



Regular Article

Factors Shaping Disaster Preparedness of Immigrant Women: Revisiting the Community Engagement Theory

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Abstract Grounded in the principles of Community Engagement Theory and informed by the gender and development framework, this study explored the factors shaping the disaster preparedness of immigrant women, which shed light on their ability to withstand and recover from disasters. This qualitative case study was conducted in Türkiye, focusing on preparedness for common hazards. Using strategic and snowball sampling, 15 immigrant women from diverse backgrounds in Ankara who were mothers of middle-school-aged children were interviewed. While the data were analyzed through content analysis. The findings underscore the pivotal role of children in disseminating disaster knowledge within households. They also highlight the importance of tailoring disaster preparedness efforts to overcome language barriers and of clear communication. The faith-based coping strategies exhibited by the participants are indicative of the resilience derived from their religious beliefs. This research offers valuable insights into the complex interplay of cultural, societal, and individual factors in disaster preparedness. It calls for targeted interventions to enhance disaster resilience, especially among vulnerable groups. Further investigation into the themes uncovered in this study presents promising avenues for future research in disaster management and mitigation strategies.

Keywords: community engagement theory, disaster preparedness, disaster education, immigration, gender

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1. INTRODUCTION

Natural and human-made hazards may take various forms, such as earthquakes, hurricanes, floods, conflicts, or pandemics (Alexander, 1997). Gender significantly shapes how individuals, particularly immigrants, experience risk, mobility, and recovery in disasters, making gender analysis essential for effective disaster risk reduction (DRR). Women often carry disproportionate caregiving responsibilities that limit both evacuation options and access to crucial services. Furthermore, women face specific mobility constraints tied to restrictive gender norms. These constraints include cultural concerns about modesty, such as the potential embarrassment of being seen without a bra when a disaster strikes or after evacuation (Inam, 2025), and limited access to essential hygiene items like pads and tampons during post-disaster periods (Onal & Marangoz, 2025). Coupled with this are societal norms that require male permission to leave the home or caregiving duties that fundamentally delay escape (Bradshaw, 2015). According to the UNDRR (2010), women sustain household health through sanitation, nutrition, and medical care. Nevertheless, they often place their own needs last despite prolonged caregiving for children, older adults, people with disabilities, and the injured. Women also serve as key formal and informal educators, linking households and emergency responders (UNDRR, 2010). These essential contributions, however, are complicated by women's limited decision-making power within households (Dijkhorst & Vonhof, 2005) and the persistent need for gender-sensitive services (International Federation of Red Cross and Red Crescent Societies, 2010), both of which reduce compliance with warnings and elevate disaster risk.

Disasters' far-reaching consequences disrupt social, economic, and environmental structures, significantly influencing affected communities. In this complex web of adversity, immigrant and refugee women stand out due to their precarious circumstances, which are further exacerbated by their status as newcomers in often unfamiliar lands. The term "fragility" aptly describes the situation of immigrant and refugee women when confronted with disasters. The vulnerability of these women stems from a combination of factors, including language barriers, health problems, limited access to resources, legal challenges, cultural disparities, and a lack of social networks to rely on (Méndez et al., 2020; Trentin et al., 2023). Forced to navigate unfamiliar systems and norms, these women encounter unique barriers in disaster preparedness, response, and recovery phases. Additionally, the trauma they carry from pre-migration experiences, such as conflict-induced displacement and persecution, can compound the challenges to their adaptation (Barton et al., 2022; Perreira & Ornelas, 2013) and thus, their confronting disasters in their host countries. While advocating for intersectional and inclusive research on gender and disaster, Enarson et al. (2017) specifically list immigrants, among many other marginalized populations, as a group requiring more focused study. Despite the Sendai Framework for Disaster Risk Reduction mandating the inclusion of migrants as key stakeholders, scholars argue that important dimensions remain under-addressed: Zaidi and Fordham (2021) argue that the framework is incomplete, and issues like migration are entirely omitted, despite their clear relevance to gender-based vulnerability.

The Sendai Framework for Disaster Risk Reduction 2015 prioritizes "resilience" over "vulnerability." The significance of resilience has grown, making it the pivotal concept for enhancing the effectiveness and efficiency of DRR strategies, as highlighted by researchers (Baytiyeh, 2019; Uekusa & Matthewman, 2017; Walsh et al., 2012). Prior research in Türkiye has extensively documented the diverse challenges faced by immigrant populations. For instance, Akar and Erdoğan (2019) focused on the structural and social barriers to long-term integration. Baş et al. (2017) highlighted how socio-cultural and economic shifts post-migration specifically impact the daily lives of women and children. Dedeoğlu and Gökmen (2020) examined the intersection of migration theories and gender, emphasizing the precarious position of immigrant women in the labor market. Despite these contributions, studies explicitly examine their disaster resilience remain scarce. This study aims to identify the conditions of vulnerable segments within society to create a foundation for the educational initiatives in achieving community resilience. The urgency of this focus is further underscored by a systematic literature review by Ryan et al. (2020), which examined studies on community engagement in disaster preparedness and found a notable absence of research from the Turkish context. The present study addresses this gap by utilizing the Community Engagement Theory (CET) to uncover the personal narratives of immigrant women. This research seeks to answer the following question: How do individual, community, and institutional factors influence the preparedness of immigrant women in Türkiye for natural hazards? By centering immigrant women's experiences and needs within DRR efforts, this research contributes to a more inclusive understanding of resilience where one acknowledges structural inequalities and promotes more equitable preparedness strategies.

The remainder of this manuscript is organized into five main sections. First, we detail CET as our theoretical framework. Next, we describe the qualitative case study methodology, the research context in Ankara, and the participant profiles. This is followed by a presentation of the findings structured around the three levels of the CET: individual, community, and societal. We then discuss these results in light of existing literature and the Sendai Framework. Finally, we conclude with practical implications and directions for future research to enhance gender-responsive disaster resilience.

2. THEORETICAL FRAMEWORK: COMMUNITY ENGAGEMENT

Researchers have devoted considerable effort to comprehending the motivations behind disaster preparedness, aiming to enhance individual and community resilience. Numerous theories, such as "*the Health Belief Model, Protection Motivation Theory, PrE (person-relative-to-event) Theory, Theory of Planned Behaviour, Critical Awareness Theory, Social Marketing, Protective Action Decision Model, Social Capital, Community Engagement Theory, and Social Identity Theory,*" contribute to explaining the foundations of disaster preparedness behaviors (Paton, 2019, p.327). CET stands out specifically designed to predict how residents will prepare and adapt their behavior in the face of hazards and disasters. This theory has been validated as a reliable predictor of preparedness behaviors across diverse cultures and

emphasizes psychological motivators at “individual, community, and societal/institutional levels” (Becker et al., 2011; Paton, 2013; Schreurs et al., 2020). Becker et al. (2011) suggested that understanding the elements promoting resilience in a community facilitates the formulation of enhanced risk communication policies and effective strategies for community engagement. By learning the interconnections among these factors and assessing their present levels, researchers and policymakers can design more effective initiatives specifically tailored to the unique characteristics of that community.

According to CET, three levels of factors influence preparedness. The individual-level factors encompass “action coping, beliefs/knowledge, critical awareness, intents, outcome expectancy, responsibility, self-efficacy, and sense of place”; community-level factors include “community participation and collective efficacy”; and societal/institutional-level factors consist of “empowerment and trust” (Becker et al., 2011; Paton, 2019). Self-efficacy denotes one’s self-assessment of capacity to execute a particular action (Glanz et al., 1990), with heightened self-efficacy correlating positively with the inclination toward preventive measures and disaster preparedness (Adams et al., 2019; Armaş et al., 2017; Ning et al., 2021; Paton et al., 2005; Rostami-Moez et al., 2020; Thomas et al., 2015). People tend to be more likely to participate in precautionary efforts and actions for disaster preparedness when they possess the belief in their competence to do so (Marceron & Rohrbeck, 2019; Rostami-Moez et al., 2020; Zaremohzzabieh et al., 2021). Outcome expectancy involves anticipating potential outcomes stemming from preparedness measures (Glanz et al., 2015; Paton, 2003). Research findings indicate that elevated positive outcome expectations among individuals correlate with heightened intentions and behaviors pertaining to disaster preparedness, while conversely, increased negative outcome expectations are associated with diminished intentions and behaviors related to preparedness (Kelly & Ronan, 2018; McIvor et al., 2009). Confidence in the belief that one's actions will yield positive consequences motivates individuals to undertake preventive measures and enhance disaster preparedness. Individuals possessing a heightened level of knowledge exhibit more robust beliefs, intentions, and preparedness behavior, while insufficient awareness and understanding emerge as a prominent factor contributing to inadequate preparedness for emergencies (Ning et al., 2021; Thomas et al., 2015; Xu et al., 2015). Cumulatively, findings from various studies suggest that individuals engaging in training programs or those with involved family members tend to exhibit elevated levels of self-efficacy, knowledge, and preparedness (Ning et al., 2021; Kelly & Ronan, 2018; Armaş et al., 2017).

The concept of action coping highlights an individual's ability to effectively handle challenges and engage proactively in communal endeavors (Becker et al., 2011; Paton, 2007a). It involves confronting life problems and serves as an indicator of a person's overall problem-solving competence, reflecting their experience in resolving daily life issues and cultivating a general inclination to address encountered problems (Becker et al., 2011; Paton, 2007a). Another important component is critical awareness, which is the capacity of an individual to recognize and understand the possible dangers and outcomes of disasters (Becker et al., 2011; Paton & Johnston, 2008). This factor acts as a stimulant for proactive participation in readiness tasks (Becker et al., 2011). Another essential component is intention, which intentionality

describes in the context of disaster preparedness as a person's dedication to seeking information and implementing particular readiness (Paton et al., 2005). The strength of this intention influences one's future actions in preparedness measures (Paton, 2007a). In the realm of disaster preparedness, responsibility entails a person's recognition of their part in their duty to protect not just their individual safety but also to strengthen community resilience (Corwin et al., 2017; Lucas & Booth, 2020). Preparatory measures are driven by the sense of place, which includes the psychological and emotional connection to one's environment (Jorgensen & Stedman, 2001; Silver & Grek-Martin, 2015). People with a profound sense of place are inclined to feel a personal connection to the individuals and locations that comprise their community, hence heightening their dedication to community preservation (DeYoung & Peters, 2016; Peng et al., 2017).

The CET highlights the pivotal role of community-level factors in fostering robust social connections and civic involvement. Community participation, a cornerstone of this theory, underscores the active involvement of individuals in communal activities (Bajek et al., 2008), decision-making processes (Petunia & Selepe, 2020), and shared initiatives (Davidson et al., 2007). This active engagement contributes to social cohesion (Ludin et al., 2019) and also enhances the overall well-being of the community (Cueto et al., 2015). Concurrently, collective efficacy, another integral component, reflects the community's shared belief in its capacity to bring about positive change (Goddard et al., 2004). When residents perceive their collective ability to influence their environment positively, it often leads to increased collaboration and a sense of empowerment (Fay-Ramirez et al., 2015; Martins et al., 2019; Paton et al., 2010).

Lastly, at the societal and institutional level, the CET underscores the significance of empowerment and trust as catalysts for fostering meaningful connections between communities and broader societal structures. Empowerment is the ability of individuals to achieve proficiency in managing their affairs and effectively address challenges and prospects using their inherent resources (Paton, 2007b). Empowerment mirrors the strength of mutual relationships within and beyond communities, bridging community members and societal institutions. This connection facilitates collaboration between communities and agencies, complementing each other's roles in risk management (Becker et al., 2011; Becker et al., 2020). The nature of these relationships determines how much responsibility is delegated to community members, thereby influencing the level of trust (Becker et al., 2015; Paton, 2007b). Trust, on the other hand, is essential for transparent collaboration between communities and institutions, creating a reciprocal exchange of ideas (Han et al., 2021; Paton, 2007b). Trust acts as an intermediary in the connection between empowerment and intentions, influencing subsequent preparations (Paton et al., 2009). When institutions empower and build trust, they cultivate a more inclusive and resilient environment, benefiting both the community and broader society.

2.1 Related Research and Purpose

Researchers have begun to focus on challenges faced by vulnerable groups during disasters, including immigrants (Bai & Lord, 2021). Research themes vary from the critical gap in

immigrants' knowledge and preparedness for basic survival practices due to language barriers and the cultural sensitivities of migrant communities during disasters (Hansen et al., 2013), as well as the need to pay attention to factors that influence immigrant disaster resilience, including socioeconomic status and access to resources (Howard et al., 2017). Collectively, these studies underscore the urgency of addressing the unique challenges faced by immigrant populations in disaster-prone areas and advocate for comprehensive and culturally informed approaches to enhance their overall resilience, suggesting the development of culturally sensitive disaster preparedness programs (Eisenman et al., 2009).

In Türkiye, studies are focusing on disaster preparedness in schools (Ersoy & Kocak, 2016; Gokmenoglu et al., 2021), awareness of disasters involving teachers and students (e.g., Celik & Gundogdu, 2022; Dasci-Sonmez & Gokmenoglu, 2023), and the implementation and content of textbooks and programs (e.g., Gokmenoglu et al., 2023) related to disaster awareness. Additionally, there are studies on the preparedness of adults in various professional groups (e.g., Karanci et al., 2005; Taskiran & Baykal, 2019). Recent studies have examined post-disaster psychosocial support and the inclusiveness of mitigation plans for diverse vulnerable populations, including the elderly, people with disabilities, women, and immigrants (e.g., Arica et al., 2023; Cakir & Atalay, 2020; Celik, 2023; Usta, 2023). However, it is observed that there is a limited number of studies conducted in Türkiye on the educational needs and awareness levels of immigrant populations. In their systematic literature review, Ryan et al. (2020) explored the studies based on community engagement in disaster preparedness, and unfortunately, they did not find any research from Türkiye. This research serves to bridge a significant gap in understanding the experiences of immigrants in disaster contexts. By exploring their personal narratives and challenges from the CET lenses, researchers aim to find valuable insights that can inform the development of tailored support mechanisms to enhance the capacity to effectively navigate such challenging circumstances.

3. METHODOLOGY

3.1 Research Design

The research employed a qualitative case study design to investigate the profound experiences and perspectives of immigrant women in the context of disasters. A case study is a method involving an in-depth and comprehensive analysis of a particular instance by focusing on an individual, a group, an event, or a specific situation, and is used to acquire a comprehension of the complexities and nuances of the subject under investigation (Bogdan & Biklen, 2007). This approach aims to uncover a comprehensive representation of the essential core that underlies the lived experiences of all participants (Creswell & Poth, 2016; Marshall & Rossman, 2014) regarding immigrants' encounters with disasters.

3.2 Research Context

Türkiye is situated in a geographically vulnerable region prone to various natural hazards. Each year, the country faces significant losses in both property and human lives. Furthermore, owing to its sociopolitical position, Türkiye is particularly susceptible to political developments in the Middle East. As a result, it grapples not only with natural hazards like earthquakes, floods, and forest fires but also with conflicts and the resulting displacement crises (Hunter, 2005). Türkiye is home to one of the most extensive immigrant populations globally. The current count of immigrants and refugees living in Türkiye reaches 3.9 million, with more than 90 percent originating from Syria (IOM, 2023). Türkiye continues to grapple with significant hurdles regarding unauthorized migration through both land and sea routes.

On the 6th of February 2023, a pair of consecutive earthquakes struck 11 provinces in the southeastern region of Türkiye (European-Mediterranean Seismological Centre, 2023). The deficiencies in disaster risk management had dire consequences, exacting a heavy toll upon the nation. Numerous lives were lost, as homes, schools, and workplaces crumbled in the face of calamity (Reuters, 2023). Following these seismic shocks, disaster education became one of the most pronounced urgencies to revisit. Amidst this chaos, the immigrant population in Türkiye, hindered by language barriers and other challenges, often finds itself lacking access to vital information.

3.3 Participants

To explore immigrants' challenges and strategies, researchers conducted semi-structured interviews with immigrants residing in one of the most densely populated immigrant districts in Türkiye (Ölmez & Oruç, 2017; Şehitoğlu & Şahin, 2022). Since the interviews would be in Turkish, the participants' proficiency in the Turkish language was a significant factor in selecting the participants. Given that those who have been living in Türkiye for a longer period are likely to have both better language skills and more experience with educational opportunities in Türkiye, the data were collected from 15 mothers of students in a public middle school with a substantial immigrant population as the sample of this research. All participants were unemployed. Those with husbands relied on their employment, while others received state social assistance. Their monthly income was equal to or less than the prevailing net minimum wage as of June 2023, which was 11,402.00 TL (approximately 449.42 US Dollars in June 2023, when the data were collected). To contextualize the lived experiences of participants, brief vignettes were developed for each woman, summarizing their migration histories, family structures, and daily challenges:

Melisa is an immigrant from Tel Afar who has been living in Ankara for five years. She is a married woman and a mother of six children, anchoring a large family across cultures. Only her youngest child was born in Türkiye, while her older children were born in Iraq.

Defne migrated from Mosul to Ankara seven years ago. She is a single mum of four children, though she previously lost one son and his wife in the war. She looks after her granddaughter, who assisted Defne throughout the interview.

Yasemin is an immigrant in Ankara, who was born in Tel Afar, Iraq. As a single parent, she has an only child who was born 11 years ago in Mosul, Iraq. Both Defne and Yasemin lost their husbands in the war.

Deniz is an immigrant from Tel Afar, Iraq, who has been living in Ankara for six years. Deniz is a married woman and a mother of seven children. Her children range in age from 10 months to 20 years old.

Hazal migrated from Mosul, Iraq, who has been living in Ankara for five years. Hazal's husband died when Hazal was only three months pregnant with her youngest in the Iraq War, and now she is a single parent of four children. All of her children were born in Mosul, Iraq.

Zeynep is an immigrant from Mosul, Iraq, who moved to Syria first, and then to Türkiye, all on foot. She lost both her brothers and parents, as well as her husband, on the way. She has now spent six years in Ankara. She is a single parent of four children.

Dilara was born in Tel Afar, Iraq, and has been residing in Ankara for six years. She is married and has six children, all of whom were also born in Tel Afar, Iraq. Children's ages range widely; the oldest is 20 years old, and the youngest is eight.

Suna is from Iraq and has been living in Ankara for six years. She is married to a repairman and has four children. She struggled to calculate her children's ages. Due to the lack of an ID card for one of her daughters, the child is studying at a grade lower than expected.

Bahar is a 35-year-old woman who was born in Iraq and has been residing in Ankara for six years. She is married and has six children. Her first four children were born in Iraq, the fifth in Syria, and the youngest in Türkiye.

Pelin is an immigrant from Iraq who has been residing in Ankara for seven years. Her husband was lost on the way to Türkiye. Thus, she is a single mother of four children, all of whom were born in Iraq. She lives in a rental property, and while all her neighbors are Turkish, she prefers to spend her time with fellow immigrants from Iraq.

Ada is from Iraq and has been residing in Ankara for six years. She is married and has six children. Only her youngest child, who is 18 months old, was born in Türkiye, while her older children were born in Iraq. While all her neighbors are Turkish, Ada prefers to spend time alone at home. Her husband is injured; therefore, he cannot work at a permanent job.

Alya is an immigrant from Tel Afar, Iraq, who has been residing in Türkiye for nine years. Alya and her family spent a year in the refugee camps in Gaziantep and Kahramanmaraş before coming to Ankara. She is married and has six children. She struggles to remember the years she gave birth to her children; she only remembers that the oldest is 13 years old. The first five children were born in Iraq, and the youngest in Türkiye.

Ceren immigrated from Iraq and has been living in Ankara for seven years. She is married and has seven children, all of whom were born in Iraq. Her husband has a health history

of heart attacks, and thus, he does not work; her two oldest children are working to support the family. Due to the language barrier, she was assisted occasionally throughout the interview by her son.

Esra is from Iraq and has been residing in Ankara for six years. She highlighted that those subject to the Temporary Protection Law cannot relocate to other cities unless an official request is submitted. *Esra* and her family decided to settle in Ankara. She is married and has eleven children. The oldest of her children, a 19-year-old son, is married and therefore no longer resides with her. *Esra*'s youngest child, who is two years old, was the only one born in Türkiye.

Like *Esra*, *Canan* is also from Iraq and has been residing in Ankara for six years. She is a single mum of five children, all of whom were born in Iraq. Her husband went missing when they entered Türkiye; therefore, she is legally a widow. Although *Canan* expressed that she had not only Iraqi friends but also Turkish friends in Ankara, she needed linguistic support from time to time during the interview from her daughter.

3.4 Data Collection

To shed light on the immigrants' viewpoints and lived experiences, the data were collected through semi-structured interviews. The comprehensive review of the disaster preparedness and resilience literature and community engagement theory formed the foundation of the interview protocol. The interview questions were organized into 13 categories introduced by Becker et al. (2011), as summarized in Table 1.

Table 1. The unconstrained matrix guided the interview protocol

Themes	Individual-Level Factors	Community-Level Factors	Societal/institutional-Level Factors	Preparedness
Categories	Beliefs/knowledge Critical awareness Action coping Sense of place Outcome expectancy Self-efficacy Intentions Responsibility	Community participation Collective efficacy	Empowerment Trust	

The researchers developed a semi-structured interview protocol comprising 25 open-ended questions, which was revised in consultation with another expert. Interviews were conducted after the earthquakes that occurred on the 6th of February 2023, from the 20th to the 24th of June. The third researcher, who was a teacher at the same school, announced the research invitation to parents who had children in grades 5-8. Volunteering, having at least five years of residence in Ankara, and having a sufficient level of Turkish proficiency were the primary criteria for being selected. Among 18 volunteers, researchers conducted interviews with 15 of

them in person at the school attended by their children, creating a familiar and secure environment for the interviews. After obtaining participants' consent, each interview lasted between 20-30 minutes, was audio-recorded, and subsequently transcribed verbatim. The data had saturated after the 12th participant, so the data collection phase ended after three more participants.

3.5 Data Analysis

The data were subjected to content analysis, a methodology enabling the identification of themes and categories (Saldana, 2011). The interview protocol was based on our comprehensive review of disaster preparedness literature and CET. Consequently, data analysis was structured using deductive content analysis, where the analytical framework was predefined based on existing knowledge, and the objective was to test a theory (Kyngas & Vanhanen, 1999).

The data analysis unfolded in three main phases: preparation, organization, and reporting. In the initial phase, a word-for-word transcription was prepared from the text document comprising all participant-recorded data. Non-relevant data or data outside the scope of the research questions were extracted from the text, simplifying and cleaning the dataset. In the second phase, our initial theme and category framework, derived from the theory and related literature (Becker et al., 2011; Paton, 2019), were deductively applied to the data. The sample data analysis is presented in Table 2.

Table 2. Sample data analysis process

Themes	Categories	Sample Quote	Interpretation
Individual-Level	Action coping	"I would seek assistance from my husband for protection." (Melisa)	Indicates externalized coping and gender dependence, weakening autonomous decision-making capacity.
Community-Level	Community Participation	"My neighbor knocked on my door... we will warn each other." (Bahar)	Indicates supportive neighbor ties but lacks organized preparedness, highlighting low collective efficacy.
Institutional-Level	Trust	"It is the government's responsibility." (Suna)	Shows institutional trust but also over-reliance, which may limit active engagement in preparedness.

Because the first author has extensive experience in migration studies and the second author has extensive knowledge and publications on DRR, the first two researchers independently used Maxqda Pro data analysis software to allocate themes and categories to the data. Similarities and differences in the analyses were examined and discussed by the researchers, and agreed-upon themes and categories were utilized. For unresolved cases, the opinion of the third author was sought, who used to work as a subject teacher at the school where the data

was collected. The intercoder reliability between the first two coders was calculated and found to be 89%. Discrepancies were discussed in coder meetings and resolved by consensus; unresolved cases were referred to a third researcher who made the final decision. When presenting the findings, the categories and codes were exemplified by direct quotations from interview transcripts in order to increase the meaningfulness of the findings for readers. While presenting the data, quotes from parents' opinions were given with pseudonyms at the end of the quotes to ensure confidentiality and anonymity.

3.6 Trustworthiness

In the study, various measures have been taken to address potential limitations and threats. In line with the framework outlined by Lincoln and Guba (1986) to improve the “credibility, transferability, dependability, and confirmability” of the study, a series of measures has been implemented. Firstly, to ensure the credibility of the research, expert opinions were sought during the preparation of interview forms, and after decoding the audio recordings, they were listened to again to eliminate errors. To minimize researcher bias in collecting rich and robust data, adherence to the questions in the interview form was maintained, there was no intervention in participants' responses, and sufficient time was given for participants to express their thoughts appropriately, with no interpretation made by the researchers on their responses. To assure transferability, the data were collected directly from participants with firsthand experience, and efforts were made to present rich explanations, quotes, and descriptions without subjective interpretations, aiming for accessible data. To ensure dependability, two researchers coded two interview datasets, and inter-coder agreement percentages were calculated. Coders evaluated different coded sections together, discussed them, and reached a consensus. Furthermore, to ensure confirmability, the initial data and the codes and themes derived from the data are stored for future examination if needed. Lastly, all participants agreed to give their consents, so the study adhered to ethical guidelines from research design to data collection and analysis, ensuring the privacy and confidentiality of interviewees. Pseudonyms were used to protect their identities. During the interviews, language barriers were encountered occasionally due to the diverse linguistic backgrounds of the participants. To address this challenge, bilingual students acted as interpreters, helping facilitate communication between the researchers and the interviewees. Interpreters (children) participated only after parental permission; their involvement was limited to sentence-level clarification. Audio recordings and transcripts are stored securely on encrypted drives.

4. FINDINGS

The results are structured around four key themes. Figure 1 summarizes the key findings of the study.

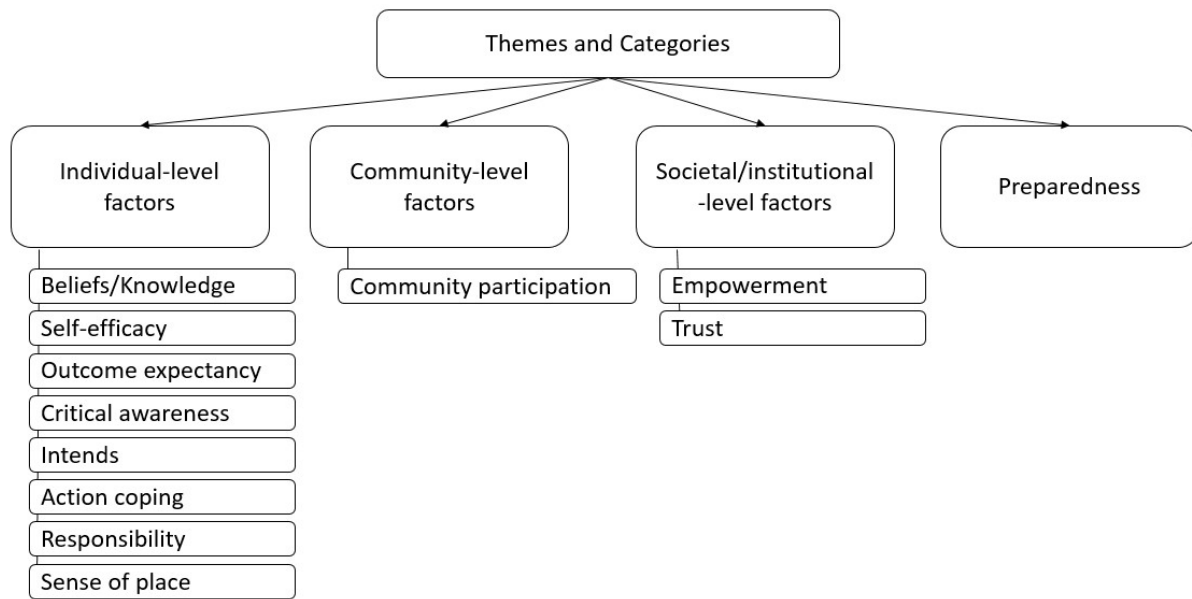


Figure 1. The themes and categories emerged from the data

4.1 Individual-Level Factors

The individual-level factors are categorized as beliefs/knowledge, critical awareness, sense of place, outcome expectancy, self-efficacy, intents, action coping, and responsibility.

4.1.1 Beliefs/Knowledge

Participants' foundational knowledge of disasters was highly fragmented and shaped by their migration histories, cultural interpretations of risk, and gendered life experiences. When initially asked to describe the concept of “disaster” (afet in Turkish), responses ranged from earthquake (Dilara, Suna, Ceren) to war (Defne, Hazal, Zeynep, Pelin, Esra), sadness or emotional devastation (Deniz), and loss of life (Yasemin). Several participants (Ada, Canan) openly expressed not knowing what a disaster was, and others (Dilara, Ceren, Esra) confused the term with AFAD (the abbreviation of Disaster and Emergency Management Presidency), highlighting limited conceptual familiarity and gaps in institutional knowledge access.

This limited understanding became clearer once examples were provided. Participants could then articulate their own affective interpretations, often anchored in memories of conflict-driven displacement. References to bombings, displacement, and tent settlements were recurrent, signaling how past trauma served as the primary cognitive frame through which all hazards, natural or human-made, were evaluated:

The first thing that comes to my mind is what I witnessed during the war in Iraq. Bombs... Aeroplanes...(Pelin)

We were miserable on the roads. My youngest didn't even have diapers when we arrived here in Türkiye. We didn't even have shoes on our feet. According to what we watched on TV after the earthquake in Kahramanmaraş, what those disaster victims went through is just like what happened to us on the way. They are in tents now, for example, we know very well how that feels. We also lived in tents in Syria. There are all kinds of

people in those tents. In the tent, for example, the others did not accept us. We would not sleep until the morning in those tents. (Esra)

Within CET, these narratives illustrate emotionally dominant frames that shape individual-level awareness, often overshadowing technical knowledge. Furthermore, these war-centered interpretations reveal how gendered displacement experiences, caring for children on migration routes, and managing household survival in camps become women's primary reference points for understanding vulnerability.

Regarding the specific types of disasters, Defne, Yasemin, Deniz, Hazal, Zeynep, Ceren, and Esra associated disasters primarily with war events. When specifically asked whether war and migration constitute a disaster, all participants described war as a disaster, while some participants (Yasemin, Deniz, Hazal, Ceren, Canan) noted that migration is not considered a disaster.

It's a very difficult time. Loss of life... So much sadness... We've already been through a lot, bombs fell. People were trapped under houses... We also experienced these. We always remember those moments during this earthquake. (Yasemin)

In war, you can immediately come to Türkiye. But in an earthquake, you can't get out anywhere, you can't escape. Earthquakes are from God. (Canan)

Participants also frequently framed disasters as an outcome of divine will. Except for Alya and Canan, most participants saw hazards as predetermined by God and therefore non-preventable:

I am not afraid of God's work. If God wants something or takes it away, it won't be a problem for me. (Dilara)

In our culture, it is called destiny... Here, they call it a disaster... In our culture, they say calamity. God forbid. (Esra)

Participants' self-reported actions during a disaster further illustrated varying levels of procedural knowledge, often integrating spiritual and emotional coping with basic physical responses. While Deniz, Hazal, and Pelin directly stated that they did not know, the others expressed their actions in a disaster as follows:

Escape from home. (Melisa, Suna)

I would either hide under the table or evacuate. (Defne)

To protect myself, I would seek refuge in God first. (Zeynep)

We should stay away from windows. God protects everything. (Dilara)

While some participants described actions aligning with official guidelines (e.g., avoiding standing in front of windows), most responses reflected role-based responsibilities centered on child protection. These women internalized caregiving as a primary disaster role, often prioritizing children's safety over their own.

If there's an earthquake, I think the door should always be open, don't lock it, and I would leave everything behind and take the children out. (Esra)

I have read the Quran, I would prepare the children and take them out of the house. (Canan)

4.1.2 Self-Efficacy

Participants were asked whether they believed they had sufficient knowledge and skills to protect themselves from disasters. Unfortunately, all participants expressed that they did not feel they had sufficient knowledge and skills.

4.1.3 Outcome Expectancy

Participants were also asked whether disasters could be prevented and whether preparedness measures could effectively protect them. The emerging codes suggested that some participants believed nothing can be done about disasters (Melisa, Bahar, Ada, Ceren), some stated that they did not know (Hazal, Pelin, Alya), while others expressed beliefs such as "God protects/saves" (Deniz, Zeynep) or "precautions protect" (Yasemin, Dilara).

Yes, the children mentioned that we prepare bags and so on... (Yasemin)

Earthquake is God's work. No one can prevent it. (Deniz)

Of course, it would be good if houses were properly built. (Dilara)

4.1.4 Critical Awareness

Participants were asked where they obtained information about disasters, and with whom they discussed and critiqued the topic. Melisa, Defne, Dilara, and Suna mentioned that they gained awareness from television programs and social media.

We learned from television and phones. I also showed it to the children... I checked Instagram, YouTube, and other platforms. We prepared bags. (Dilara)

However, for Deniz, Zeynep, Bahar, and Esra, children acted as intra-household knowledge brokers, with information flowing from schools to mothers rather than through formal channels.

They learned a lot at school. They made houses out of cardboard and took them to the teacher. They say, "Mom, they taught us everything." They tell at home. But I don't know how they did it, like how to drop, how to cover...(Esra)

Similarly, institutional outreach efforts often failed to consider linguistic needs. Although schools attempted to engage parents, information remained inaccessible to many mothers:

They called us, parents, from the school. A woman explained to us how to protect ourselves in the event of an earthquake, how to protect our children, and how to get to a safe place. Things like that... But she told us all these in Turkish. My Turkish is not that good...(Alya)

Participants were asked about their criticisms regarding disasters with other individuals in their community. However, all participants stated that there were no common preparedness efforts or information provided in their neighborhoods, mosques, or apartments. Participants mentioned only sharing information about daily events [during the data collection period, the effects of the February 6th Kahramanmaraş earthquake were ongoing]. However, they indicated that there were no shared discussions or information exchanges regarding protection or proactive preparedness actions, except for praying.

Once in a while, we pay visits to each other with my neighbours. We talk about earthquakes a lot. After the February-6-earthquake, we gathered at one of ours and prayed together. (Defne)

I learned that in disasters like earthquakes, you have to go to open areas. That's what they told me when I was talking to the neighbors. Their own children told them to do so. (Canan)

My neighbor knocked on my door after the Kahramanmaraş earthquake. She told me that I should be careful and prepared for earthquakes and disasters. If she feels an earthquake, she will tell me, and if I feel one, I will knock on her door and warn her. My neighbor is a young girl, studying at the university here in Ankara. (Bahar)

Finally, participants' fatalistic framing of whether disasters could occur in Ankara further illustrated low critical awareness. Most (Defne, Yasemin, Deniz, Hazal, Zeynep, Dilara, Pelin, Ada, Alya, Esra) responded with expressions such as "God forbid" or emphasized divine control over hazard occurrence:

There will be no disaster in Ankara, inshallah. And if so, only God can know about that. (Melisa)

Only God knows this; it is God's work. (Esra)

4.1.5 Intents

The participants refrained from commenting on precautions because they viewed disasters as decisions determined by God. Therefore, they had no intention of preparing at their homes.

We haven't thought about taking precautions; we haven't done anything. Whatever God decides, it will be. (Bahar)

No, disasters are God's command. (Ada)

4.1.6 Action Coping

Participants were asked whether they would generate solutions to problems related to disasters and to provide examples of the types of solutions they could devise. Most described relying on the male head of household as the primary problem-solver. Melisa and Deniz, for example, stated that they would defer entirely to their husbands:

I would seek assistance from my husband for protection. (Melisa)

If the apartment manager alerted me about an earthquake, I would not heed the warning but would follow my husband's advice. (Deniz)

Similarly, it was noted that both participants perceived their response to disasters as a matter of God's doing. Consequently, some participants indicated that they would respond with submission (taqwa), such as through prayer (Suna, Ceren), or by staying put (Deniz, Hazal, Zeynep, Dilara, Bahar, Ada, Esra), rather than taking self-protective measures during a disaster.

4.1.7 Responsibility

Participants were queried regarding their roles in disaster protection and preparedness. None of them cited individual responsibility for disaster protection. Melisa, Hazal, Bahar, Alya, and Esra expressed that they were unsure whose responsibility it was. Defne, Yasemin, and Ada attributed it to God. Suna, Ceren, and Canan pointed to the government's responsibility. Dilara emphasized parental responsibility.

4.1.8 Sense of Place

Participants were asked how long they had been living in Türkiye, in which cities they resided, whether they liked their neighborhoods, districts, and cities, and whether they had neighbors they interacted with. Except for Alya, all participants mentioned that they first came to Ankara in Türkiye and did not move to another city. Although almost all participants had changed their rental houses between 2 to 4 times, they did not change their neighborhoods. They mentioned interacting with both Turkish and Iraqi neighbors and also noted having other relatives in the same neighborhood. All participants strongly emphasized that they loved Türkiye very much.

Thank God, I mean, this place is very good for us. The war was very difficult. We walked from Mosul to Syria. Our days in Syria in tents were challenging. After that, we walked all the way to Türkiye. I lost my two brothers in the war. I lost my mother and father. Thank God a thousand times, we are alive, but after coming here, it was very good for us. I mean, the most important thing is being able to sleep comfortably. We couldn't sleep until morning. We were so scared that we couldn't even eat or drink. When Türkiye took us in, it was like a mother's embrace. (Zeynep)

I have neighbors and friends here. I'm very used to this district now. Iraqis, Turks, and Syrians are usually around my inner circle. I can socialize in the park when I take the children to the playground, or in the hospital when I go for check-ups. The neighbors also liked us, they met us immediately right after we moved in. We visit each other back and forth very frequently. (Esra)

4.2 Community-Level Factors

The community-level factors included opportunities for meaningful participation, shared norms, collective action, and community-level support systems. In this study, two categories were identified: community participation and the *absence* of collective efficacy, which did not emerge in the data.

4.2.1 Community Participation

Participants were asked about their involvement in community activities. None of the participants participated in municipal, apartment management, or NGOs events. Only Defne and Bahar described community involvement through attendance at the local mosque, which served primarily as a space for religious gatherings rather than coordinated preparedness activities. Bahar illustrated this limited form of engagement:

We have neighbors on the first and second floors. We communicate with them. We sometimes talk at the mosque and pray as a precaution. (Bahar)

For most participants, community interactions are defined as informal and gendered social spaces, such as neighbors from the same apartment, relatives living nearby, and meeting other mothers at children's playground. However, Melisa, Ada, and Alya did not interact with anyone outside their family and rarely left the house.

4.3 Societal/Institutional-Level Factors

The societal/institutional-level factors were categorized as empowerment and trust.

4.3.1 Empowerment

Participants were asked whether they felt empowered to participate in disaster preparedness activities or decision-making processes within their apartment buildings, neighborhoods, or local municipal structures. Across the sample, women reported very low levels of institutional empowerment, describing a persistent disconnect between themselves and local authorities.

Participants stated that they were unaware of any earthquake preparedness initiatives occurring in their residential environments and emphasized that no one had invited them to participate or sought their perspectives:

The ones distributing aid come, but they have never talked to us about these matters. I don't know anyone. (Defne)

Local administrators have never come and asked for our opinions or needs. They only check in between and see how many people we are at home, etc. (Deniz)

4.3.2 Trust

Participants were asked about whom they trusted or distrusted among the individuals or organizations providing information on disaster preparedness. A striking and consistent pattern was the explicit trust expressed in the President [Recep Tayyip Erdoğan] and the state. All participants stated that they trusted the President directly, regardless of their personal experiences with public institutions. This reflects a form of institutional trust rooted in symbolic authority, where the state is perceived as the ultimate protector, even when institutional outreach has been limited or absent.

Even if no one from the public administrators comes and informs me, when they make a decision, I follow it. After all, they are the State. I obey what the State says. This is what they taught me since childhood: Whatever the law says, it must be followed. Because the State is for the benefit of everyone. (Ada)

Beyond institutional trust, Defne, Yasemin, and Deniz described gendered interpersonal trust hierarchies embedded within patriarchal household dynamics. Women noted that their primary trust during crises lied with male family members, particularly husbands or sons.

My eldest son is responsible for managing us during any crisis. We trust him the most. (Defne)

Of course, I trust local administrators, but I trust my husband more. (Deniz)

Yasemin emphasized trust in neighbors. This form of horizontal trust, reliance on neighbor warnings, also reflects structural barriers to institutional communication (e.g., language challenges, lack of outreach), pushing women toward informal networks for crisis information:

If the neighbor comes and says, "There is an earthquake, get out," we leave the house. We trust the neighbors. We have no problems with anyone. They like us in the apartment block. (Yasemin)

4.3.3 Preparedness

Participants were queried about their actions and precautions concerning disaster preparedness. Melisa, Defne, Deniz, Hazal, Zeynep, Dilara, Ada, and Alya stated that they did not undertake any preparations. However, it came to light that Yasemin, Dilara, Suna, and Esra had prepared emergency bags. Suna mentioned acquiring knowledge about preparing the bag in Iraq, while others stated they learned from television or their children.

I learned from my child that we should prepare an emergency bag. We put our documents, some medicines, a flashlight, a whistle, and some food that would not smell in each of the bags, and placed one in each room, where I sleep with my child, one in my parents' room, and one in my siblings' room. In case of an earthquake, I will hold my child's hand, grab the bag, and run away. (Yasemin)

5. DISCUSSION

This research shows that immigrant women possess limited scientific knowledge about natural hazards and predominantly interpret them through a faith-based lens, viewing earthquakes as acts determined solely by God. While spirituality may alleviate psychological burdens and foster hope (Bentley et al., 2021; Gozdzia, 2002), it simultaneously diminishes the perceived controllability of natural hazards and leads to a fatalistic worldview similar to that documented among Muslim communities elsewhere (Ali et al., 2019; Taufik & Ibrahim, 2020). This fatalism directly weakens key Community Engagement Theory (CET) predictors, self-efficacy, outcome expectancy, action coping, and empowerment, while reinforcing women's gendered dependence on male household members for protection. Under conditions

of restricted rights, insecure housing, linguistic isolation, and limited mobility, reliance on faith becomes not only a spiritual resource but also a structural response to disempowerment.

Self-efficacy, a core predictor of preparedness (Newnham et al., 2017), was consistently low in this study, with participants perceiving themselves as incapable of protecting their families without male assistance. This mirrors research showing that patriarchal household norms constrain women's agency in disaster decision-making (Hemachandra et al., 2018). Negative outcome expectancy was also pronounced; most participants believed that preparedness efforts would not change God's plan, echoing Becker et al.'s (2011) model. Efforts to strengthen positive outcome expectancy must, therefore, include not only information dissemination (Paton et al., 2008; Vinnell et al., 2020) but also targeted interventions that overcome linguistic, social, and institutional barriers, given that participants relied mostly on informal channels such as neighbors, children, or limited media access.

Critical awareness seems also quite weak, shaped by restricted communication networks, insufficient Turkish proficiency, and the near absence of participation in broader community discussions in this case. Although participants had some interaction with their family members and neighbors, they did not think or talk about disaster prevention. Becker et al. (2011) suggest that people's attitudes and beliefs can influence their critical awareness, potentially leading them to avoid discussing preparation topics. Similarly, the participants may refrain from extensive discussion on this topic due to the prevalence of religious beliefs, particularly in this context. These spiritual beliefs are also associated with their intents to prepare their home and family. An additional barrier to critical awareness lies in participants' restricted access to information sources, including not having television, having limited smartphone/Internet access, being institutionally invisible, or having insufficient Turkish proficiency to understand public messages. These barriers do more than just limit communication; they fundamentally degrade a person's Quality of Life, which has been shown to have a significant effect on Preparedness Behavior among females (Ashida et al., 2026). Furthermore, women's communication networks were confined to small circles of relatives and neighbors, preventing exposure to broader community discussions. These limited social ties, combined with migration-related barriers, hindered the development of collective awareness, a precursor to collective efficacy, explaining why collective efficacy did not emerge in this study. This finding aligns with CET's assumption that collective efficacy is unlikely to develop in environments where individuals are excluded from civic processes and where no shared community identity exists (Becker et al., 2011).

Participants predominantly relied on emotion-focused coping strategies such as prayer, acceptance, or waiting for their husbands' guidance, rather than action-oriented strategies (Duval & Mulilis, 1999). This pattern reflects how gendered power dynamics structure women's disaster responses. Moreover, none of the women had participated in municipal activities or any risk-reduction initiative, confirming their exclusion from local governance and weakening empowerment, trust in institutions, and the belief that they can influence community safety (Paton, 2007b). Such a disconnect is particularly counterproductive given that women can play a vital role during disasters, serving as highly effective agents for disseminating knowledge and information throughout the entire community (Hamidzada &

Cruz, 2020). Their trust was instead personalized and directed toward the President of Türkiye, shaped by aid-based political narratives. Opportunities such as unconditional acceptance of refugees into Türkiye due to war, the ease of obtaining Turkish citizenship, unconditional payment of salaries for every child and spouse by the State, and the unconditional benefit from various social aids are imposed by the ruling party, not as Türkiye's policy, but as personal support from the President in the media. Therefore, the participants in our case may have presented such trust regarding the President in this way. Such reliance on personalized political trust, rather than institutional trust, suggests a deeper structural gap in Türkiye's migration governance and risk communication strategies.

A notable finding is that schools served as the primary and sometimes the only source of formal disaster information, transferred indirectly from children to mothers. This pattern aligns with previous research recognizing children as conduits of disaster knowledge (Lopez et al., 2012; Ronan & Johnston, 2005), but it also resonates strongly with the Sendai Framework's Priority 1 and 3, which emphasize the crucial role of schools in building risk knowledge, strengthening preparedness, and promoting community-level resilience (Twigg, 2009). In contexts where immigrant women are excluded from institutional learning opportunities, schools become a vital bridge between public systems and marginalized households. However, this indirect route places a disproportionate burden on children and reinforces gendered inequities in access: while schools fulfill a critical responsibility under Sendai, the state fails to provide adult immigrant women with direct, linguistically accessible, culturally responsive disaster education.

Overall, the findings illustrate that immigrant women remain structurally marginalized in Türkiye: despite the passing years, participants have not been sufficiently engaged in society, still face serious language barriers, and have not interacted enough with people other than their relatives and fellow immigrants. Their knowledge and beliefs about disasters are lower compared to those of average people in Türkiye (Carpi et al., 2024); they lack scientific knowledge (Derman et al., 2023; Lüssenhop & Kaiser, 2020; Schipolowski et al., 2021), and they tend to make decisions with a stronger religious belief and manage their lives accordingly. These findings also indicate that Türkiye does not have a comprehensive and well-designed migration policy, cannot adequately deal with such a large migrant population, and cannot provide sufficient educational services (İçduygu & Demiryontar, 2022; Sunata & Beyazova, 2022; Uyan-Semerçi & Erdoğan, 2018).

To develop and enhance the predictors of disaster preparedness mentioned in this research, a community resilience-building program for adults should be designed to foster disaster resilience through evidence-based strategies and participatory approaches. It should incorporate active problem-solving exercises to engage participants in addressing local disaster challenges collaboratively. Participants are encouraged to share real-life stories and experiences, promoting learning and collective resilience. The program incentivizes participation in community activities and ensures that hazard information is accompanied by actionable steps for risk reduction. Emphasis is placed on personal responsibility, empowering individuals to take ownership of their safety and well-being. Importantly, such programs should be culturally responsible and accessible; without addressing gendered power relations,

linguistic barriers, and institutional exclusion, community engagement efforts are unlikely to succeed.

6. CONCLUSION

This study underscores the significant barriers immigrant women face, including language limitations, limited access to resources, and strong reliance on faith-based coping strategies. Despite their vulnerabilities, the study highlights the crucial role of children in disseminating disaster-related knowledge within immigrant households, while the lack of community participation and institutional engagement further exacerbates their challenges. The gendered patterns observed, women's limited agency, dependence on male household members, and exclusion from public decision-making, reflect broader structural inequalities that remain unaddressed within Türkiye's migration governance. These insights suggest the need for disaster education programs that are linguistically and culturally sensitive, the strategic use of schools to strengthen family-level preparedness, and localized community initiatives that cultivate awareness and collective action. Ultimately, the persistence of language barriers, institutional invisibility, and the absence of gender-responsive integration policies indicate that Türkiye's current approach to immigrant inclusion remains fragmented and insufficient, leaving immigrant women disproportionately unprepared for disasters. Strengthening inclusive and gender-aware preparedness strategies is therefore essential to enhancing resilience among immigrant women and building more disaster-ready communities.

While this study offers rich, localized qualitative insights, certain contextual boundaries should be noted when interpreting the results. First, by deliberately focusing on immigrant women in Ankara, a city that serves as a major hub for this immigrant population, the study provides a concentrated look at a specific urban experience; however, expanding future research to other regions or even making comparisons would further build upon this foundation. Second, the notable absence of collective efficacy and empowerment identified in the data reflects the stark reality of institutional invisibility and linguistic isolation faced by these women, rather than a gap in the study's design. Furthermore, the research maintained high standards of rigor by employing independent coding and achieving a strong inter-coder reliability of 89% to minimize bias. By adhering strictly to the semi-structured interview protocol and providing participants with sufficient time to express their lived experiences without researcher intervention, we actively worked to ensure that the findings authentically reflected the participants' perspectives. While the use of children for sentence-level clarification was a necessary and culturally sensitive accommodation to ensure the voices of these women were heard at all, for future studies, we recommend that employing professional bilingual moderators throughout the data collection period could offer even greater depth in future inquiries.

Future research can expand upon these findings by conducting longitudinal studies to track how disaster preparedness intentions evolve as immigrant women gain greater linguistic proficiency and social integration over time. Comparative studies across different Turkish

provinces or other host countries would also clarify how varying migration policies and local governance structures influence community engagement and collective efficacy. Furthermore, given the pivotal role of children as knowledge brokers identified in this study, future investigations should explore the effectiveness of school-based intergenerational learning models in enhancing household resilience. Finally, research into the specific impact of digital literacy and social media usage among immigrant groups could reveal new, culturally sensitive pathways for risk communication and institutional trust-building.

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