, special language training and activities are provided, alongside the promotion of Syrian national identity. It can be understood from the advertisements on the Facebook group[27] and YouTube channel[28] of Ajyal Kindergarten in Gaziantep that both the integration process and the experience of "otherness" are addressed simultane-

[24] https://www.Facebook.com/groups/syriansinturkey/permalink/472949206060834

[25] https://www.Facebook.com/groups/syriansinturkey/permalink/596615313694222

[26] https://www.Facebook.com/events/1576625329325219?active_tab=about

[27] https://www.Facebook.com/Ajyalsyria

[28] https://www.youtube.com/watch?v=bdYW3UdT5ME

ously. This allows children to receive Turkish language education in school, while many activities are conducted in their native language, creating a foundation for their cultural distinctiveness and divergence from mainstream socio-cultural values. Thus, children attending these kindergartens have the opportunity to learn both languages while growing up within the culture of their parents. Indeed, Alonso and Oiarzabal (2010) highlight how media and communication technologies help the Basque diaspora preserve their identity and culture, while simultaneously creating connections with the culture of their homeland. They argue that, through these technologies, Basques have constructed a new identity, spread their existing culture, and raised cultural awareness in the host country, forming a community centered on their identity markers.

The emphasis placed by Syrians in Türkiye on educational activities and their organization of events through various platforms is a clear indicator of the significance they attach to this issue. Notably, in the early stages, many activities were conducted either by integrating into educational institutions in Türkiye or through civil society organizations in a semi-official capacity. However, the establishment of their own educational centers by Syrians in Türkiye and the initiation of educational activities aimed at their own 'Syrian' community represent a significant development. Beyond the shared posts within various groups, it is noteworthy that a Syrian team announced the opening of a professional educational center in Istanbul. This initiative is pioneering and important. The announcement of *the Yetenekliler* educational center which offers cognitive and linguistic training programs for children, youth, and individuals with exceptional abilities, marks a significant approach, both in terms of the integration of this group into institutional life in Türkiye and the conduct of activities reflecting their own cultural and linguistic characteristics. However, it is also evident that some organizations[29] carry strong diasporic messages, with intense emphasis on Arabic as the native language and Syria as the homeland, in these educational centers.

The activities aimed at addressing the educational needs of a group abruptly separated from their homeland, though limited in scope, gradually evolved to focus on facilitating the integration of the target population into the dominant Turkish society and culture. This development should be viewed as a notable change. Different components might be involved in this process. In the early stages of migration, there was a strong perception and expectation that Syrians would eventually return to their homeland. Given the socio-political developments, there was also an expectation that the Assad regime would change, leading to the establishment of an inclusive and unifying government. During this period, preserving and developing the abilities of Syrians in Türkiye was a priority. However, as the anticipated return did not materialize and the challenges faced by different generations evolved and diversified, new programs were incorporated into the curriculum. *The Yetenekliler* educational center, mentioned earlier, serves as an important example of this process[30]. The center, which is still active, provides Turkish language and pronunciation lessons to students, thereby ensuring a more gradual and effective integration process. In fact, native Turkish-speaking teachers are employed when necessary, ensuring that children acquire stronger language skills.

Initially, educational activities aimed at preserving cultural and political memory were framed within a diasporic discourse. However, as the process progressed, the scope of activities expanded. By specifically addressing Syrians and offering programs tailored to their needs, these centers enable individuals to build their everyday lives. Furthermore, it is important to note that these educational activities aim to foster societal integration in Türkiye and eliminate the reasons for exclusion and marginalization of the future generations labeled as Syrians. Similarly, the tendency toward integration in the societal domain can be observed in institutional settings as well. For instance, in a kindergarten in Gaziantep, it is shared

[29] *https://www.facebook.com/almaohoobeen/videos/1306441684075205*

[30] *https://www.Facebook.com/almaohoobeen*

on the promotional page[31] that the institution is approved by the governor's office and the Ministry of National Education, and that both Turkish and Syrian teachers are employed. This development marks a shift from earlier announcements, with a gradual inclusion of Turkish teachers in Syrian-run institutions, particularly as Turkish language instructors, creating a new space for integration.

**Conclusion**

Considering the destructive impact of forced migration, the individuals affected by this process can be analyzed in terms of their efforts to establish a new position in the host country, achieve institutional and cultural integration, and maintain a diasporic connection to their homeland. The collective efforts of Syrians in Türkiye to come together based on shared history, culture, language, religion, and traditions, and their involvement in education, carry significant diasporic elements. Specifically, their emphasis on the homeland, mother tongue, and shared history in the educational services they provide within their communities suggests that discussions regarding Syrians in Türkiye should be redirected onto a new platform. The formation of a collective identity by migrants, based on their cultural values and codes, plays a crucial role in the process of identity formation in the host country. The sense of "otherness," exclusion, solidarity, mutual assistance, or common historical memory, rooted in a shared language and identity, contributes to the strengthening and continuity of the collective identity. Following the devastating war in Syria, Syrians dispersed to almost every country in the world, losing significant opportunities for physical communication. However, this same community has managed to reconnect through communication technologies, regardless of their location, creating a shared space around migration, exclusion, otherness, common historical memory, identity markers, and language. Taking all this information into account it can be claimed that Education has taken on different functions among Syrians in Türkiye depending on the length of their stay. In this respect, educational activities, which have retained their importance from day one to the present day, have acquired a diasporic meaning, aiming to maintain or build a collective identity belonging to the homeland of Syria among its members. The existence of educational activities specifically targeting different age groups indicates that a common identity is being built among individuals from different backgrounds. In this sense, education, which aims to express a political stance when necessary, preserve cultural heritage, transmit values to the next generation, or keep historical memory alive, is used to build collective identity among migrants who have left their homeland.

In conclusion, education plays a vital role in preserving cultural and historical memory and passing it on to future generations. Especially for migrant groups, education is crucial for keeping the identity codes and memories they bring to their new environment alive, ensuring their transmission to future generations. The disruption of physical space through communication technologies has drawn attention to the digital sphere. In this context the study claims that Syrians in Türkiye have increasingly engaged in online processes, either through official institutions or informal, individual initiatives. Activities such as communication, solidarity, and education are largely shaped by shared identity markers such as homeland, language, religion, and culture. These markers not only position individuals differently from the dominant culture but also reinforce their sense of belonging to their homeland. Another noteworthy observation in educational announcements is that these communications, information sharing, or general advertisements are often carried out by specific individuals or institutions. As mentioned earlier, certain individuals, drawing on their experiences in Syria, are able to transform these experiences into capital in Türkiye by establishing communication with local educational institutions or organizing independent educational initiatives.

[31] *https://www.facebook.com/100008003981159/videos/576486364195549*

## Declarations

***Funding:*** No funding was received for conducting this study.

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

***Ethical Approval:*** This study analyzed publicly accessible Facebook group posts using a netnographic approach. It did not involve interventions with human participants or animals, nor the collection of personally identifying private data; therefore, ethics committee approval was not required.

***Informed Consent:*** Not applicable.

***Data Availability:*** The analysis draws on publicly accessible Facebook group content. De-identified excerpts, coding notes, and derived analysis materials produced during the study 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

OPUS Journal of Society Research

# The Impact of Armed Conflict on Under Five Mortality: Comparison of Syria and Romania with A Difference-in-Differences Method

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## Abstract

*The purpose of the study was to reveal the effect of armed conflicts on the mortality rates of children under five. This research was conducted using a quasi-experimental difference-in-differences (DID) model on a quantitative longitudinal dataset from Syria and Romania between 2000 and 2023, using Jamovi Version 2.6. According to the findings, being in Syria increased the mortality rate of children under five by 8.9 times compared to Romania. During the period of armed conflict, the mortality rate of children under five in Syria was approximately 10 points higher than in Romania. The results showed that both being in Syria and armed conflicts led to higher mortality rates among children under five. This study clearly revealed the devastating effect of armed conflict on children's fundamental right to life, aiming to provide a concrete basis for improving preparedness and response mechanisms for future humanitarian crises. The research findings not only made significant contributions to the academic literature but also provided directly applicable insights for humanitarian aid and international development policies. The study also brought a new perspective to the field by examining the impact of armed conflict on child mortality under five using data from Syria, one of the most significant conflicts in recent years. The research provided evidence not only of direct violence but also of indirect health and nutrition disruptions. This evidence provides empirical evidence that decision-makers and those who regulate the laws of war can use, enabling more accurate policy development.*

**Keywords:** *Armed conflict, causal inference, under five mortality, Romania, Syria*

## Öz

*Çalışmanın amacı, silahlı çatışmaların beş yaş altı çocuk ölüm oranları üzerindeki etkisini ortaya koymaktır. 2000-2023 yılları arasında Suriye ve Romanya'ya ait nicel uzunlamasına veriler kullanılarak, Jamovi Sürüm 2.6 ile yarı deneysel olan farkların-farkı (DID) modeli ile bir araştırma yürütülmüştür. Bu araştırmanın bulgularına göre, Suriye'de bulunmak, beş yaş altı çocuk ölüm oranını Romanya'ya kıyasla 8,9 kat artırmaktadır. Silahlı çatışma döneminde, Suriye'deki beş yaş altı çocukların ölüm oranı, Romanya'daki çocuklara göre yaklaşık 10 puan daha yüksektir. Elde edilen sonuçlar, hem Suriye'de olmanın hem de silahlı çatışmaların beş yaş altı çocuklar arasında daha yüksek ölüm oranlarına yol açtığını göstermiştir. Bu çalışma, silahlı çatışmanın çocukların temel yaşam hakkı üzerindeki yıkıcı etkisini net bir şekilde ortaya koyarak, gelecekteki insani krizlere hazırlık ve müdahale mekanizmalarının iyileştirilmesi için somut bir temel sağlamayı amaçlamıştır. Araştırma sonuçları, akademik literatüre önemli katkılarda bulunmanın yanı sıra, insani yardım ve uluslararası kalkınma politikaları için doğrudan uygulanabilir bulgular sunuldu. Ayrıca çalışma, silahlı çatışmanın beş yaş altı çocuk ölümleri üzerindeki etkisini son yıllarda en önemli çatışmalara sahne olmuş Suriye verisi ile incelediğinden alana yeni bir bakış açısı getirmiştir. Araştırma doğrudan şiddeti değil, aynı zamanda dolaylı sağlık ve beslenme aksamalarına yönelik kanıt sunmuştur. Bu kanıtlar, karar vericilerin ve savaş hukukunu düzenleyenlerin kullanabileceği ampirik kanıtlar olması sebebiyle daha doğru politikalar geliştirilmesini sağlamıştır.*

**Anahtar Kelimeler**: *Silahlı çatışma, nedensel çıkarım, beş yaş altı ölüm oranı, Romanya, Suriye*



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**Ethical Statement:** *Ethical matters may be addressed via editorialoffice@opusjournal.net*

## Introduction

In recent years, armed conflicts in different parts of the world have become one of the most important direct or indirect effects of under-five mortality rate. For example, in many places like Gaza, Syria, Ukraine, etc., there are deaths of children under-five mortality. (Bendavid et al., 2021; Meierrieks & Schaub, 2024; Bonati, 2025; Vesco et al., 2025). Armed conflicts are a significant factor that deeply shakes societies, preventing healthy individuals from maintaining their health status and restricting access to healthcare for individuals whose health status deteriorates (Ekzayez et al., 2021; Arage et al., 2023; David & Eriksson, 2025).

In the last fifty years, instead of wars between equal or dominant countries, it has been observed that armed conflicts have intensified, especially between poorly governed states and their rulers who are not at peace with their people (Hoffman, 2007; Rustad, 2025). These internal conflicts and asymmetric wars are more effective in densely populated areas than in the battlefield, and they lead to more civilian deaths (Wenger & Mason, 2008; Bales & Mutschler, 2025). Armed civil conflicts have spread beyond traditional conflict zones to urban areas with dense civilian populations, particularly affecting children, who are among the most vulnerable groups (Prasad & Prasad, 2009; Ayhan, 2024; Rustad, 2025). Children, who are defenseless and unaware of the situation in the midst of armed conflict, are not only physically affected by the armed conflict but also prevented from accessing the housing, nutrition, health care, education and socio-economic services that are necessary for children to sustain their lives (Dieddah, 1996; Rieder & Choonara, 2011; Goto et al., 2021; Makinde et al., 2023). This situation brings with it a new indirect death in addition to the direct deaths of armed conflict.

One of the most important indicators of a country's development is the mortality rate of children under five (Bhusal & Khanal, 2022; Öngel et al., 2022; Şenol et al., 2022). Therefore, one of the most important goals of every country is to reduce the mortality rate of children under five (Armenakyan, 2025). The United Nations has set sustainable development goals to reduce the mortality rate of children under five and improve many other indicators. Achieving these goals by 2030 is considered one of the most important strategic initiatives for every country (Sharrow et al., 2022). Under-five child mortality, which has been particularly sought to be reduced in recent years through international cooperation and individual efforts, remains a crucial issue contributing to the sustainable development goals (United Nations Children's Fund (UNICEF), 2024). These efforts, and the investments made to achieve them, have presented challenges both locally and globally due to the recent armed conflicts (Wang et al., 2024). Data collection difficulties and security concerns in countries and regions experiencing armed conflict severely constrain epidemiological and demographic studies in this area (Daou et al., 2025). While the existing literature broadly addresses general humanitarian crises and migration movements caused by conflicts, studies directly examining the specific and sensitive issue of under-five child mortality are limited. The motivation for this study was to fill this gap in the literature and to uncover the direct and indirect effects of armed conflict, a key determinant of under-five child mortality. The lack of, or only indirect, association between, armed conflict and child mortality under the age of five represents a gap in the literature. This gap hinders a full understanding of the mechanisms and causal chains underlying conflict's impact on child mortality and highlights the need for such studies.

The effects of armed conflict on the mortality of children under five can occur in various ways. The first of these ways is the deaths that occur directly after the devastation and destruction caused by acts of violence caused by armed conflict. In the first way, the explosives, small arms, and air strikes used in armed conflict directly cause physical injuries and deaths to children. Statistical reports for such deaths do not reflect accurate mortality rates (Kadir et al., 2018; Bendavid et al., 2021; Bonati, 2025). A second pathway through which armed conflict affects under-five mortality involves a more complex mechanism that has more impact than direct effects ( Wagner et al., 2018; Mugisho, 2025). The indirect effects of armed conflict, which are broader and more lasting than the

primary effects, include the collapse of health infrastructure, disruption of essential medical services, the cessation of ongoing vaccination campaigns for children, the disruption of food supply chains, and the disruption of sanitation services. These factors leave children vulnerable to infectious diseases, malnutrition, and lack of access to clean water, exacerbating their mortality. These indirect effects are reported to claim more children's lives than the direct conflict-related deaths (Brook, 2024; Ayele, 2025; Ciccacci et al., 2025; Vesco et al., 2025).

Although studies on the subject have generally revealed the impact of armed conflict on deaths of children under five, without eliminating the effects of possible confounding factors, this relationship has been addressed in the context of sustainable development (Hidayati et al., 2022; Bonati, 2025; de Groot et al., 2025). The current study eliminates the effects of potential confounding factors and examines these effects by country and period of armed conflict. This will allow us to compare the increased mortality rates resulting from disruptions to healthcare in countries experiencing armed conflict with indicators from other countries with similar socioeconomic characteristics, free of armed conflict, to the pre-conflict period. In light of this information, the current study aims to fill this important gap in the literature by providing a more comprehensive analysis of the impact of the armed conflict in Syria on under-five mortality. Childhood vaccination rates, a potential confounding factor in the DID model, are considered a significant factor associated with the increase in conflict-related mortality.

To address gaps in the literature, this study aims to examine the impact of armed conflict on under-five mortality not only as a correlation but also within a possible causal relationship, and to uncover its effects. To this end, an attempt was made to isolate the confounding factors of childhood vaccinations to clearly demonstrate the impact of armed conflict on under-five mortality. In this context, the necessary confounding factors were added to the DID model. It is known that childhood vaccines DTP3 and MCV2 are negatively correlated with under-five mortality, thereby reducing under-five mortality. The percentage of DTP3 and MCV2 vaccines in a population is a critical indicator of the resilience of a society's health infrastructure and access to healthcare, and therefore, they were included as confounding factors in the DID model. This allows for a more reliable understanding of the true extent of the under-five mortality crisis in armed conflict zones.

## Method

### Study Type and Model and Assumption

This research was conducted using a quasi-experimental difference-in-differences (DID) model, a quantitative longitudinal dataset.

The DID model is a method that treats policy, intervention, and other situations as an experimental setting. In this research, the armed conflict in Syria was considered a "natural experiment," and in this natural experiment:

***The researched group:*** Syria, where the armed conflict is taking place.

***The comparison group:*** Romania, which has similar socio-economic characteristics but no armed conflict.

***Time:*** Two different periods: "before the armed conflict" and "after the armed conflict."

This research methodology attempts to isolate the net impact of armed conflict on under-five mortality by controlling for time-independent differences between the researched and comparison groups, as well as general trends across these two groups.

To validate the reliability and robustness of the DID method's results, several assumptions must be tested. This ensures confidence in the results obtained from the model. The most important of these assumptions is the parallel trend hypothesis, which tests whether under-five mortality rates in Syria and Romania in the absence of armed conflict follow a similar trend over time. To test this assumption, under-five mortality in pre-war Syria and Romania is presented graphically. Another assumption of the DID method is the presence of potential confounding factors, namely, the problem of endogeneity. To address this issue, the proportion of DTP and two doses of MCV vaccines in the

population are included in the model as potential confounding factors. This allows us to demonstrate the net impact of armed conflict on under-five mortality. To demonstrate the validity and reliability of the DID model's results, Cook's Distance Mean, Durbin-Watson test, VIF, and Tolerance values are also reported.

**Population and Sample**

This study used publicly available data from Syria and Romania, countries with similar demographic and socio-economic characteristics, for the years 2000-2023. Since the entire two countries designated as the population were included in the study, no sample selection method was used.

**Variables, Data, and Data Sources**

This study used secondary data for Syria and Romania, extracted from publicly available United Nations websites for the years 2000-2023 (United Nations, 2025).The sources of these data and the information regarding the variables are provided below:

***Dependent variable:*** Under-five mortality rate (deaths per 1,000 live births)

***Independent variables:***

1. Armed conflict (dummy variable, Before and after 2011, time)
2. Country (dummy variable, Syria or Romania)

***Control variables:***

1. Proportion of the target population who received 3 doses of diphtheria-tetanus-pertussis (DTP3) vaccine (%)
2. Proportion of the target population who received measles-containing-vaccine second-dose (MCV2) (%)

**Measurements**

Variable measurements were used as reported. The dependent variable, under-five mortality rate, represents the rate of under-five child mortality per 1,000 live births. This variable is continuous. Its abbreviation in the model is "UF-MR."

Two independent variables were used in the study. One is a dummy variable, abbreviated "$C^{S-R}$" in the model and represented by "1" for Syria and "0" for Romania. This variable is discrete.

The second independent variable is a discrete variable used for the pre- and post-armed conflict periods, represented by "$AC^{Post}$" in the model, represented by "0" for before 2011 and "1" for after 2011.

Two control variables were included in the study that are thought to influence under-five child mortality. These control variables represent the percentage of children receiving mandatory vaccinations. These variables are represented in the model as "DTP3" and "MCV2." These variables are continuous.

**Statistical Analysis and Model**

A multiple linear regression model was constructed using the difference-in-differences (DID) method, a quasi-experimental method, using both independent variables and control variables with Jamovi Version 2.6 (The jamovi project, 2025).

This model revealed the pure impact of armed conflict on under-five child mortality. The constructed DID model is as follows (Ryan et al., 2015):

$$UF-MR_{it+\beta_0+\beta_1 C^{S-R}+\beta_2 AC^{Post}+\beta_3 C^{S-R} AC^{Post}[+\beta_4 DTP3MCV2]+\varepsilon} \quad (1)$$

Information regarding the terms and abbreviations used in the model is as follows:

$UF\text{-}MR_{it}$: Under-five child mortality rate (dependent variable)

$\beta_0$: Constant term

$\beta_1$: Country coefficient

$C^{S-R}$: 1 for Syria, 0 for Romania (independent variable)

$\beta_2$: Armed conflict coefficient

$AC^{Post}$: 1 after armed conflict, 0 before armed conflict (independent variable)

$\beta_3$: Interaction coefficient of country and armed conflict

$C^{S-R}AC^{Post}$: Interaction of country and armed conflict (independent variable)

$\beta_4$: Control variable coefficient

DTP3, MCV2: Control variables - ε: Error term

## Ethical Statement

Because the data in this study were obtained from a publicly accessible website and did not involve any intervention on humans or animals, it did not require ethics committee approval. No ethical violations were committed throughout the study.

## Results

### DID Assumption Checks

To demonstrate the impact of armed conflict on under-five mortality, several assumptions must be met regarding the difference-in-differences method. The most important of these assumptions is that, in the absence of armed conflict, under-five mortality in Syria and Romania would follow a similar trend over time. To test this assumption, data from Syria and Romania are presented graphically. An examination of the graph in Figure 1 reveals that under-five mortality in both Syria and Romania through 2011 follows a similar trend. Therefore, the most important assumption of the DID method is met, and the resulting findings are reliable.

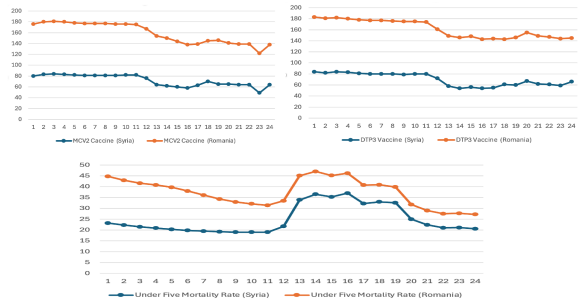


***Figure 1. Under-Five Child Mortality Rate, Proportion of DTP3 and MCV2 Vaccines in Syria and Romania***

Another assumption of the DID method is the consideration of potential confounding factors. In this context, the population proportion of three doses of DTP and two doses of MCV vaccines, which are thought to affect under-five mortality rates, was included in the model to eliminate the effects of potential confounding factors and reveal the net impact of armed conflict.

*Table 1. Assumption Checks of DID Method*

| **Cook's Distance** | | | |
|---|---|---|---|
| | | **Range** | |
| **Mean** | **SD** | **Min** | **Max** |
| 0.026 | 0.04 | 3.37 | 0.22 |
| **Durbin–Watson Test for Autocorrelation** | | | |
| **Autocorrelation** | **DW Statistic** | **P** | |
| 0.105 | 1.857 | 0 .451 | |
| **Collinearity Statistics** | | | |
| | **VIF** | **Tolerance** | |
| Tedavi | 3.25 | 0.4573 | |
| Sonra | 3.18 | 0.5930 | |
| DTP3 Vaccine | 3.49 | 0.4378 | |
| MCV2 Caccine | 4.19 | 0.5821 | |
| Tedavi ⁕ Sonra | 2.33 | 0.4876 | |
| **Tolerance** | | | |
| **Statistic** | **p** | | |
| 0.987 | 0.884 | | |

The validity and reliability of the DID model results depend on meeting certain assumptions. These assumptions are reported in Table 1. An examination of Table 1 reveals that the Cook's Distance mean is 0.02±0.04, significantly less than 1, and therefore, there are no outliers in the model.

The Durbin-Watson test value (DW Statistic = 1.857) was approximately 1.9 and was not statistically significant ($p>0.05$). This value indicates that the error terms in the model are completely independent of each other and there is no autocorrelation (Durbin-Watson Test, 2008). This value is desirable for a regression model.

The VIF and Tolerance values for demonstrating multicollinearity between variables are given in Table 1. The VIF values were found to be less than 5, and the Tolerance value was found to be greater than 0.40, as desired (Miles, 2014).

### DID Model Results

*Table 2. Correlation Results Between Variables*

| | **Under Five Mortality Rate** | **DTP3 Vaccine** | **MCV2 Caccine** | **$C^{S-R}$** | **$AC^{POST}$** |
|---|---|---|---|---|---|
| **Under Five Mortality Rate** | — | | | | |
| **DTP3 Vaccine** | -0.694*** | — | | | |
| **MCV2 Vaccine** | -0.438** | 0.923*** | — | | |
| **$C^{S-R}$** | 0.731*** | -0.778*** | -0.619*** | — | |
| **$AC^{POST}$** | 0.719*** | -0.540*** | -0.692*** | 0.000 | — |

*Note. * p < .05, ** p < .01, *** p < .001*

Table 2 shows the correlations between the dependent, independent, and control variables in the

DID model. A positive and statistically significant relationship was found between the dependent variable (under-five child mortality) and the independent variables (country ($C^{S-R}$) and armed conflict ($AC^{POST}$), while a negative and statistically significant relationship was found between DTP3 and MCV2 vaccines ($p<0.05$). This relationship suggests that a DID model can be established using the relevant variables.

*Table 3. DID Model Fit Measures*

| | | | | | | | Overall Model Test | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Model** | **R** | **$R^2$** | **Adjusted $R^2$** | **AIC** | **BIC** | **RMSE** | **F** | **df1** | **df2** | **p** |
| 1 | 0.92 | 0.85 | 0.84 | 263 | 276 | 3.24 | 48.4 | 5 | 42 | <.001 |

Table 3 reports the goodness-of-fit values for the DID model. The DID model as a whole was found to be statistically significant at $F(5,42) = 48.4$ and $p < 0.001$. When this table is examined, when the Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC) values, which are important for model fit, are interpreted together with the Adjusted $R^2$ (0.84), it is seen that the proposed DID model has a good goodness-of-fit value and sufficient complexity (Gallucci, 2019). The independent and control variables in the model were found to explain approximately 84% of the variance, which is statistically significant. This finding demonstrates that the DID model has good explanatory power.

*Table 4. Omnibus ANOVA Test Results*

| | **Sum of Squares** | **df** | **Mean Square** | **F** | **p** |
|---|---|---|---|---|---|
| $C^{S-R}$ | 54.2 | 1 | 54.2 | 4.52 | 0.040 |
| $AC^{POST}$ | 151.1 | 1 | 151.1 | 12.58 | <.001 |
| DTP3 Vaccine | 181.2 | 1 | 181.2 | 15.08 | <.001 |
| MCV2 Caccine | 139.0 | 1 | 139.0 | 11.58 | <.001 |
| $C^{S-R} \ast AC^{POST}$ | 172.0 | 1 | 172.0 | 14.32 | <.001 |
| Residuals | 504.4 | 42 | 12.0 | | |

Table 4 shows the results of DID multiple regression analysis examining the effects of the independent variables $C^{S-R}$, $AC^{POST}$, and control variables such as DTP3 Vaccine, MCV2 Vaccine, and the interaction variable between $C^{S-R}$ and $AC^{POST}$ on under-five child mortality.

All variables appear to have a statistically significant effect on under-five mortality. The most significant variable in this effect is the interaction variable between $C^{S-R}$ and $AC^{POST}$, which has a particularly strong effect on under-five mortality. The statistically significant effect of this variable indicates that the armed conflict in Syria caused more under-five mortality than in Romania in the period after 2011. This suggests that armed conflict is a significant determinant of under-five mortality (Table 4).

Table 5 shows the effect of country (Syria, Romania) ($C^{S-R}$), armed conflict ($AC^{POST}$), the interaction of country and armed conflict ($C^{SR*}AC^{POST}$), and the control variables 3 doses of diphtheria-tetanus-pertussis (DTP3) and measles-containing-vaccine second-dose (MCV2) on under-five child mortality, the magnitude (estimate) of this effect, and its statistical significance ($p<0.05$).

The constant variable represents the situation where all other independent variables in the model are zero. Accordingly, the estimated value of the constant term is 32.5, and it is found to be statistically significant ($p<0.05$). In other words, when all independent variables are zero, the average under-five child mortality is estimated to be 32.5.

With all other variables in the DID model held constant, it was found that increasing the $C^{S-R}$ by one unit increases the average under-five child mortality by 8.9. This estimate was found to be statistically significant ($p<0.05$). This indicates that being in Syria increases the under-five child mortality rate by 8.9 times compared to Romania.

If the effects of the control variables are eliminated and all other variables are held constant, Syria, where the armed conflict is taking place, has an 8.1% higher under-five child mortality rate than Romania, and this is statistically significant ($p<0.01$).

Each unit increase in DTP3, a potential confounding factor, reduces under-five mortality by an average of 0.8 points, which is statistically significant ($p<0.01$). This finding demonstrates that the DTP3 vaccine is effective in reducing child mortality.

*Table 5. DID Multiple Linear Regression Coefficients Results*

| | | | 95% Confidence Interval | | | | | 95% Confidence Interval | |
|---|---|---|---|---|---|---|---|---|---|
| **Predictor** | **Estimate** | **SE** | **Lower** | **Upper** | **t** | **p** | **Stand. Estimate** | **Lower** | **Upper** |
| Intercept [a] | 32.5 | 12.7 | 6.9 | 58.0 | 2.56 | 0.014 | | | |
| $C^{S-R}$: | | | | | | | | | |
| 1 – 0 | 8.9 | 4.2 | 0.5 | 17.3 | 2.12 | 0.040 | 1.04 | 0.05 | 2.03 |
| $AC^{POST}$: | | | | | | | | | |
| 1 – 0 | 8.1 | 2.3 | 3.5 | 12.7 | 3.55 | < .001 | 0.95 | 0.41 | 1.49 |
| DTP3 Vaccine | -0.8 | 0.2 | -1.1 | -0.3 | -3.88 | < .001 | -1.19 | -1.80 | -0.57 |
| MCV2 Vaccine | -0.5 | 0.1 | -0.8 | -0.2 | -3.40 | <.001 | -0.71 | -1.12 | -0.29 |
| $C^{S-R}$ ✻ $AC^{POST}$: | | | | | | | | | |
| (1 – 0) ✻ (1 – 0) | 10.4 | 2.8 | 4.85 | 15.9 | 3.78 | < .001 | 1.22 | 0.66 | 1.87 |

[a] *Represents reference level, Dependent variable: UF-MR$_{it}$: Under-five child mortality*

Each unit increase in MCV2, a potential confounding factor, reduces under-five mortality by an average of 0.5 points, which is statistically significant ($p<0.01$). This finding demonstrates that the MCV2 vaccine is effective in reducing child mortality.

One of the most important findings of the DID model is the interaction effect ($C^{S-R}$*$AC^{POST}$), which takes into account the interaction between the period of armed conflict and the country, with a value of 10.4 points and a statistically significant ($p<0.01$). This finding demonstrates that the effect of $C^{S-R}$ on under-five mortality varies depending on the $AC^{POST}$ level. Similarly, the effect of $AC^{POST}$ varies depending on the level of $C^{S-R}$.

The combined interaction effects of $C^{S-R}$ and $AC^{POST}$ in the model were found to have a greater effect (an additional increase of 10.4%) than the sum of their individual effects. This finding suggests that both presence in Syria and armed conflict lead to higher rates of death among children under five.

## Discussion and Conclusion

The current study was conducted to demonstrate the impact of the armed conflict in Syria on under-five child mortality by comparing it with Romania, a country with similar demographic and socio-economic characteristics. Both Syria and Romania have medium-sized geographic areas and moderate population densities. They hold significant economic and geopolitical positions within their regions and, although to varying degrees, have centrally planned state healthcare systems. The findings from the DID method, a quasi-experimental method, clearly demonstrated the pure impact of armed conflict on under-five child mortality. The DID model's findings provide a result that considers both child mortality between Syria and Romania, as well as the period before and after the armed conflict began in 2011, without ignoring the interaction between these two factors. The findings of this study demonstrate that under-five child mortality caused by armed conflict is not limited to direct acts of violence but is also related to deaths resulting from the collapse of the health system and the deterioration or dysfunction of infrastructure necessary for humanitarian assistance, which are indirect effects of armed conflict. Results from numerous studies also report that armed conflict directly or indirectly impacts the mortality of children under five (Boukari et al., 2024; Bonati, 2025; Harghandiwal, 2025). These findings suggest that the current study's findings are similar to those in the literature.

When the effect of childhood vaccines such as DTP3 and MCV2, which are confounding factors included in the DID model, is held constant, the under-five mortality rate in conflict-affected Syria is approximately 9 percentage points higher than in politically stable Romania. This finding is consistent with recent studies showing the enduring damage that armed conflict inflicts on health systems and how this exacerbates regional inequalities (Bendavid et al., 2021; Ayhan, 2024; Arage et al., 2023; Ayele, 2025; Bonati, 2025). In fact, a study conducted by Kruk et al. (2018) reported that health systems in regions where armed conflict occurred not only suffered physical destruction, but also their service delivery capacity was permanently reduced due to the loss of motivation and migration of health personnel. This situation is clearly evident in the Gaza war, which has deeply

shaken the conscience of humanity. Hundreds of Gazan children are injured and die daily due to the war, and thousands more are unfortunately unable to receive the necessary healthcare or even access the most basic needs of shelter and food. This reveals the extent to which armed conflict exacerbates child mortality. If sufficient data were available today for empirical studies in Gaza, it would be possible to demonstrate the extent to which armed conflict has increased child mortality. Unfortunately, due to the lack of data on child mortality in Gaza, this dire situation cannot be scientifically demonstrated. Therefore, to prevent anyone from experiencing the same situations in the future as those experienced in armed conflict-ridden regions like Gaza, such as Syria and Ukraine, the relevant scientific evidence must be used by war lawyers, the United Nations, and other humanitarian institutions and organizations to develop policies and legislation addressing the worst-case scenarios. Only then can the impact of scientific studies like these on society be demonstrated.

Based on the findings, the approximately 9-point difference in Syria is thought to be due to the combined effects of the collapse of health infrastructure, the decline in vaccination campaigns, and the rise in malnutrition rates, which are the primary effects of the armed conflict. Romania's stable health system and strong vaccination programs can be considered one of the main reasons for this dramatic gap with Syria (UNICEF, 2021). Based on this finding, it can be concluded that to reduce under-five child mortality in conflict zones, preserving and rebuilding health infrastructure should be a top humanitarian priority, without waiting for the end of military operations. Policies should focus on maintaining these vital services even under challenging circumstances, focusing on uninterrupted vaccination programs and nutritional security, rather than simply providing emergency aid. Investing in resilient national health systems, as in Romania, offers a long-term and lasting solution to preventing dramatic deaths during post-conflict recovery. International aid agencies and local governments should adopt and implement protocols declaring the health system a "non-combat zone."

The findings indicate that under-five mortality during the armed conflict period (after 2011) was approximately 8 points higher than during the pre-armed conflict period (before 2011). This finding confirms that the onset of armed conflict causes an acute increase in under-five mortality, supporting hypotheses reported in the literature. Some studies conducted on the subject appears as another evidence demonstrating this situation. In fact, these studies addressed epidemic diseases in regions where armed conflict took place, and it was reported that factors such as displacement, deterioration of hygiene conditions and disruption of vaccination services in the early stages of the conflict accelerated the spread of deadly diseases such as measles and cholera (Marou et al., 2024; Alfaleh et al., 2025). This finding suggests that health indicators, which were better before the armed conflict, rapidly deteriorated after the onset of the armed conflict, and child mortality increased, particularly due to the proliferation of infectious diseases. This finding highlights the critical importance of understanding the dynamic impact of armed conflict and developing early response mechanisms.

One of the most significant findings of the current research is that the under-five mortality rate in Syria, following the armed conflict, was approximately 10 percentage points higher than in Romania. This result demonstrates that the effects of armed conflict on child mortality increased after the declaration of the conflict and that this increase continues at an increasing rate. Even after the armed conflict has ended, the continued devastation caused by the previous armed conflict and the dysfunction of health institutions highlight an often overlooked reality. This reality necessitates that the post-armed conflict recovery process not only rebuilds economic and political stability but also the health and well-being of the most vulnerable segments of society (Kadir et al., 2018; Wagner et al., 2018; Bendavid et al., 2021; Mhlanga & Ndhlovu, 2023; Wang et al., 2024; Vesco et al., 2025). High under-five mortality rates in post-armed conflict periods can be explained by the legacy of war: destroyed health infrastructure, persistent food insecurity, and psychosocial trauma. The difficulty of restoring vaccination coverage in post-

conflict societies and persistent problems with access to clean water play a significant role in the persistence of this high child mortality (Jawad et al., 2021; Bonati, 2025; Vesco et al., 2025). This finding provides compelling evidence that post-conflict rehabilitation and reconstruction efforts must focus on child health.

While the current study presents some empirical findings on the impact of armed conflict on child mortality under five, it has limitations, as with any study. The first limitation of this study is the existence of some unobservable situations occurring in armed conflict zones. These unobservable or incompletely incorporated factors into the model imply that the reported results may not be conclusive. This, in turn, limits the ability to fully establish causality. It should be noted that data collected during and after the armed conflict may be incomplete or inaccurate due to the breakdown of reporting mechanisms. This limitation makes it particularly difficult to determine the exact number of deaths directly related to the conflict. Secondly, the selection of Romania as the control group, despite its political stability, does not fully reflect the socioeconomic and demographic structure of Syria. Although Romania was chosen for comparison because it shares characteristics most similar to Syria, the inherent differences between the two countries (culture, healthcare system structure, etc.) limit the generalizability of the current study's findings. Finally, the variables used in this study may not fully capture the complex effects of conflict on child mortality. Difficult-to-observe factors such as psychological trauma in conflict zones, alternative solutions to local healthcare (e.g., assistance from Civil Society Organizations), and specific effects of conflict type were not included in the DID model. These limitations provide a basis for future research to examine the conflict-mortality relationship in more detail and contextually. Future studies are recommended to examine armed conflicts in more diverse countries and to examine the effects of armed conflict on under-five mortality using different models.

In conclusion this study aims to provide a concrete foundation for improving preparedness and response mechanisms for future humanitarian crises by clearly demonstrating the devastating impact of armed conflict on children's fundamental right to life. The results of this research will not only contribute significantly to the academic literature but also provide directly applicable findings for humanitarian aid and international development policies. The study's findings can provide compelling evidence demonstrating why rebuilding and strengthening child health services is so critical in post-armed conflict reconstruction efforts. Furthermore, they can contribute to the development of strategies for maintaining uninterrupted child health services even during conflict. Ensuring the safety of children, the most vulnerable, before an armed conflict erupts and implementing protocols to protect them will play a crucial role in achieving the sustainable development goals without interruption, and most importantly, ensuring the continued survival of children, our future.

This research will provide a roadmap for future studies on the topic. However, to expand this roadmap and disseminate its impact, comprehensive studies using new and different methodologies are needed. It is recommended that future studies consider the limitations of this study.

**Declarations**

***Funding:*** No funding was received for conducting this study.

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

***Ethical Approval:*** This study used publicly available, country-level data and did not involve any interventions with human participants or animals; therefore, ethics committee approval was not required.

***Informed Consent:*** Not applicable.

***Data Availability:*** All variables are derived from publicly accessible United Nations datasets for Syria and Romania (2000–2023). The cleaned analytical dataset and derived outputs (e.g., model

specifications, tables, and figures) generated during the study 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

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# Central Bank Communication as a Social Practice in Crisis: AI-Driven Insights into Language, Trust, and Collective Behavior in Türkiye*

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## Abstract

*Central banks govern not only through monetary tools but also through words. This article reframes the policy statements of the Central Bank of the Republic of Türkiye (CBRT) as discursive practices that shape authority, legitimacy, and trust. Using artificial intelligence (AI)-driven computational methods—stylometric analysis, sentiment scoring, clustering, and machine learning—the study analyzes CBRT communication between 2002 and 2017. The findings show systematic linguistic shifts during periods of crisis: sentences become longer, uncertainty markers increase, and sentiment turns more cautious or negative. These results reveal how discourse functions as a performative act of narrative governance, stabilizing expectations when economic conditions are volatile. Interpreted through Foucault's discourse-power framework, Habermas's theory of communicative legitimacy, and Luhmann's conception of trust, the study demonstrates that monetary communication is not neutral information but a social mechanism for managing uncertainty. AI serves as an interdisciplinary bridge, making visible hidden dynamics that connect institutional discourse to social perception. The article contributes by (1) reframing central bank communication as a multidimensional social practice, (2) integrating computational methods with critical social theory, and (3) situating Türkiye's monetary discourse in broader debates on legitimacy and trust in global economic governance.*

**Keywords:** *Central Bank Communication, Stylometric Analysis, Sentiment Analysis, Artificial Intelligence, Narrative Governance, Crisis and Uncertainty*

## Öz

*Merkez bankaları yalnızca para politikası araçlarıyla değil, aynı zamanda kelimeler aracılığıyla da yönetirler. Bu makale, Türkiye Cumhuriyet Merkez Bankası'nın (TCMB) politika açıklamalarını, otorite, meşruiyet ve güveni şekillendiren söylemsel pratikler olarak yeniden ele almaktadır. Çalışmada 2002–2017 dönemi TCMB iletişimi, yapay zeka (YZ) tabanlı yöntemlerle—stilometri, duygu analizi, kümelenme ve makine öğrenmesi—incelenmiştir. Bulgular, kriz dönemlerinde dilin sistematik olarak değiştiğini göstermektedir: cümleler uzamakta, belirsizlik işaretleyicileri artmakta ve söylem daha temkinli ya da olumsuz hale gelmektedir. Bu sonuçlar, söylemin bir anlatı yönetimi (narrative governance) aracı olarak işlev gördüğünü, özellikle ekonomik koşulların dalgalı olduğu dönemlerde beklentileri istikrara kavuşturduğunu ortaya koymaktadır. Bulgular, Foucault'nun söylem-iktidar yaklaşımı, Habermas'ın iletişimsel meşruiyet teorisi ve Luhmann'ın güven kavramsallaştırması üzerinden yorumlanmıştır. Çalışma, para politikası iletişiminin tarafsız bilgi aktarımdan ibaret olmadığını; belirsizlik yönetiminin sosyal bir mekanizması olduğunu göstermektedir. YZ, kurum söylemini toplumsal algıyla ilişkilendiren gizli dinamikleri görünür kılarak disiplinlerarası bir köprü işlevi görmektedir. Makale şu katkıları sunmaktadır: (1) merkez bankası iletişimini çok boyutlu bir toplumsal pratik olarak yeniden çerçevelemek, (2) hesaplamalı yöntemleri eleştirel sosyal teoriyle bütünleştirmek, (3) Türkiye'nin para politikası söylemini meşruiyet ve güven tartışmaları bağlamında küresel ekonomik yönetişim literatürüne yerleştirmek.*

**Anahtar Kelimeler**: *Merkez Bankası İletişimi, Stilometrik Analiz, Duygu Analizi, Yapay Zeka, Anlatı Yönetimi, Kriz ve Belirsizlik*

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## Introduction

Economic policy is constantly measured in numbers—it is interest rates, ranges for inflation, outlook for growth. But such signals always arrive at society in language. Institutional verbs matter. Communications by central banks are not auxiliary to policy but an integral instrument of government. Since monetary decisions are technical, abstract, forward-looking, legitimacy for such decisions is critically dependent upon their exposition and framing in public discourse—at least in periods of doubt and trouble.

The Central Bank of the Republic of Türkiye (CBRT) is particularly representative in this regard. As Turkey's primary monetary authority, the CBRT has operated within complicated and often turbulent political, economic, and social realities. Its communications on policy comment not only upon financial markets but upon the broader public at large, which receives them in parallel with everyday realities: currency shifts, shocks in inflation rates, precariousness in employment. Communication receives specific emphasis here. It is a balancing act between technocratic precision and symbolic reassurance—particularly in moments of crisis when confidence within the public is weakest and institutional credibility is at its weakest.

Most research on central bank communication stems from economics and finance. Dominant is a framework defining communication as a rational signal to investors by gauging its effects based on financial-market responses to words, tone, and sentiment (Blinder et al., 2008). Analytically useful in its own right, it is a framework which reduces language as a policy tool while omitting its discourse- and society-facing features. It therefore does a key thing: it overlooks the fact that policy releases are not communications per se but discourse-constituted texts which are framed in society. They construct institutional meaning, provide economic narratives, and form shared views about credibility, legitimacy, and faith—processes which are foregrounded in moments of systemic disturbance.

This paper works on the premise that communication by a central bank is simultaneously an economic signal and a performative social practice, particularly obvious at moments of economic or political crisis. Following Habermas (1984, 1987), institutions obtain and maintain legitimacy not solely in virtue of authority or technical expertise but in virtue of communicative rationality and openness in their discourse. Foucault (1972) points out that discourse is political by definition—it organizes knowledge and reproduces power. Fairclough (1995) reveals how institutional discourse marks the boundaries of social reality. Luhmann (1995) offers a different take, arguing that trust—weak but indispensable—is continuously (re)produced with communicative action simplifying social and economic Complexity. From this angle, such CBRT policy releases are not formal releases by an administration; rather, they are discursive technologies intermediating authority, stabilizing expectations, and constructing public interpretations at moments of economic or political crisis.

Such an interdisciplinary lens is further enhanced by developments in artificial intelligence (AI). Advances in natural language processing (NLP), stylometry, clustering, and sentiment analysis allow scholars to pinpoint patterns in institutional discourse previously inaccessible or hidden. AI-based approaches can trace changes in linguistic style, shifts in sentiment, and manifestations of rhetorical patterns of the crisis era at a level of accuracy and breadth previously unimaginable. Above all, such computational outputs should not be treated as self-explanatory. Meaning is only brought out when it is framed in an robust social-theoretical framework siting language in the institutional logics of governing, legitimacy, and trust. Whereas Türkiye's inflationary pressure, currency turbulence, and political instability persist across electoral and economic cycles, communication's stakes are unusually high. Citizens are looking not only for monetary direction but also rhetorical reassurance—stories making a volatile tomorrow understandable and governance credible in an unstable state of structural instability. Discursive stability is then no less essential than monetary stability (Holmes, 2014; Shiller, 2017; Bholat et al., 2015). Central bank speech's social side is thus key for an understanding in a state of crisis for its impact upon mass economic behavior and public confidence.

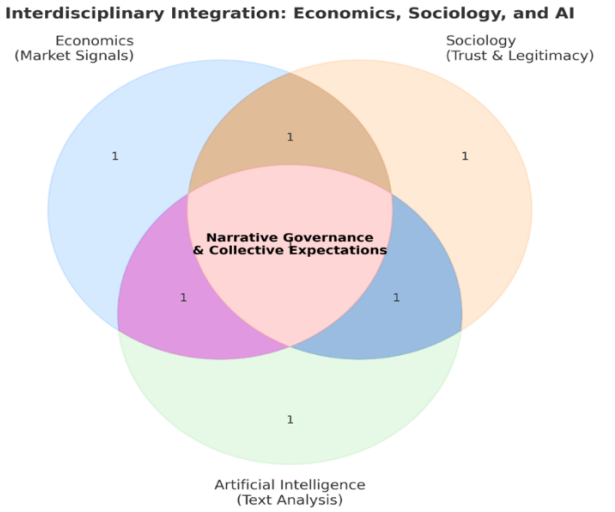


*Figure 1. Interdisciplinary Integration: Economics, Sociology, and AI*

Set against this backdrop, paper asks: How does communication by a central bank, when subjected to AI-oriented computational approaches, function as a social practice of discursive governance while a society is in a state of crisis? To pursue this line of investigation, our research adopts a dual-route approach. Firstly, it employs a set of computational tools like stylometric analysis, sentiment scoring, and principal component analysis on CBRT policy releases in 2006-2017--years when there existed simultaneous financial instability in the world economy as also periodic turbulence in Turkey. Secondly, it interprets those emergent patterns with a critical social-theoretical framework founded upon discourse theory, communicative legitimacy, and institutional trust.

The study contributes in three main ways. Firstly, it reframes communication by the central bank as a multi-dimensional practice incorporating beyond economic signaling a discourse of negotiation and symbolic authority. Secondly, it demonstrates the explanatory power of AI as an epistemic mediator between computational detection and sociological interpretation. Finally, it positions CBRT discourse in its broader political economy landscape in Türkiye so as to reveal how linguistic choices are narrative resources for negotiating crisis, upholding credibility, and influencing group behavior. By integrating economics, sociology, and artificial intelligence, the paper advances an interdisciplinary and integrated account of institutional discourse. It argues not only statement releases by monetary authorities would best be comprehended as monetary signals, but also as constructions in a narrative form—acts of crisis communication undertaking legitimacy, framing belief, and drawing boundaries for public life in a state of uncertainty.

## Literature Review

### Central Bank Communication in Economics

The economic literature on central bank communication has expanded rapidly over the past two decades, recognizing that monetary authorities manage expectations as well as interest rates. Blinder et al. (2008) offered a foundational survey showing that central banks increasingly deploy communication—forward guidance, press conferences, and policy statements—as instruments on par with traditional tools. Such discourse affects exchange rates, bond yields, and inflation expectations, often with quantifiable impacts on market volatility.

In Turkey, CBRT communication has been examined as a credibility device in a high-volatility setting (Başçı & Kara, 2011; Kara, 2012). Scholars emphasize that clarity, consistency, and tone can matter as much as substance, since ambiguity or shifts in narrative may heighten uncertainty rather than contain it. Sentiment analysis indicates that markets react swiftly tonal changes, with positive sentiment compressing risk premiums and negative sentiment amplifying caution among investors (Rosa, 2011; Hansen & McMahon, 2016).

Yet, while economics supplies valuable evidence on market responses, it frequently presumes a rational-actor model and overlooks broader social dimensions. In practice, central bank statements are addressed not only to investors but also to households, firms, and the public sphere, whose reactions are shaped by trust, legitimacy, and perception.

### Institutional Discourse and Social Practices

To bridge this gap, we draw on sociology and communication theory. Discourse analysis shows that language is not merely descriptive but performative: it constructs realities, legitimizes authority, and organizes collective expectations.

Michel Foucault (1972) argues that discourse is a locus of power, defining what may be said, who is authorized to speak, and how authority is exercised. From this vantage, CBRT policy statements operate as discursive regimes that consolidate the bank's standing as a credible institution. Norman Fairclough (1992, 1995), working within critical discourse analysis, demonstrates that institutional texts frame social realities by embedding assumptions, hierarchies, and values. For central banks, word choice and framing thus contribute to constructing economic reality as orderly, governable, and legitimate.

Jürgen Habermas (1984, 1987) adds a legitimacy dimension by linking authority to communicative rationality. Institutions maintain authority not solely through coercion or outcomes but through discourse that is transparent, intelligible, and credible. If central bank statements are opaque, overly technical, or inconsistent, they risk undermining institutional legitimacy. In Turkey, where political and economic uncertainty intersect, CBRT discourse becomes a crucial instrument for sustaining trust in monetary governance.

Niklas Luhmann (1979, 1995) emphasizes trust as a mechanism for reducing complexity. Economic actors cannot fully know the future, nor can citizens fully master the technicalities of monetary policy. They instead rely on trust in institutional communication to manage uncertainty. CBRT statements are therefore not merely informational; they are trust-building acts that enable society to function amid uncertainty.

**Trust, Legitimacy, and Collective Behavior**

The interdisciplinary literature underscores the social consequences of central bank communication. Research on institutional trust shows that public confidence is fragile and can be eroded by inconsistent messaging (Hetzel, 2012; Geraats, 2014). Communication thus works as symbolic reassurance, aligning collective expectations with policy objectives (Holmes, 2014).

In the Turkish case, where inflation has repeatedly challenged social stability, CBRT language carries symbolic weight. It guides financial markets and shapes how citizens read the economy. A household deciding whether to save in Turkish lira or foreign currency, for instance, may respond less to technical detail than to the tone and confidence projected by CBRT communication. This illustrates the dual function of communication: economic signaling and social meaning-making.

**Artificial Intelligence and Computational Approaches**

Recent advances in artificial intelligence (AI) and natural language processing (NLP) have opened new avenues for analyzing institutional discourse. Machine-learning methods such as stylometry, topic modeling, and sentiment analysis uncover latent structures in text that traditional qualitative approaches may miss (Gentzkow et al., 2019; Bender & Koller, 2020).

In monetary economics, AI tools have been used to detect policy uncertainty (Baker et al., 2016), classify central bank tone (Hansen & McMahon, 2016), and measure sentiment in speeches (Shapiro & Wilson, 2022). From a social-science perspective, these techniques enhance our capacity to trace linguistic change in response to crises, political pressures, or institutional transitions. Even so, AI should not displace interpretation. Computational models quantify patterns, but their meaning emerges only when situated within theories of discourse, legitimacy, and trust. This study therefore combines AI-driven linguistic analysis with sociological theory, positioning CBRT communication at the intersection of markets, institutions, and society.

**Financial and Political Shocks in Turkey (2006–2017) and Their Impact on Economic Dynamics**

"In the period between 2006 and 2017, Turkey was exposed to successive financial and political shocks that altered its financial climate and narrative of institutions. The emerging-markets selloff of 2006 precipitated a nearly 30%-plus depreciation of the lira and direct Central Bank interventions in foreign exchange markets (Özsız, 2013). The 2008–2009 international financial crisis further strained market volatility, and connectedness of Turkish assets revealed a structural transformation

during the downturn phase (Bajo-Rubio et al., 2017). Subsequent episodes, such as the 2013 "taper tantrum" and Gezi Park protests, rocked markets further, increasing volatility and sovereign risk (Karime & Sayilir, 2019; Akal et al., 2016). During 2015 and 2016, enhanced security risk and terror attacks dismantled major sectors such as tourism, increasing macroeconomic vulnerability (Seabra et al., 2020). In July 2016 coup attempt induced acute negative abnormalreturns in banking stocks and widening credit-risk spreads, a manifestation of eroding confidence in markets (Alsaifi et al., 2020; Günay, 2019). Even from the time since the crisis phase, political uncertainty remained a force for shaping sensitivity in markets, and sharp reactions followed later phases of politics, including the July 2017 constitutional referendum (Günay, 2016). Separately and combined, omnibus of crises highlights interlinkages among political shock, volatility of markets, and institutional credibility and highlights the determinative relevance of central bank communication as a device of narrative governance amidst turbulence.

**The Interdisciplinary Gap**

The literature in central bank communication acknowledges three distinct threads of research. First, financial scholarship reveals that monetary authorities influence financial markets not only through policy instruments but also through verbal communication—influencing expectations, asset prices, and investor sentiment. Second, sociological and discourse-theoretical scholarship theorizes institutional communication as a performing speech act that establishes legitimacy, authority, and shared meaning. Third, new advancements in artificial intelligence (AI) and natural language processing (NLP) provide new techniques for detecting latent structure in language that makes it possible for large numbers of cases to be analyzed for sentiment, tone, and stylistic shift over time.

However, whilst their complementary potential is vast, those disciplinary approaches barely cross over. Econometric approaches often use rational expectations models that read central bank communication as a one-dimensional signal conveyed by central banks to markets, and often discount its discursive and sociopolitical dimensions. Discourse-based approaches, whilst theories-abundant, frequently have no empirical way of tackling large textual corpora. Computational approaches guided by AI—whilst effective at pattern recognition—frequently is methodologically atomized and not fully contextualized within broader frameworks of institutional legitimacy or crisis government.

This isolation is particularly important in contexts marked by ongoing instability in economics and politics, such as Turkey between 2006 and 2017. Here, a succession of exogenous and endogenous shocks—the emerging market selloff of 2006, the 2008 worldwide financial crisis, the 2013 Gezi Park uprising, and the pre- and post-2016 coup environment—had severely affected macroeconomic behavior and popular trust. In unstable contexts such as this one, communication from a central bank becomes more central. It must simultaneously be a technocratic policy tool and a symbolic reassurance device that is capable, in times of doubt, of stabilizing and legitimating institutional power.

This work fills this interfield gap by creating an intergraded framework that views CBRT communication as a triadic object of inquiry: (i) an economic signal that influences market behavior, (ii) a discursive practice that forges legitimacy and trust perceptions, and (iii) a computational artifact that can be examined through the use of instruments by means of AI. By putting into confluence social theory and computation analysis, the work tries to reveal how linguistic choices within central banking discourse serve as tools of crisis communication—bargaining credibility, shaping institutional history, and tackling popular sentiment within the parameters of structural volatility.

**Theoretical Framework**

The study of central bank communication has typically remained within economics, where policy statements are treated as technical signals transmitted to rational actors. While useful, this perspective risks obscuring the social meaning of institutional discourse—its role in legitimizing authority, structuring expectations, and managing

trust. To move beyond reductionist models, this article adopts an interdisciplinary framework that fuses critical social theory with AI-driven computational methods. Four conceptual pillars support this approach: Foucault's theory of discourse and power, Habermas's theory of communicative legitimacy, Luhmann's systems theory of trust, and the epistemic potential of artificial intelligence in social research.

**Foucault: Discourse and Power**

Michel Foucault's (1972) account of discourse emphasizes that language is never neutral but embedded in systems of power and knowledge. Discourse both reflects and constitutes institutional authority, defining what passes as truth, which narratives are validated, and which are excluded. From this perspective, CBRT policy statements operate not merely as descriptions of monetary policy but as performative acts of governance.

Each statement constructs a discursive order in which the central bank presents itself as rational, authoritative, and stabilizing—particularly salient in periods of turbulence, when monetary authority may be questioned. Foucault's insights thus direct attention not only to what the CBRT says but to how it says it: the rhetorical strategies, technical jargon, and linguistic patterns that sustain institutional power. Here, discourse functions as a technology of governance, and central bank communication is a site where economic authority is reproduced.

**Habermas: Communication and Legitimacy**

Where Foucault centers power, Jürgen Habermas (1984, 1987) foregrounds legitimacy. For Habermas, institutions sustain authority through communicative rationality—the capacity to engage in discourse that is transparent, understandable, and oriented to mutual understanding. In economic governance, central banks cannot rely on technical correctness alone; they must communicate in ways that can be grasped and trusted by society.

CBRT policy statements therefore serve a dual purpose: they inform markets while reassuring the public that monetary governance is rational, transparent, and stability-oriented. Failures—opacity, inconsistency, or excessive technicality—risk eroding legitimacy and breeding distrust. In Habermasian terms, CBRT discourse must balance technical complexity with communicative clarity, remaining both authoritative and accessible.

**Luhmann: Trust and Social Systems**

Niklas Luhmann (1979, 1995) offers a third lens by treating trust as a mechanism for reducing social complexity. In modern economies, actors—investors, firms, and citizens—cannot fully predict outcomes or access complete information. They rely on trust in institutional communication to navigate uncertainty.

For Luhmann, trust is systemic rather than merely psychological: it enables coordinated action under uncertainty. In central banking, trust in communication is essential to policy transmission. If CBRT statements are perceived as credible and consistent, trust is maintained and uncertainty diminishes. If credibility falters, social systems may default to suspicion, fostering currency substitution, capital flight, or inflationary expectations. Accordingly, CBRT statements function as trust-building devices that stabilize expectations for markets and households alike.

**Artificial Intelligence as Epistemic Lens**

While Foucault, Habermas, and Luhmann provide interpretive frameworks, artificial intelligence (AI) supplies a methodological lens for operationalization. AI-driven NLP, stylometry, clustering, and sentiment detection allow scholars to uncover patterns too subtle or large-scale for traditional qualitative methods.

For example: Stylometry can detect shifts in rhetorical style aligned with Foucault's view of discursive power. Sentiment analysis can quantify tone, linking to Luhmann's theory of trust by measuring how linguistic positivity or negativity relates to uncertainty. Clustering and PCA can reveal periods of discourse that correspond to legitimacy challenges, resonating with Habermas's concerns about communicative clarity.

AI thus acts as an epistemic bridge: it does not replace interpretation but strengthens our capacity to connect computational patterns to theoretical insight. In this study, AI is employed not merely as a technical tool but as part of a broader epistemological strategy, showing how interdisciplinary methods can operationalize social theory in analyzing institutional communication.

**Toward an Integrated Framework**

By weaving these perspectives together, the study advances a robust interdisciplinary framework:

- From Foucault, CBRT communication appears as discourse embedded in power relations.
- From Habermas, it is interpreted as communicative action that sustains—or undermines—legitimacy.
- From Luhmann, it is understood as a trust-building mechanism that reduces complexity under uncertainty.
- From AI, we gain techniques to detect, measure, and visualize these dynamics across large corpora.

Taken together, CBRT policy statements emerge as more than technical outputs. They are social texts, performative acts, and computational objects that govern, legitimate, and reassure. This integrated framework not only refines our understanding of central bank communication in Turkey but also demonstrates the broader value of interdisciplinary research for rendering visible the otherwise hidden dynamics of institutional discourse.

**Methodology**

**Research Design**

This study adopts a mixed-methods design that joins computational analysis with theoretical interpretation. Its central objective is to examine how the language of the Central Bank of the Republic of Türkiye (CBRT) operates as a social practice of authority, legitimacy, and trust. To that end, the methodology integrates artificial intelligence (AI)-driven text analytics with interpretive frameworks derived from critical social theory.

The methodological stance is explicitly interdisciplinary. Economics foregrounds empirical regularities in communication and market reactions, whereas sociology and communication studies emphasize discourse, legitimacy, and trust. By combining quantitative linguistic analysis with qualitative theoretical reading, the study operationalizes what OPUS Journal of Society Research calls "an interdisciplinary perspective that enables holistic understanding of social dynamics."

**Data Collection and Corpus Design**

The empirical corpus comprises official policy statements, press releases, and monetary policy committee (MPC) announcements issued by the CBRT between 2006 and 2017. This interval was selected for three reasons:

- It spans multiple economic cycles, encompassing relative stability and severe volatility (e.g., 2008 global financial crisis, 2013 taper tantrum, domestic inflationary pressures).
- It reflects significant institutional changes in CBRT governance, transparency, and independence.
- It yields a sufficiently large linguistic dataset for computational analysis, supporting robustness in stylometric and sentiment-based methods.

All texts were sourced from CBRT's official archives, standardized, and pre-processed (tokenization, stopword removal, stemming/lemmatization) to prepare for computational analysis.

**Computational Techniques**

**Stylometric Analysis**

Stylometry measures statistical properties of writing style—sentence length, word-frequency distributions, function-word usage, and lexical diversity. These features tend to stabilize institutional voice while remaining sensitive to shifts in rhetorical strategy.

***Theoretical Link:*** Foucault's theory of discourse holds that power is embedded in subtle linguistic

practices. Detecting stylistic shifts allows us to observe how the CBRT recalibrates its discursive stance during crises, thereby reconfiguring authority.

**Principal Component Analysis (PCA) and Clustering**

PCA reduces the dimensionality of linguistic features so that texts can be visualized and grouped by similarity. Clustering then identifies distinct eras of communicative style, which can be aligned with historical and economic contexts.

***Theoretical Link:*** Habermas emphasizes communicative clarity and consistency as foundations of legitimacy. Clusters that deviate markedly may index periods of discursive dissonance when legitimacy was contested.

**Sentiment Analysis**

Sentiment analysis quantifies the emotional tone of texts by classifying words as positive, negative, or neutral. In CBRT discourse, shifts in sentiment indicate whether communication projects confidence, caution, or uncertainty.

***Theoretical Link:*** Luhmann argues that trust reduces uncertainty in social systems. Positive or confident sentiment functions as a trust-building mechanism, whereas negative or ambiguous tone may heighten public anxiety.

**Machine Learning Classification**

Supervised learning models classify policy statements into categories such as "stable" versus "crisis" periods, using stylometric variables and sentiment scores as features. Predictive accuracy is evaluated against known macroeconomic conditions,

***Theoretical Link:*** AI-based classification provides empirical grounding for the claim that institutional discourse adapts systematically to social conditions. Identifying features that predict crisis communication links computational results to theories of legitimacy and trust under uncertainty.

**Interdisciplinary Epistemology**

AI is not treated here as a merely technical instrument; it is embedded within an epistemological framework that couples computational rigor with interpretive depth. The methodology rests on three principles:

***Complementarity:*** AI-driven methods detect patterns at scale, while social theory interprets their significance.

**Contextualization:** Outputs are situated in Turkey's political and economic environment so that patterns are not read ahistorically.

**Reflexivity:** Acknowledging limitations of algorithmic methods (Bender & Koller, 2020), the study avoids deterministic claims and employs AI as a lens that amplifies theory-informed interpretation.

**Findings**

**Stylometric Shifts: Authority in Times of Crisis**

The first analysis examined stylometric patterns in CBRT statements from 2006 to 2017. As shown in Figure 2, two key trends emerged: (a) average sentence length increased, and (b) the frequency of uncertainty markers ("may," "could," "uncertain") rose markedly, especially during years of economic turbulence (e.g., the 2008–2009 global financial crisis, the 2013 taper tantrum, and 2016 domestic shocks).

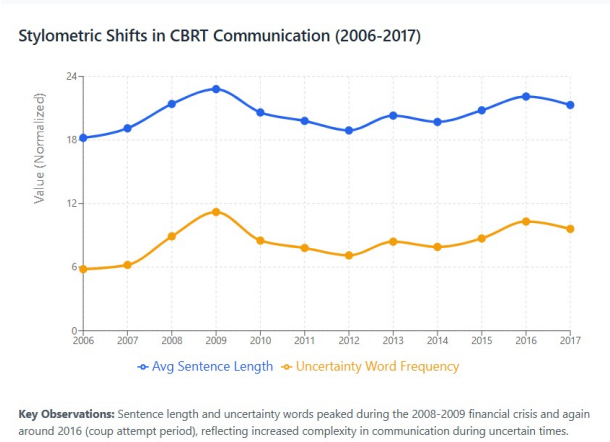


***Figure 2. Stylometric Shifts in CBRT Communication (2002–2017)***

This stylometric evidence supports Foucault's view of discourse as power. In stable years, CBRT communication employed shorter, more direct statements, reinforcing a confident institutional voice. By contrast, in periods of instability, language became longer, more complex, and hedged. Such shifts illustrate how the CBRT recalibrates its discursive strategy: it does not simply describe economic conditions but actively constructs a narrative of cautious authority in the face of uncertainty.

***Interpretation:*** These results highlight that institutional discourse is dynamic. The CBRT uses language not only to convey policy but also to perform stability. In moments when economic authority is under pressure, longer and more hedged communication serves as a discursive strategy to sustain credibility and preserve power.

**Sentiment Dynamics: Trust and Emotional Tone**

The sentiment analysis (Figure 3) revealed a decline in positive sentiment and a corresponding increase in negative sentiment over the study period. While early years (2006-2007) were characterized by relatively optimistic language, subsequent years—especially during crises—showed marked increases in cautious or negative tones.

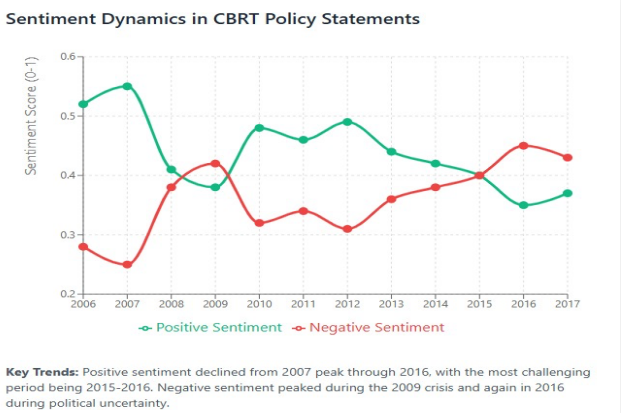


*Figure 3. Sentiment Dynamics in CBRT Policy Statements*

This pattern aligns with Luhmann's theory of trust. Positive sentiment in communication functions as a trust-building device, assuring markets and citizens that the institution remains in control. When sentiment weakens, uncertainty expands, and actors become more inclined to question institutional credibility.

From a Habermasian perspective, sentiment is not mere emotional coloring but an element of communicative rationality. Clear, positive tones help sustain legitimacy by fostering intelligibility and reassurance. Conversely, pessimistic or overly technical language risks alienating the public and diminishing trust in the institution.

***Interpretation:*** The shift toward more negative sentiment in CBRT discourse underscores the fragile linkage among communication, trust, and legitimacy. The findings indicate that language is not neutral—it actively shapes public confidence.

**Clustering and PCA: Regimes of Communication**

The PCA and clustering analysis mapped CBRT statements into distinct clusters (Figure 4), which broadly corresponded to three communication regimes:

- ***Stable Periods (Blue Cluster):*** Defined by consistent, clear communication with balanced sentiment.
- ***Crisis Periods (Red Cluster):*** Marked by longer sentences, greater use of uncertainty terms, and negative sentiment.
- ***Transitional Periods (Orange Cluster):*** Situated between stability and crisis, reflecting cautious optimism or gradual adjustments in institutional tone.

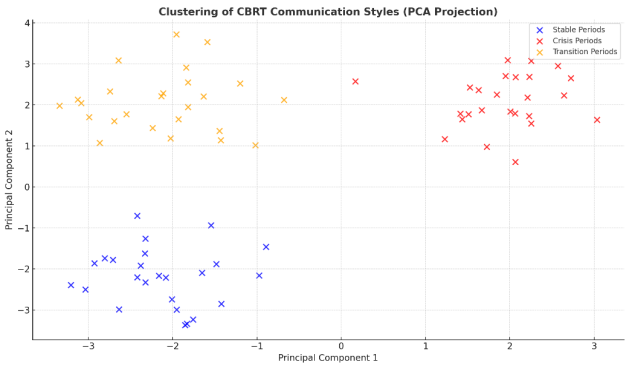


*Figure 4. Clustering of CBRT Communication Styles (PCA Projection)*

These clusters correspond closely to historical economic conditions, indicating that AI-driven techniques can identify discursive regimes that track macroeconomic reality. They also speak to Habermas's concern with legitimacy: when legitimacy is strained, communication tends to become less transparent and more internally dissonant.

Viewed through a Foucauldian lens, the clustering shows how the CBRT reorganizes its discourse under pressure. Each regime marks not merely a technical change in phrasing but a recalibration of the bank's authority and its symbolic position in society.

***Interpretation:*** Communication styles are patterned rather than arbitrary; they form structured regimes that move with economic and political shifts. This underscores the performative nature of monetary discourse, in which language both mirrors and constitutes social reality.

**Machine Learning Classification: Predicting Crisis vs. Stability**

The classification exercise demonstrated that linguistic features alone—absent macroeconomic indicators—could reliably distinguish "stable" from "crisis" periods. The most informative features were:

- Frequency of uncertainty terms.
- Sentiment polarity (positive vs. negative).
- Lexical diversity.

This result reinforces the claim that language operates as a social signal of uncertainty and trust. Even without explicit references to inflation or interest rates, the linguistic texture of CBRT communication encoded institutional responses to turbulence.

***Interpretation:*** AI functions as an interdisciplinary instrument capable of detecting patterns invisible to unaided reading, while theory supplies their meaning. The finding supports the article's central contention that communication is at once an economic signal and a social practice.

**Integrative Analysis**

Taken together, the results indicate that CBRT communication functions as performative discourse. Stylometric variation reveals strategies of authority (Foucault), sentiment dynamics show the construction and fragility of trust (Luhmann), and clustering identifies legitimacy under stress (Habermas). AI-based methods render these dynamics visible, marrying quantitative rigor to qualitative interpretation.

The evidence confirms that central bank communication is constitutive rather than merely informational: it crafts authority, manages trust, and stabilizes legitimacy amid uncertainty.

**Discussion**

**Central Bank Communication as Narrative Governance**

The findings indicate that CBRT policy statements are more than economic signals; they operate as narrative strategies. Consistent with Foucault's account of discourse as a technology of power, the CBRT uses language to frame uncertainty, shape perceptions, and reproduce authority. The stylometric tendency toward longer, more cautious statements in crises shows discourse mobilized as a performative act of governance, stabilizing meaning when material stability is in doubt. This aligns with the notion of narrative governance (Shiller, 2017), wherein institutions steer expectations not only through decisions but through stories about those decisions. CBRT discourse constructs a world in which turbulence is acknowledged yet managed and uncertainty is recognized yet rendered governable. Language thus becomes an instrument of authority, directing how markets and citizens interpret the economy.

**Legitimacy Through Communication**

From a Habermasian standpoint, legitimacy rests not solely on institutional independence but on communicative rationality. The PCA and clustering results show that during volatile periods CBRT

communication grew less consistent and more complex, signaling pressure on legitimacy.

In stable years, statements were clearer and more direct, supporting Habermas's view that transparency sustains legitimacy. In crises, the rhetorical drift toward ambiguity risks undermining it. Hence a structural paradox emerges: precisely when clarity is most necessary, discourse becomes most opaque.

This tension reveals the delicacy of legitimacy in economic governance. Communication must reconcile technical complexity with public demands for clarity; when that balance slips, legitimacy weakens and trust erodes.

**Trust as a Fragile Social Resource**

Sentiment analysis showed declining positivity over time and heightened negativity during crises. In Luhmann's terms, this reflects the fragility of trust as a systemic mechanism. Trust is not automatic; it must be continuously reproduced through steady, reassuring communication. When discourse becomes uncertain, the public's reliance on institutional assurances diminishes, encouraging behaviors that may destabilize monetary outcomes (e.g., dollarization, speculative positioning, inflationary expectations).

CBRT discourse therefore functions as a trust-management system, stabilizing collective behavior under economic complexity. Yet once eroded, trust is difficult to restore—underscoring communication's role not only as an economic tool but as a cornerstone of social cohesion.

**Artificial Intelligence as Interdisciplinary Bridge**

A key contribution of this study is methodological. Integrating AI-driven techniques shows how stylometry, sentiment analysis, and machine learning can surface hidden structures in institutional discourse.

- Through a Foucauldian lens, stylometry reveals subtle shifts in authority.
- Through a Habermasian lens, clustering exposes regimes of clarity and opacity.
- Through a Luhmannian lens, sentiment scores quantify the precarious reproduction of trust

AI thus serves as an epistemic bridge: it does not displace theory but amplifies it, enabling analysis at a scale and precision otherwise unattainable. The study models how quantitative AI tools and qualitative social theory can be integrated to yield deeper insight.

**Implications for Turkey and Beyond**

The Turkish case demonstrates the heightened salience of communication in high-volatility settings. In emerging markets—where structural vulnerabilities are greater and institutional trust less secure—communication becomes central to governance. The CBRT experience shows how language can serve as an asset by stabilizing trust, or as a liability if perceived as ambiguous or inconsistent. Globally, the findings speak to debates over transparency and independence. Even in advanced economies, communication has become a contested arena, as debates around the U.S. Federal Reserve and the European Central Bank illustrate. The lesson is to analyze monetary communication not only as economic signaling but as social discourse that shapes legitimacy and trust across societies

**Limitations and Future Directions**

Despite its contributions, the study has limits. First, AI-driven methods capture linguistic features but cannot fully register contextual subtleties such as political interventions or cultural idioms. Second, sentiment tools may struggle with monetary jargon, necessitating careful calibration. Third, the focus on the CBRT alone constrains generalizability; cross-country comparison would extend the scope.

Future research should:

- Compare regimes across multiple central banks to identify cultural and institutional variation.
- Integrate media and public-opinion data to trace how discourse is received.
- Explore whether advanced AI models (e.g., large language models) yield more context-sensitive analyses, further bridging computation and interpretation.

**Synthesis**

In sum, central bank communication emerges as the construction of social meaning rather than mere information transfer. CBRT discourse reflects the interplay of power (Foucault), legitimacy (Habermas), and trust (Luhmann), while AI provides the methodological bridge that renders these dynamics visible. The interdisciplinary advance lies in demonstrating how computational tools and social theory together illuminate otherwise hidden dimensions of institutional communication.

**Conclusion**

This piece has argued that central bank communication is not simply an economic signal, but a performative social practice through which legitimacy, authority, and trust are built and disputed—above all, in moments of crises. By applying an AI-driven computational approach to policy statements from the Central Bank of the Republic of Türkiye (CBRT) and situating the findings in a critical social-theoretical framework, the work demonstrates how discourse is a key instrument of governance in moments of uncertainty.

The empirical analysis discovered distinctive linguistic transitions related to macroeconomic and political instability. During moments of crisis—e.g., the 2006 panic-selling of the markets, the 2008 global financial crisis, and internal turbulence around the 2013 Gezi protests—stylometric features registered higher sentence structure complexity, higher levels of lexical complexity, and higher usage of words related to uncertainty, serving as a signal of a rebalancing of institutional power. Sentiment analysis also registered decreases in positive tonalities at the same moments, serving as a signal of a fragile production of public credulity. Cluster analysis and machine learning techniques further confirmed the relation between discursive regimes and some moments of instability. These trends collectively confirm that CBRT communication is not a flow of information that is neutral, but a strategic narrative act of governance—an institutional attempt at stabilizing expectations, maintaining credibility, and building public interpretation amidst system turbulence.

The theoretical insight resides at the intersection of Foucault, Habermas, and Luhmann. In a Foucauldian perspective, CBRT discourse establishes a regime of institutional power that produces control through limited speech. Habermas's conception of communicative rationality points out that legitimacy in crisis is not a function of technical expertise per se but must be reconstructed through discursive clearness, transparencies, and rationality. Luhmann's systems theory injects the idea that trust espouses a distinctive prominence in crises, functioning as a necessary social device that reduces complexity and assures continuity while policy cues are dubious or at odds. Overall, the approaches move central bank discourse as a performative and dynamic response to volatility in its social world.

Methodologically, the research positions artificial intelligence as an epistemic amplifier. Stylometry, sentiment scoring, PCA, and unsupervised clustering uncovered patterns that would otherwise lie hidden in traditional qualitative research. Here, however, AI was not positioned as a substitute for interpretation but bridge—augmenting the potential for analysis for theory-informed analysis. In this manner, the research provides a more detailed, multidisciplinary account of institutional communication, especially under the stress test of crisis.

The repercussions extend well beyond Turkey. In environments where political and economic stability is not axiomatic, communication is a central governance tool. It is employed not only for communicating the intention of policy but for recital of legitimacy, balancing anxiety, and signaling continuity amidst disruption. Global discussions of central bank transparency, credibility, and communication to the public would be enriched by viewing monetary discourse less as a signal for markets than as a public narrative—in one that uses language for the sake of meeting uncertainty and aligning belief.

The study has its limitations. Computational methods correctly reveal structural textual patterns, yet cannot recreate contextual political dynamics, institutional constraints, or popular feedback. In addition, the single-country and single-in-

stitution design precludes generalizability. Comparative scholarship at the national and central bank levels, and through media discourses, parliamentary debate discourses, and popular feedback, would help triangulate how institutional stories flow and become contested. Future scholarship also potentially would be informed by new trends in large-scale language models and contextual systems of NLP that would help bridge a divide between pattern recognition through quantitative methods and social meaning. Ultimately, central bank communication—whether in crisis or not—is the intersection of economic policy, popular mood, and institutional survival. Language is not subordinate to policy—it is policy. During turbulent times, discourse is the building through which power is reconstructed, trust is negotiated, and the future is made understandable. By involving economics, sociology, and artificial intelligence in analytic discourse, this article offers a comprehensive framework that makes explicit the hidden dynamics of discursive governance and confirms the broader mission of critical social science: understanding how language, power, and trust build group behavior in an uncertain world.

## Declarations

***Funding:*** No funding was received for conducting this study.

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

***Ethical Approval:*** This research analyzed publicly available institutional texts (policy statements/press releases) and did not involve human participants or animals; therefore, ethics committee approval was not required.

***Informed Consent:*** Not applicable.

***Data Availability:*** The corpus consists of policy statements, press releases, and MPC announcements issued by the Central Bank of the Republic of Türkiye (2006–2017) and is publicly accessible via the Bank's archives. The pre-processed text files, feature sets, and derived analysis outputs produced during the study are available from the corresponding author upon reasonable request.

***AI Disclosure:*** Artificial intelligence–based text analytics (e.g., stylometry, sentiment analysis, clustering, and machine-learning classification) were used for data processing and analysis. No generative AI tools were used for drafting or editing the manuscript; all interpretations and writing were conducted by the author in accordance with scientific research methods and academic ethical principles.

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RESEARCH ARTICLE

OPUS Journal of Society Research

# Deepening Social Inequalities in Health in the Maelstrom of War and Migration: A Multi-Criteria Approach

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## Abstract

*This study analyzes social inequalities in access to healthcare that emerge during periods of war and forced migration using a multi-criteria decision-making (MCDM) approach. The aim is to systematically assess the severity of inequalities that intensify during crises and to propose policy recommendations to reduce them. Based on a literature review, ten main categories of social inequalities in health were identified. To determine their relative weights, expert opinions were collected through an F-AHP questionnaire from six specialists in health management, psychology, sociology, behavioral sciences, and health economics. The analysis revealed that the most important inequalities in accessing healthcare services during war and forced migration are socioeconomic status, cultural and ethnic differences, and legal status. These findings highlight that disadvantaged socioeconomic groups, cultural and linguistic barriers, and uncertainties in legal identity significantly hinder access to essential health services. To mitigate these challenges, resource allocation in crisis settings should primarily focus on reducing such inequalities. Recommended strategies include providing financial support and social assistance to low-income immigrants, expanding cultural mediation services in healthcare institutions, and ensuring multilingual communication. Additionally, adopting a justice-based approach by guaranteeing a minimum level of healthcare for all immigrants, regardless of their legal status, is crucial for promoting equity in health access.*

**Keywords:** *health, war, migration, inequality, multi-criteria decision making*

## Öz

*Bu çalışmada, savaş ve zorunlu göç süreçlerinde sağlık hizmetlerine erişimde ortaya çıkan sosyal eşitsizliklerin çok kriterli karar verme (ÇKKV) yöntemiyle analiz edilmesi amaçlanmıştır. Çalışma, kriz durumlarında derinleşen sağlık eşitsizliklerini sistematik biçimde ağırlıklandırmayı ve bu eşitsizlikleri azaltmaya yönelik politika önerileri geliştirmeyi hedeflemektedir. Sağlıkta sosyal eşitsizlikler literatür taraması neticesinde 10 ana başlıkta belirlenmiştir. Eşitsizliklerin göreceli ağırlık skorlarının belirlenmesi için sağlık yönetimi, psikoloji, sosyoloji, davranış bilimleri ve sağlık ekonomisi alanlarından 6 uzmanın görüşleri F-AHP soru formu aracılığıyla toplanmıştır. Yöntemin ilgili hesaplamaları yapılarak sağlıkta sosyal eşitsizliklerin önem dereceleri belirlenmiştir. Analiz sonuçlarına göre, savaş ve zorunlu göç sürecinde sağlık hizmetlerine erişimde ortaya çıkan en önemli sosyal eşitsizlikler sırasıyla; sosyoekonomik durum, kültürel ve etnik farklılıklar ve yasal durum olarak tespit edilmiştir. Sağlık hizmetlerine erişimin artırılması için kaynak tahsisi öncelikli olarak bu eşitsizliklere yönlendirilmelidir. Düşük gelirli, yoksulluk sınırının altında yaşayan göçmenler için hibeler yoluyla finansal destek ve sosyal yardım mekanizmalarının güçlendirilmesi, sağlık kurumlarında kültürel arabuluculuk hizmetlerinin genişletilmesi, diller ve kültürler arasında iletişim kanallarının oluşturulması önemlidir. Ayrıca göçmenler için hukuki statüye bakılmaksızın asgari düzeyde sağlık hizmeti garantisi sağlanmalı, adalet temelli bir yaklaşım benimsenmelidir.*

**Anahtar Kelimeler**: *sağlık, savaş, göç, eşitsizlik, çok kriterli karar verme*



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**Ethical Statement:** *Ethical matters may be addressed via editorialoffice@opusjournal.net*

## Introduction

Wars and large-scale displacement, often referred to as migration, disrupt the fabric of society and cause serious physical and psychiatric problems among vulnerable populations. Disruptions to healthcare services during this crisis disproportionately impact marginalized groups such as low-income groups, ethnic minorities, and women (Fares & Puig-Junoy, 2021, p.7; Khalifeh et al., 2023, p.2). The destruction of healthcare infrastructure, the inability to provide basic healthcare services, and the general chaos that comes with war can lead to the collapse of healthcare systems in war-torn regions. Indeed, this leads to decreased patient care and increased mortality rates among displaced populations (Izquierdo-Condoy et al., 2025, p.3). Studies in the literature also confirm this view, demonstrating significant declines in the health status of individuals facing forced migration (Agbemenu et al., 2022, p.420; Crowley et al., 2024, p.306).

Accessibility to care is a critical determinant that directly affects health status. The concern is more aggravated in people who are in conflict or who are migrants. For example, Syrian refugees in Egypt face great difficulties in accessing care, while limited resources further complicate their healthcare needs (Fares & Puig-Junoy, 2021, p.7). Forcefully displaced individuals usually have poor health status compared to voluntary migrants. Research shows that forcesly displaced individuals are at higher risk of being affected by poor mental health due to stigmatisation and being socially ostracised in host societies (Frounfelker et al., 2023, p.310; Crowley et al., 2024, p.306). Moreover, in regions such as Ukraine, the pressure placed upon health systems by conflict severely affects access to healthcare services (Goniewicz et al., 2023, p.8). Global institutions believe that it is imperative to ensure equal access to healthcare in order to support resilience in war-affected places and among migrants (Yu & Meng, 2022, p.4).

These situations outlined above highlight the need to take into consideration not only immediate implications of conflict and displacement by arms, as well as disparities in allocation of healthcare resources, but also the general sociopolitical system contributing to such inequalities. Indeed, social determinants of health, including such aspects as economic deprivation, educational status, and availability of support systems, significantly impact the health status of displaced population (Dawkins et al., 2020, p.3; Wenner et al., 2021, p.5). The current literature suggests a wide range of studies regarding social inequalities in terms of health. Khalifeh et al. (2023, p.12) noted that migrants in Lebanon often face barriers such as linguistic difficulties or legal issues, hindering them from accessing critical healthcare services. Hamilton et al. (2022, p.1245) and Lorini et al. (2020, p.1150) also suggest that people without official status in host countries often face difficulties in terms of achieving health insurance and receiving required medical attention. Refuges also often face traumatic experiences due to displacement, which in turn increases risks of developing negative circumstances such as stress disorders and depression. The fact that such individuals encounter disruption of support systems as well as difficulties adjusting to new, unfamiliar systems of medicine further exacerbates this picture (Frounfelker et al., 2023, p.310; Crowley et al., 2024, p.306). In cases of enforced displacement, maternal and reproductive health also decline, revealing yet another dimension of social disparities in terms of medical attention (Small et al., 2017, p.320). In cases of crises, children are subjected to difficulties such as malnutrition, low level of vaccinations, as well as interruptions in educational support, which leave permanent effects both in terms of physical and psychological status (Raharjo et al., 2022, p.30). Geographic remoteness, particularly in rural or distant places such as rural villages, limited access to basic care due to lack of nearby care resources. Forced accommodation and low infrastructure of medical facilities in camps increase inequality (Dzhus & Golovach, 2022, p.2). In countries that are subjected to long-lasting conflict, like Syria, the loss of transport infrastructure and healthcare centers has resulted geographical barriers, hence hindering access to vital services (Ekzayez et al., 2021, p.8). On the flipside, disruption of educational infrastructure in conflict zones leads to low-level health literacy. This is a vital aspect that hinders people's understanding of health needs or effective access to available services (Moeti et al., 2023, p.9). In particular, refugees face exacerbated

barriers in the access to healthcare, struggling with complex systems of host countries, whereby cultural and linguistic disparities further exacerbate barriers (Goniewicz et al., 2023, p.8). Refugees are also subjected to stigmatization and social discrimination associated with particular ethnic affiliations due to enforced seclusion, which directly influences their health status and access to services (Newaz & Riediger, 2020, p.280). Another factor contributing to increased social inequalities in health is the potential for individuals exposed to violence and instability during their developmental years to be at higher risk for a variety of health problems throughout their lives. This impacts their ability to effectively access healthcare for the rest of their lives (Owczarzak et al., 2022, p.1916). Long-term depression and anxiety, particularly those stemming from past trauma, directly impact individuals' willingness or ability to seek healthcare (Spytska, 2024, p.495). Another issue is the severely diminished capacity of healthcare systems in conflict zones. Access to healthcare is directly impacted by capacity. The destruction of healthcare infrastructure, lack of medical personnel, and the loss of basic resources limit the ability of healthcare systems to effectively meet the needs of the population (Goniewicz et al., 2023, p.8). Yemane et al. (2024, p.11) also claim in their work that in situations of conflict, health systems face critical difficulties, with many facilities failing to function due to either shortcomings of resources or direct attacks.

Various studies in the literature frequently emphasize the need to eliminate social inequalities in access to healthcare during crises and develop health policies that target the most vulnerable groups (Tang, 2024, p.456; Khalifeh et al., 2023, p.2; Fenny et al., 2019, p.292). Including communities affected by war and migration in the design and implementation of health strategies is vital to ensuring that their needs are adequately addressed (Oliveira et al., 2025, p.3; Murata & Kondo, 2020, p.200).

Given that quantitative data on health inequalities during war and forced migration are often scarce, expert-based evaluation becomes an essential tool to capture multidimensional and context-specific aspects of inequality. Therefore, obtaining expert opinions ensures the inclusion of interdisciplinary perspectives, particularly when empirical data are limited or fragmented in crisis contexts (Büyüközkan & Çifçi, 2012, p.3005; Gedikli & Kocaman, 2025, p.15; Gavurova et al., 2023, p.8). Moreover, previous studies have also utilized the Fuzzy AHP method to evaluate complex and uncertain phenomena in health systems, such as health policy prioritization and healthcare service inequalities (Bozbura & Beskese, 2007, p.138; Gedikli & Kocaman, 2025, p.15; Sevkli et al., 2012, p.17; Ommane et al., 2025, p.14). Incorporating expert judgment through this approach allows for a systematic weighting of social inequalities in the absence of comprehensive quantitative datasets.

In this context, the aim of this study is to identify social inequalities in access to healthcare that emerge during war and forced migration and to determine their significance using multi-criteria decision-making methods. This study aims to systematically figure out health inequalities exacerbated by crises and to develop policy recommendations to reduce these inequalities.

## Methodology

### Type and Design of the Research

This study aims to degree of importance social inequalities in access to healthcare during war and forced migration processes using Fuzzy AHP, one of the MCDM methods. Indeed, the study design is descriptive and cross-sectional.

### Determining Interventions and Criteria

Social inequalities in healthcare have been identified under 10 main headings as a result of a literature review. These are presented in Table 1, along with explanations and sources.

To determine the weights of these inequalities, 6 experts specializing in public health, health management, health policies, sociology, psychology, and law, and with experience in the research topic, conducted evaluations using F-AHP forms.

*Table 1. Social inequalities in health*

| Abbreviations | Inequalities | Inequalities Explanations | References |
|---|---|---|---|
| **BA** | Barriers to Access | Language barriers, bureaucratic processes, security issues, and inadequate infrastructure make it difficult to access services. | Khalifeh et. al. 2023, p.2 |
| **SS** | Socioeconomic Status | Income loss, unemployment, and economic vulnerability create inequalities in access to healthcare. | Dawkins et al., 2020, p.3; Wenner et al., 2021, p.5 |
| **GF** | Geographical Factors | Conflict zones, refugee camps, and transportation difficulties create barriers to accessing healthcare. | Dzhus & Golovach, 2022, p.2; Ekzayez et al., 2021, p.8 |
| **GA** | Gender and Age | Special health risks faced by women, children, and the elderly during war and migration processes. | Small et al., 2017, p.320; Raharjo et al., 2022, p.30 |
| **PE** | Psychosocial Effects | The impact of trauma, stress, and social isolation on individuals' search for and use of healthcare services. | Frounfelker et al., 2023, p.310; Crowley et al., 2024, p.306 |
| **EHL** | Education / Health Literacy | The impact of individuals' level of familiarity with the healthcare system, knowledge of their rights, and ability to use health-related information on their access to services. | Moeti et al., 2023, p.9; Goniewicz et al., 2023, p.8 |
| **CED** | Cultural and Ethnic Differences | Barriers to accessing healthcare services created by discrimination, exclusion, and integration issues. | Newaz & Riediger, 2020, p.280; Goniewicz et al., 2023, p.8; |
| **LE** | Lifetime Effects | The exacerbation of chronic diseases and long-term health problems after war and migration. | Owczarzak et. al., 2022, p.1916; Spytska, 2024, p.495 |
| **HSC** | Health System Capacity | The level of the host country's health infrastructure, human resources, and political will to respond to refugee health. | Yemane et. al. 2024, p.11; Goniewicz et al., 2023, p.8 |
| **LS** | Legal Status | The determination of access to health services by legal statuses such as temporary protection, insurance, social security, and citizenship. | Hamilton et al. 2022, p.1245; Lorini et. al. 2020, p.1150 |

The experts were selected through a purposive sampling strategy, aiming to ensure diverse disciplinary perspectives relevant to the phenomenon of social health inequalities. Selection criteria included a minimum of ten years of professional or academic experience in areas directly related to health management, migration, or social policy, as well as previous involvement in research or policymaking on inequality and healthcare access (Palinkas et al., 2015, p.540).

*Table 2. Expert details*

| Expert | Area of Expertise | Education Level | Title | Experience (years) |
|---|---|---|---|---|
| **E1** | Public Health | PhD | Prof. Dr. | 20 |
| **E2** | Health Management | PhD | Asst. Prof. | 10 |
| **E3** | Health Policies | Master | Bureaucrat | 16 |
| **E4** | Sociologist | PhD | Assoc. Prof. | 11 |
| **E5** | Psychology | PhD | Prof. Dr. | 18 |
| **E6** | Law | PhD | Assoc. Prof. | 13 |

The experts were contacted through professional and academic networks based on their prior research or institutional experience related to health policy, migration, and social inequalities. Invitations were sent via institutional email addresses, participation was entirely voluntary, and written informed consent was obtained prior to data collection, in line with ethical research standards (Creswell & Poth, 2018).

These questionnaires consisted of questions based on pairwise comparisons of criteria formed from linguistic expressions such as equal, moderate, important, very important, and extremely important. Participants made their assessments according to importance levels from 1 to 9 in line with these questions. Detailed information about the experts is provided in Table 2.

## Analysis of Data

### *Fuzzy AHP*

AHP is a structured decision-making methodology widely used in various fields, including management, engineering, and education, to facilitate complex decision-making by breaking a problem into a hierarchy of subproblems that can be analyzed independently (Saaty, 2008, p.88). AHP allows decision makers to systematically evaluate multiple criteria and alternatives, allowing them to prioritize options according to their relative importance (Saaty, 2008, p.88). The human inclinations between the various alternatives are converted into equal, moderate, important, very important, or extremely important preferences using a nine-point scale (1–9) in the conventional AHP. To avoid bias, the AHP exclusively employs absolute scale values for assessments and the consequent priority. It is quite difficult for the decision-maker to clearly state their preferences using exact

numerical values. To provide accurate pairwise comparison evaluations since some of the evaluation criteria are subjective and qualitative in personality traits. Uncertain decision-making situations are unable to be effectively solved with the standard AHP. To avoid this restriction, which can deal with the ambiguity and imprecision of the service evaluation procedure. Interval or fuzzy evaluations are preferred for dealing with the ambiguity of the data involved in multi-criteria decision-making problems (Kumar & Kumar, 2008, p.4674).

Zadeh developed the fuzzy set theory to address uncertainty resulting from imprecision and ambiguity (Zadeh, 1965, p.340). The ability of fuzzy set theory to represent ambiguous data is one of its major contributions. This theory also enables programming and mathematical operators in the fuzzy domain. A class of objects with a range of membership grades is called a fuzzy set. A membership (characteristic) function that awards each object a membership grade ranging from zero to one defines such a set. Fuzzy logic is required for dealing with issues that are characterized by vagueness and imprecision, as demonstrated by the fact that human judgment on preferences is frequently ambiguous and difficult to estimate by definite numerical values (Büyüközkan & Çifçi, 2012, p.3006). A triangular fuzzy number (M̃), shown in Figure 1, can be denoted as a (l/m, m/u) or (l/m/u). The values l, m, and u are the smallest, most promising, and most significant possible values that may be used to define a fuzzy event, respectively. Each triangular fuzzy number has linear representations on all of its sides, allowing Eq. (1) to be used to construct its membership function (Yüksel & Dağdeviren, 2010, p.1273).

The selection of the F-AHP is directly aligned with the study's aim of identifying and prioritizing multidimensional social inequalities in healthcare during war and forced migration. These inequalities inherently involve subjective judgments and uncertain evaluations, as quantitative data are often limited in conflict-affected regions.

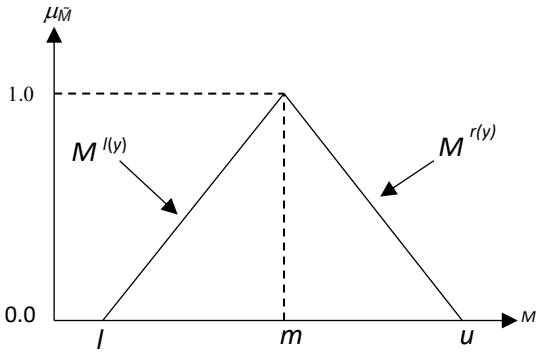


*Figure 1. A triangular fuzzy number, M̃*

The linear representation of the triangular fuzzy number according to the right and left membership degree values is given in Equation 1.

$$\mu(x \mid M) = \begin{cases} 0, & x < l \\ (x-l)/(m-l), & l \le x \le m \\ (u-x)/(u-m), & m \le x \le u \\ 0, & x > u \end{cases} \quad (1)$$

A group of decision-makers is organized to evaluate the criteria and attributes as linguistic variables with the agreement of all their numbers. (Xiaoqiong et al., 2004, p.5233). The decision-makers develop Pairwise comparison matrices using the scale given in Table 3 (Buckley, 1985, p.238).

*Table 3. Triangular fuzzy scales and linguistic expressions*

| Linguistic term | Abbreviation | Relative Importance | Fuzzy scales | Inverse fuzzy scales |
|---|---|---|---|---|
| Equal | E | 1 | 1,1,1 | (1/1, 1/1, 1/1) |
| Moderate | M | 3 | 2,3,4 | (1/4, 1/3, 1/2) |
| Important | I | 5 | 4,5,6 | (1/6, 1/5, 1/4) |
| Very Important | VI | 7 | 6,7,8 | (1/8, 1/7, 1/6) |
| Extremely Important | EI | 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; 1/5, 1/4, 1/3; 1/7, 1/6, 1/5; 1/9, 1/8, 1/7) |

The fuzzy logic framework enables the incorporation of expert opinions and linguistic judgments into a structured decision model, ensuring that both qualitative and quantitative elements of inequality are represented coherently (Mladenović et al., 2025, p.20; Gavurova et al., 2023, p.8). In this sense, F-AHP provides a methodological advantage by transforming expert-based, qualitative assessments into measurable priority weights while preserving uncertainty and ambiguity (Bozbura & Beskese, 2007, p.138; Gedikli & Koca-

man, 2025). This approach allows for a more comprehensive interpretation of inequality dimensions compared to conventional AHP or purely statistical models, which often fail to capture the complexity of social phenomena in crisis contexts (Ommane et al., 2025, p.13).

The steps of Fuzzy AHP analysis can be summarized as follows (Sevkli et al., 2012, p.18; Tuzkaya & Önüt, 2008, p.3138; Büyüközkan & Çiftçi, 2012, p.3006; Gedikli & Kocaman, 2025, p.17).

***Determination of criteria***

The main criteria and sub-criteria to be considered in the decision-making process are defined.

***Making pairwise comparisons***

Expert opinions are obtained, and the criteria are compared pairwise with each other. These comparisons are made using linguistic variables (very important, important, moderate, etc.) and converted into triangular fuzzy numbers as in Table 3.

***Consistency analysis***

The logical consistency of the binary comparisons made is checked. If the consistency ratio is below the acceptable limit (usually 0.10), the results are considered valid.

***Creating the fuzzy decision matrix***

The fuzzy comparison matrix is prepared using the results of the pairwise comparisons. The diagonal of the matrix contains unit values, while the other cells contain the comparison values and their inverses.

***Calculation of fuzzy weights***

Fuzzy weights reflecting the relative importance levels of the criteria are obtained from the matrix. At this stage, the Fuzzy Logarithmic Least Squares Method (FLLSM) is commonly employed to derive the fuzzy weights from the pairwise comparison matrix. The method converts the fuzzy judgments into a logarithmic form and determines the weight vector by solving a set of equations that minimize the logarithmic error. Unlike Chang's Extended Analysis Method, which involves several normalization and defuzzification operations, FLLSM directly computes the relative importance of each criterion through logarithmic averaging, thus providing a more straightforward and consistent estimation of fuzzy weights (Bozbura & Beskese, 2007, p.138).

***Defuzzification***

The obtained triangular fuzzy weights are converted into single (definite) values. Thus, the final and usable weights for each criterion are calculated.

***Interpretation of result***

The weights obtained after defuzzification reveal the order of importance of the criteria and are reported for use in the decision-making process.

**Ethical Aspects of the Research**

The scientific suitability of the research was approved by the Non-Interventional Clinical Research Ethics Committee of a university (Date: 28/08/2025, Decision No: 1070). Written informed consent was provided by all participants using the tenets of the Declaration of Helsinki.

**Results**

The social inequalities in health identified through the literature review were evaluated by experts using AHP forms, and comparison matrices were obtained. The importance levels corresponding to each criterion comparison in the decision matrices were converted to the fuzzy numbers shown in Table 3. The integrated decision matrix was created by taking the geometric mean of the values in the matrix containing the opinions of the six experts (Table 4).

*Table 4. F-AHP integrated decision matrix*

| | BA | | | SS | | | GF | | | GA | | | PE | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **BA** | 1 | 1 | 1 | 0,329 | 0,365 | 0,402 | 4,108 | 4,565 | 5,021 | 5,815 | 6,461 | 7,107 | 1,36 | 1,512 | 1,663 |
| **SS** | 2,464 | 2,737 | 3,011 | 1 | 1 | 1 | 7,2 | 7,85 | 8,36 | 7,11 | 7,23 | 8,2 | 3,724 | 4,138 | 4,551 |
| **GF** | 0,197 | 0,219 | 0,241 | 0,1 | 0,111 | 0,122 | 1 | 1 | 1 | 1,274 | 1,415 | 1,557 | 0,298 | 0,331 | 0,364 |
| **GA** | 0,139 | 0,155 | 0,17 | 0,1 | 0,111 | 0,122 | 0,636 | 0,706 | 0,777 | 1 | 1 | 1 | 0,211 | 0,234 | 0,257 |
| **PE** | 0,595 | 0,662 | 0,728 | 0,218 | 0,242 | 0,266 | 2,718 | 3,02 | 3,322 | 3,847 | 4,275 | 4,702 | 1 | 1 | 1 |
| **EHL** | 0,285 | 0,317 | 0,348 | 0,104 | 0,116 | 0,127 | 1,301 | 1,445 | 1,59 | 1,841 | 2,046 | 2,25 | 0,431 | 0,479 | 0,526 |
| **CED** | 1,831 | 2,035 | 2,238 | 0,669 | 0,743 | 0,818 | 6,8 | 7,15 | 8,6 | 7,68 | 8,4 | 8,63 | 2,768 | 3,076 | 3,383 |
| **LE** | 0,103 | 0,114 | 0,126 | 0,1 | 0,111 | 0,122 | 0,47 | 0,522 | 0,575 | 0,665 | 0,739 | 0,813 | 0,156 | 0,173 | 0,19 |
| **HSC** | 0,864 | 0,96 | 1,056 | 0,316 | 0,351 | 0,386 | 3,945 | 4,383 | 4,821 | 5,584 | 6,204 | 6,825 | 1,306 | 1,451 | 1,597 |
| **LS** | 1,298 | 1,442 | 1,586 | 0,474 | 0,527 | 0,579 | 5,924 | 6,582 | 7,24 | 5,32 | 6,12 | 7,65 | 1,962 | 2,18 | 2,398 |
| | **EHL** | | | **CED** | | | **LE** | | | **HSC** | | | **LS** | | |
| **BA** | 2,843 | 3,158 | 3,474 | 0,442 | 0,491 | 0,541 | 7,864 | 8,738 | 8,9 | 0,937 | 1,041 | 1,146 | 0,624 | 0,693 | 0,763 |
| **SS** | 7,781 | 8,645 | 8,96 | 1,211 | 1,345 | 1,48 | 5,5 | 6,2 | 7,1 | 2,566 | 2,851 | 3,136 | 1,709 | 1,898 | 2,088 |
| **GF** | 0,623 | 0,692 | 0,761 | 0,1 | 0,111 | 0,122 | 1,723 | 1,914 | 2,106 | 0,205 | 0,228 | 0,251 | 0,137 | 0,152 | 0,167 |
| **GA** | 0,44 | 0,489 | 0,538 | 0,1 | 0,111 | 0,122 | 1,217 | 1,352 | 1,488 | 0,145 | 0,161 | 0,177 | 0,1 | 0,111 | 0,122 |
| **PE** | 1,881 | 2,09 | 2,298 | 0,293 | 0,325 | 0,358 | 5,203 | 5,781 | 6,359 | 0,62 | 0,689 | 0,758 | 0,413 | 0,459 | 0,505 |
| **EHL** | 1 | 1 | 1 | 0,14 | 0,156 | 0,171 | 2,49 | 2,767 | 3,043 | 0,297 | 0,33 | 0,363 | 0,198 | 0,22 | 0,242 |
| **CED** | 5,784 | 6,427 | 7,07 | 1 | 1 | 1 | 7,32 | 8,12 | 8,7 | 1,907 | 2,119 | 2,331 | 1,27 | 1,411 | 1,552 |
| **LE** | 0,325 | 0,361 | 0,398 | 0,1 | 0,111 | 0,122 | 1 | 1 | 1 | 0,107 | 0,119 | 0,131 | 0,1 | 0,111 | 0,122 |
| **HSC** | 2,729 | 3,033 | 3,336 | 0,425 | 0,472 | 0,519 | 7,551 | 8,39 | 8,65 | 1 | 1 | 1 | 0,599 | 0,666 | 0,733 |
| **LS** | 4,099 | 4,554 | 5,01 | 0,638 | 0,709 | 0,779 | 6,32 | 6,85 | 6,93 | 1,352 | 1,502 | 1,652 | 1 | 1 | 1 |

Triangular fuzzy numbers were obtained for each criterion comparison in the integrated fuzzy decision matrix. The geometric means of the relevant fuzzy number were calculated according to the row order of the comparison matrix, the sum of the columns was found, and the inverses were taken to obtain the minimum, median, and maximum values (Table 5).

*Table 5. Decision Matrix geometric mean totals and minimum, median, and maximum Values*

| | | Geometric Mean | |
|---|---|---|---|
| | *l* | *m* | *u* |
| **BA** | 1,510317232 | 1,660227029 | 1,795858473 |
| **SS** | 3,183019825 | 3,466766278 | 3,769443467 |
| **GF** | 0,343012516 | 0,377007593 | 0,410710676 |
| **GA** | 0,260667306 | 0,286512294 | 0,311978096 |
| **PE** | 0,999584949 | 1,098925103 | 1,197368346 |
| **EHL** | 0,478347554 | 0,526343982 | 0,572791864 |
| **CED** | 2,666271964 | 2,910279624 | 3,169419523 |
| **LE** | 0,210967155 | 0,231754886 | 0,252645542 |
| **HSC** | 1,450427475 | 1,594681522 | 1,726358315 |
| **LS** | 1,96312118 | 2,160598864 | 2,363931778 |
| **Total** | 13,06573715 | 14,31309718 | 15,57050608 |
| **Inverse** | 0,076536057 | 0,069866081 | 0,064223988 |
| **Sort** | 0,064223988 | 0,069866081 | 0,076536057 |

Then, the fuzzy weights, averages, and normalized relative weights of the criteria were determined. The average and normalized weights are specified in Table 6.

*Table 6. Fuzzy AHP average and normalization weights*

| Abbreviations | Inequalities | Average Weight | Normalized Weight | Rank |
|---|---|---|---|---|
| **BA** | Barriers to Access | 0,116 | 0,115 | 4 |
| **SS** | Socioeconomic Status | 0,245 | 0,242 | 1 |
| **GF** | Geographical Factors | 0,026 | 0,026 | 8 |
| **GA** | Gender and Age | 0,020 | 0,020 | 9 |
| **PE** | Psychosocial Effects | 0,077 | 0,076 | 6 |
| **EHL** | Education / Health Literacy | 0,037 | 0,036 | 7 |
| **CED** | Cultural and Ethnic Differences | 0,205 | 0,203 | 2 |
| **LE** | Lifetime Effects | 0,016 | 0,016 | 10 |
| **HSC** | Health System Capacity | 0,112 | 0,111 | 5 |
| **LS** | Legal Status | 0,152 | 0,151 | 3 |

According to Table 6, the most significant social inequalities in access to healthcare during war and forced migration were found to be "Socioeconomic Status" with a normalized weight score of 24.2%. This was followed by "Cultural and Ethnic Differences" with 20.3% and "Legal Status" with 15.1%. "Lifetime Effects" was determined to be the least significant inequality with a weight of 1.6%.

## Discussion and Conclusion

Within the scope of the study, socioeconomic status was identified as the most significant social inequality in access to healthcare during periods of war and forced migration. During a crisis, resource allocation should primarily focus on addressing

this inequality. It is predicted that individuals' health status will decline most significantly when this inequality is not addressed. Indeed, various studies support this view in the literature. Maia et al. (2024, p.3) emphasized in their study that socioeconomic status is a significant factor in limited access to healthcare during migration and exacerbating existing health problems. Similarly, Dawkins et al. (2020, p.3) and Wenner et al. (2021, p.5) stated that poverty and education level significantly affect the health outcomes of displaced populations. Ngo and Li et al. (2020, p.732), in their study on the cultural identity and adaptation of immigrants in China, found that immigrants with lower socioeconomic status face numerous barriers to accessing basic healthcare services. Meanwhile, Lv et al. (2023, p.4) note that socioeconomic status is significantly associated with health inequalities, and that accessing the healthcare services needed by individuals with lower socioeconomic status is becoming increasingly difficult. In their study on the situation of Syrian refugees in Türkiye, Balcılar and Gulcan (2022, p.5) stated that factors such as demographic background and marital status, intertwined with socioeconomic status, significantly impact access to healthcare services.

The second most vital and prioritized type of social inequality in health was identified as "cultural and ethnic differences." In this context, Fagundo-Rivera et al. (2025, p.410), in their research about the difficulties experienced by irregular migrants in accessing healthcare, sought out and identified several barriers that affect migrants in accessing medical services. Of these barriers, in particular, they pointed out language and cultural barriers, communication barriers due to linguistic differences, and cultural misunderstandings as being especially important. Newaz and Riediger et al. (2020, p.280) noted that refugees also face stigma and social exclusion associated with specific ethnic groups as a consequence of enforced seclusion, which directly influences their health status and services access. On the contrary, Kanengoni et al. (2023, p.166), in their study among a group of immigrant respondents, found that immigrants' cultural expectations in being taken care of by caregivers were not met, resulting in disappointment with access to the healthcare system. Evidently, it is markedly emphasized that not meeting immigrants' cultural expectations and therefore ensuing disappointment may induce disconnection with healthcare services. Likewise, Goniewicz et al. (2023, p.8) noted that refugees, in particular, find it more challenging to access healthcare due to ethnic and cultural barriers, which makes it harder to navigate complex systems in host nations.

The third most significant and prioritized form of social inequality regarding access to healthcare services arises from the legal status of migrants. The ambiguity associated with their legal status, alongside the absence of or complexity surrounding statuses like temporary protection, social security, and citizenship, intensifies the obstacles to obtaining healthcare services. In existing literature, Hamilton et al. (2022, p.1245) and Lorini et al. (2020, p.1150) highlight that migrants lacking legal status within host nations frequently encounter challenges in acquiring health insurance and accessing necessary healthcare services. Likewise, Gogishvili et al. (2021, p.5) assert that migrants in Spain struggle to fulfill the legal prerequisites for utilizing free healthcare services, which are essential for securing healthcare based on their legal identity. Furthermore, Odhiambo et al. (2022, p.850) underscore in their research that Black migrants with uncertain immigration status are excluded from accessing healthcare services due to the absence of health insurance. Additionally, Mbanya et al. (2020, p.5) conducted a qualitative investigation revealing that immigrant women from Sub-Saharan Africa experience even greater limitations in accessing health services as a result of the uncertainty surrounding their legal status.

Research evidence and literature show that barriers to migrants and forcefully displaced individuals in accessing healthcare need to be addressed in a structural and multifaceted approach. The prominent predictor of socioeconomic status underscores that resource allocation and policy planning should focus intensely on this aspect in times of crisis. Individuals with low income, below the poverty line, and without educational prospects are the most vulnerable in terms of healthcare access. The establishment of subsidized healthcare services by means of direct financial services, cash transfers in the form of grants, strengthening of social protection schemes, in addition to establishing

community-based educational projects in order to enhance health literacy, appear as key solutions and strategies. However, linguistic barriers, cultural misunderstandings, and ethnic discrimination further complicate immigrants' access to healthcare systems and lead to further alienation. In order to cross such barriers, it is imperative to increase cultural mediation services in healthcare environments, create communication channels across varying languages and cultures, and provide cultural sensitivity and inclusive communication training to healthcare professionals as both short- and long-term measures. In addition, engaging cultural representatives of immigrant communities in planning healthcare services facilitates establishing more trust and higher contentment in such services. Beyond this, the lack of clarity regarding migrants' legal status systematically excludes them from accessing healthcare. Individuals under temporary protection or under unclear legal status face significant hardships in accessing health insurance and basic services. Meeting such disparities requires providing a guaranteed minimal level of care to all migrants, taking up a justice-based approach to care regardless of their legal status, as well as enact streamlined rules of social security and care access within host societies.

Correcting the three acknowledged social inequalities, both critical and of highest priority, will not only support equal access to care, it will also serve far in improving long-term health status in immigrant groups. Future studies are recommended to conduct comparative analyses encompassing the experiences of different immigrant groups and longitudinal studies to reveal changes in socioeconomic, cultural, and legal inequalities over time. Furthermore, in-depth examination of immigrants' lived experiences, not only through quantitative methods but also through qualitative research, could facilitate the development of more humane and inclusive policies in healthcare planning.

## 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 approved by a Non-Interventional Clinical Research Ethics Committee (Decision No.: 1070; Date: 28 August 2025) prior to data collection.

***Informed Consent:*** Written informed consent was obtained from all expert participants before completing the F-AHP questionnaires; participation was voluntary and confidential.

***Data Availability:*** Due to confidentiality considerations, raw expert questionnaires are not publicly available. De-identified integrated decision matrices, defuzzified weights, and analysis materials generated during the study are available from the corresponding author upon reasonable request.

***AI Disclosure:*** No generative artificial intelligence tools were used in the conception, analysis, writing, or editing of this manuscript. All computations were carried out using standard Fuzzy AHP routines, and all interpretations and writing were performed by the author in accordance with scientific research methods and academic ethical principles.

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