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# Midwifery workforce preparedness and competence in disaster situations: a qualitative study

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## Abstract

**Objectives** This study aims to determine the preparedness and competence of midwives before and during disaster situations.

**Methods** A phenomenological study was conducted with 16 midwives working at a public hospital between January and March 2025. The participants were selected through purposive sampling. The data were collected via a demographic information form and a semi structured interview form through an in-depth interview method. Content analysis was performed on the interview transcripts via the MAXQDA 2020 program.

**Results** Three main themes emerged: midwives' disaster preparedness status, factors influencing their intervention competence during disasters, and recommendations to enhance preparedness and intervention effectiveness.

**Conclusion** The study acknowledges midwives' perspectives on their roles in disasters, readiness levels, willingness to volunteer, and institutional support availability. According to the results of the study, the psychological resilience of nurses should be strengthened to increase their preparedness and competence in disasters, undergraduate and graduate-level courses should be given to increase their knowledge and experience, all training given for disasters should be simulation-based and hands-on training, and rotational work assignments should be established in healthcare institutions.

**Clinical trial registration** Not applicable.

**Keywords** Disaster, Midwifery, Competence, Preparedness, Qualitative research

## Introduction

Every year, hundreds of natural disasters take place throughout the world, impacting the lives of millions and often forcing many individuals out of their homes. In 2023 alone, the Emergency Events Database (EM-DAT) recorded 399 natural disasters worldwide, resulting in 86,473 deaths and affecting approximately 93.1 million people [1]. Türkiye is among the countries with the highest risk of fatalities in earthquakes in the world. According to data from 2023, Türkiye has 485 active fault lines capable of generating earthquakes of magnitude 5.5 or greater, and the majority of the population resides along

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these fault lines [2]. Additionally, on February 6, 2023, Türkiye experienced the most devastating and deadly disaster in history—two earthquakes centered in Kahramanmaraş directly impacted 13 million people [2].

It is known that due to the increase in the favorable environment during or after natural disasters, especially the elderly, disabled individuals, groups that were discriminated against before the disaster, and the elderly, sick/disabled, pregnant women and women who have not received training in disasters are inadequately prepared to survive and survive a disaster [3, 4]. Women and girls, in particular, face heightened vulnerability post disaster and are disproportionately subjected to vicious forms of violence, especially in refugee camps or during man-made crises such as armed conflict. They also have elevated rates of posttraumatic stress disorder [5, 6]. Among all vulnerable populations, pregnant women are considered the ones who are at the greatest risk during disasters. Disasters can significantly compromise reproductive health and pregnancy outcomes [7]. Mental stress and physical trauma, exposure to environmental hazards such as dust, smoke, extreme temperatures, poor sanitation, and limited access to healthcare services during disaster events can adversely affect both maternal and fetal health [4, 8]. Exposure to such high-stress conditions can also influence intrauterine development and fetal growth, potentially resulting in low birth weight, a smaller head circumference, increased rates of preterm birth, and higher maternal depression rates [5, 9].

Midwives have unique positions to support maternal and newborn health, breastfeeding, and safe infant feeding practices during natural disasters or emergencies. Therefore, they play a critical role in emergency response teams, serving vulnerable populations such as pregnant women, new mothers, and newborns [10–12]. According to Türkiye's updated Midwifery Regulation, published in the Official Gazette on December 3, 2024 (issue no. 32741), midwives are responsible for providing necessary care, guidance, and access to medical services throughout pregnancy, childbirth, and the postpartum period, including during emergencies [13]. On the basis of this regulation, midwives play important roles in monitoring maternal health under all circumstances. Nevertheless, specific legal and regulatory frameworks defining the roles of midwives during disasters in Türkiye remain limited. Like other healthcare professionals in Türkiye, midwives may participate voluntarily or be assigned roles in disaster response organizations, such as the Disaster and Emergency Management Authority (AFAD), Search and Rescue Association (AKUT), National Medical Rescue Teams (UMKE), and the Turkish Red Crescent (KIZILAY), contributing both formally and through voluntary service.

Prepared for disasters can significantly lessen both morbidity and mortality. It is a critical factor for establishing public safety. Building up coordination and preparedness across the health sector is one of the most vital components of disaster management. Inadequate training and a lack of preparedness can increase the risk of complications for affected populations [14]. Despite their vital role in the healthcare system, research assessing midwives' preparedness before, during, and after disasters remains limited in Türkiye, which is a country frequently affected by such events [15].

This study was conducted using the Theory of Planned Behavior (TPB), which is thought to influence midwives' disaster preparedness behavior. A central factor in the TPB is an individual's intention to perform a specific behavior. Intentions are assumed to capture the motivational factors that influence a behavior. Intentions are determined by the previous three motivational factors. The first is attitude toward the behavior, which refers to the degree to which an individual has a positive or negative evaluation of the behavior in question. The second refers to the perceived social pressure to perform or not perform the behavior. The third predictor of intention is degree of perceived behavioral control, which refers to the perceived ease or difficulty of performing the behavior. As a general rule, the more favorable the attitude and subjective norm toward a behavior and the greater the perceived behavioral control, the stronger an individual's intention to perform the behavior [16].

What is actually known is that adequacy of preparation influences competence in preparation. In Türkiye, preparedness and competence are topics that have not been researched among midwives. Therefore, this study will yield important results in a region like Türkiye, which experiences numerous disasters for various reasons. For this purpose, this study aims to assess the preparedness and competence of midwives in Türkiye before and during disasters. In line with this objective, the following research questions were explored:

#### **Research Question:**

1. How is the disaster preparedness status of midwives?

One of the aims of this study is to determine the preparedness of midwives for disasters, particularly as a component of the healthcare system. This study will raise awareness among midwives.

2. How is the competence of midwives in disaster response? The second aim of this study is to determine the competence of midwives in disaster response. Like all healthcare professionals in Türkiye, midwives are actively involved in disaster response and receive training in this regard. It is important to demonstrate the effectiveness of this training.

## Methods

### Study design

This study employed a phenomenological research design, one of the qualitative research approaches. Grounded in Husserl's phenomenological philosophy, this approach requires researchers to adopt bracketing (epoché) to set aside all preconceived assumptions and achieve pure consciousness through participants lived experiences [17]. The phenomena under investigation were midwives' perceptions of their preparedness and competence in pre disaster and disaster response situations, explored through semi structured interview questions. The study complied with the Standards for Reporting Qualitative Research (SRQR) guidelines for methodological accuracy [18].

### Research team and reflexivity

The research team was composed of faculty members (Professor and Assistant Professor) with clinical backgrounds in midwifery and nursing. Team members held doctoral qualifications in midwifery and internal medicine nursing, public health nursing with specialization in prehospital emergency services and disaster medicine and intensive care nursing.

### Study setting and recruitment

Data collection occurred between January and March 2025 among practicing midwives in one Turkish province. Data for this study was collected between January and March 2025. In the qualitative data collection process, data saturation is more important than the time taken to collect it. Therefore, in this study, we reached out to midwives and, depending on the researcher's experience in asking questions, volunteer midwives were able to quickly interview them. The hospital where the midwives participating in the study work is a state hospital under the Ministry of Health and has the best capacity and doctor, nurse and midwife competence in the province, and training is provided if necessary. The study

sample consisted of midwives who agreed to participate in the study. The midwives were contacted via snowball sampling within a purposive sampling framework, and maximum Yesiation sampling was ensured. Since there is no specific sample size defined for qualitative research, the interviews were terminated when the data started to repeat each other (when data saturation was reached) and the study was completed with 16 midwives (Table 2). The mean age of the midwives was  $31.93 \pm 7.09$  years (range: 24–54), and the mean professional experience was  $8.93 \pm 8.02$  years (range: 1–36). The inclusion criteria required participants to work in the study province, have no verbal communication barriers and voluntarily consent to participate.

### Data collection

The semi structured interview form created by the researchers in line with the literature and experiences consists of 2 parts. The first part, the demographic questionnaire, consists of 17 items on socio demographics and work experience.

The semi structured interview guide consisted of 7 questions (Table 1). The questions are arranged in a logical order. In this process, 'a triangular structure' is taken into consideration [19]. Thus, the semi structured interview forms consisted of an opening question, probing questions and closing questions. To collect data thoroughly, probing questions such as "You mentioned. could you elaborate? ", "In this process, you said that you felt. I felt. I thought, can you explain these feelings and thoughts slightly more?" were used. Expert opinion was taken for the question form.

The first and third authors conducted online face-to-face interviews via semi structured interviews with the midwives. The validity and reliability of the questionnaire were tested with two pilot sessions [20]. Pilot data were not included in the study. The pilot study data yielded similar results to the study data. No data was found other than the study data. The interviews averaged 15 min (14.63 min), and a total of 234.21 min of recorded data were obtained. A total of 81 pages of interview documents were obtained. While the interview duration in this study was relatively short, an attempt was made to obtain in-depth opinions from midwives to mitigate risks in this area. Midwives were also given time to speak, and their preferred times were chosen. The themes were explained to the midwives, and they were asked if they had anything to add. Prior to the interviews, the midwives were informed about the study aims, scope and benefits, and audio recordings, and their informed consent was acquired. During the interviews, the midwives were given the opportunity to express their experiences freely and sincerely. The data were recorded on a Sony

**Table 1** Semi-Structured interview form

1	What types of disasters can occur in Türkiye?
2	What are the roles of midwives in disaster situations? Explain by considering the phases before, during, and after a disaster.
3	Is there a disaster management plan in Türkiye? If so, what are the roles and responsibilities of midwives in this plan?
4	What types of institutional support are provided to ensure sufficient preparedness and readiness for disaster response? Explain.
5	Do you think midwives have sufficient knowledge and skills in disaster response? If yes or no, explain how they are sufficient and prepared, or how they are not.
6	According to you, how should midwives prepare for disaster situations, or how can they achieve competence in disaster response?
1. 7	Is there anything else you would like to add?

voice recorder, and the study data were transcribed after the interviews were finalized.

### Ethical issues

Approval dated 31.12.2024 and numbered 81829502.903/140 was obtained from the Non-Interventional Studies Ethics Committee of Kafkas University Health Science Faculty before the study. All participants provided informed consent after receiving a clear explanation of the study's purpose, procedures, potential risks, and benefits. It was stated that participation would be voluntary and that they could leave the study at any time. All stages were carried out in accordance with the Declaration of Helsinki.

### Data analysis

After the interviews were concluded, the research data were documented and transferred to the Microsoft Word program. In the analysis of the sociodemographic characteristics of the studies, the number, percentage, mean and standard deviation were used according to the normal distribution characteristics of the data. After the interviews were completed, the recorded data were transcribed. The transcribed interviews were checked by the second and fourth researchers, and all the recordings were listened to and read again. All the researchers independently created codes, the findings were compared, and the differences were discussed until a consensus was reached. Content analysis was used to analyze the qualitative data via MAXQDA 2020 qualitative analysis software. Content analysis was conducted in four stages via Giorgi's (1985) phenomenological method analysis [21].

To ensure the study's trustworthiness, Lincoln and Guba's (1985) four criteria of credibility, transferability, dependability and confirmability and dependability were adopted: (i) For credibility, the views of midwives with different perspectives were compared, and recordings were listened to multiple times to ensure sustained engagement. Additionally, the study was planned to include multiple researchers [22]. To ensure peer debriefing, all researchers regularly discussed codes from the beginning and reached consensus on the most relevant codes, categories and themes. Credibility-enhancing techniques include extended participation, persistent observation, and triangulation. Extended participation involves immersing oneself in the study's field or context long enough to build trust with participants and overcome distortions inherent in one's presence. This was achieved through the midwife and other researchers involved in this study. Persistent observation provides depth of experience and understanding by exploring the details of the phenomenon under study. Triangulation validates findings through multiple informants, data collection methods, and observations with multiple

researchers. During this study, one researcher conducted an interview, and the other researcher recorded the observations in a notebook. Peer debriefing involves meeting with an unrelated peer to challenge methods, conclusions, and biases. For this purpose, a midwife who had previously worked as a midwife provided verification of the themes after the study. (ii) A thick description method was used to ensure transferability. For this purpose, detailed explanations were obtained to fully understand midwives' preparedness and competence before and during disasters. These details were evaluated during data analysis and included in the manuscript. In order to make a thick description, the researcher clearly revealed the cultural and social relationship patterns of the participants and asked them to explain their field experiences in detail to put them in context. (iii) The inquiry audit method was utilized for dependability. The Inquiry Audit began with the study's questions and was meticulously conducted throughout the study. A researcher evaluated and monitored all stages, including the ethics committee document, informed consent forms, researcher notes, transcript accuracy check, and appropriateness of themes. (iv) The reflexivity approach was employed to guarantee confirmability [22–24]. Throughout the research, a journal (reflexive journal) was kept, and the views of the responsible researcher on data analysis were recorded in this journal. Functional reflexivity was used in this study and the researcher questioned the role of the research and the logic underlying each decision stage [25].

In this study, for credibility (internal validity), opinions of experts in qualitative research were consulted throughout the study, and adjustments were made accordingly. For external validity (transferability), purposeful sampling and detailed description were used. For internal reliability (consistency), the research data were analyzed by various experts in qualitative research, while for external reliability (confirmability), the data collection and analysis process were explained in detail [22].

### Results

The findings acquired from the interviews, which were conducted to clarify the research problem, are presented under this title. A total of 16 participants were included in the study. The participants were coded from K1 to K16. The demographic information of the participants in the study is presented in Table 2 below, and their personal characteristics regarding disasters are shown in Table 3.

The study findings are grouped into three main themes, as shown in Table 4. These themes include midwives' disaster preparedness status, factors affecting midwives' intervention competence in disasters, and recommendations to enhance preparedness and intervention competence.

**Table 2** Sociodemographic characteristics of the participants

Participants	Age	Marital Status	Education Level	Income Level	Unit Worked in	Work Experience
K1	25	Single	Bachelor's	Income equals expenses	Emergency Unit	9 months
K2	28	Married	Master's	Income equals expenses	Gynecology Unit	5 years
K3	29	Single	Bachelor's	Income equals expenses	Internal Medicine Dept.	5 years
K4	35	Married	Master's	Income equals expenses	Delivery Room	3 years
K5	38	Married	Master's	Income equals expenses	Family Medicine	10 years
K6	28	Single	Master's	Income equals expenses	Delivery Room	6 years
K7	34	Married	Master's	Income equals expenses	Family Medicine	12 years
K8	34	Married	Master's	Income equals expenses	Gynecology Unit	12 years
K9	34	Married	Bachelor's	Income equals expenses	Delivery Room	12 years
K10	27	Single	Bachelor's	Income equals expenses	Delivery Room	5 years
K11	29	Single	Bachelor's	Income less than expenses	Emergency Unit	3 years
K12	54	Married	Bachelor's	Income equals expenses	Delivery Room	36 years
K13	32	Married	Master's	Income equals expenses	Internal Medicine Dept.	10 years
K14	33	Married	Bachelor's	Income equals expenses	Delivery Room	9 years
K15	27	Single	Master's	Income equals expenses	Gynecology Unit	5 years
K16	24	Single	Bachelor's	Income equals expenses	Delivery Room	1 year

**Table 3** Participants' personal characteristics regarding disasters

Participants	Disaster Experience	Disaster Experienced	Disaster Kit Availability	Disaster Training Status	Drill participation status	Perceived Drill Adequacy	Natural Disaster Response Experience
K1	Yes	Van Quake	Yes	No	No	-	No
K2	Yes	Bingöl Quake	No	No	Yes	Adequate	No
K3	No	-	No	Yes	No	-	No
K4	No	-	No	No	No	-	No
K5	Yes	Kahramanmaraş Quake	No	No	Yes	Adequate	No
K6	No	-	No	No	No	-	No
K7	Yes	Kahramanmaraş Quake	No	No	No	-	No
K8	Yes	Kahramanmaraş Quake	No	Yes	No	-	Yes
K9	No	-	Yes	No	Yes	Inadequate	No
K10	Yes	Kahramanmaraş Quake	Yes	Yes	Yes	Inadequate	No
K11	No	-	No	No	No	-	No
K12	No	-	No	No	Yes	Inadequate	No
K13	Yes	Kahramanmaraş Quake	Yes	Yes	No	-	No
K14	No	-	No	Yes	No	-	Yes
K15	No	-	No	No	Yes	Inadequate	No
K16	No	-	No	No	No	-	No

### Midwives' disaster preparedness status

According to the statements from participants, the theme of Midwives' Disaster Preparedness Status was found to be through these categories: Midwives' Roles and Responsibilities in Disasters, Institutional Support for Preparedness, and the subtheme of Disaster Volunteerism. The subthemes and codes related to the Midwives' Disaster Preparedness Status theme are presented in Table 4; Fig. 1.

### Roles and responsibilities of midwives in disasters

The category of midwives' roles and responsibilities in disasters was expressed through three subthemes on the

basis of participant statements: pre disaster, during disaster, and post disaster (Table 4; Fig. 2).

The participants highlighted that the midwifery profession holds key importance in all types of disasters, noting that midwives have roles and responsibilities in all disaster situations. They emphasized that midwives must necessarily be involved in every circumstance and environment where women, pregnant women, and babies are present. In particular, the participants underscored the importance of midwives providing pre disaster education to pregnant women on disaster training, disaster protection steps, preparing for disasters, preparing disaster and pregnancy kits, and identifying potential risks for

**Table 4** Study theme two, subthemes and selected participant quotes

Theme	Subthemes	Codes	Participant quotes
The preparedness of midwives for disaster situations	Their roles and responsibilities during disasters	Before disasters	<p><i>"In the predisaster period, we can provide training to women on how to prepare for a potential disaster, how to protect themselves during a disaster, and what actions to take during a disaster. Specifically, for earthquakes, we should educate not just pregnant women but all women about preparing an earthquake kit. This should include: baby formula, water, water containers, baby supplies, diapers, blankets, sanitary pads for the mother, protective clothing, and at least 8–10 hours worth of snacks. We should advise them to create a safe space in their home - a shelter where they and their baby can be protected from harm during an earthquake. We can explain who to contact in case of an earthquake, which situations are considered risky during pregnancy, which types of pain indicate danger, and which types of bleeding are hazardous." (K8)</i></p> <p><i>"In the predisaster period, we should provide training to pregnant women and postpartum mothers about what to do during a disaster, how to behave, and how to save their baby. Since we never know when a disaster might occur, we must educate them about preparing a disaster kit. We should emphasize that this kit must contain first aid supplies, food, water, baby necessities, and formula." (K3)</i></p>
		During Disasters	<p><i>"Considering hospital units - wards, neonatal intensive care, and delivery rooms - each has different patient populations. During disasters, a woman in labor or a hospitalized newborn cannot relocate to a safe area without assistance, requiring midwives' support in these situations" (K2).</i></p> <p><i>"As midwives, we must first relocate a pregnant woman affected by disaster to a safe area and provide psychological support. The baby's heartbeat should be checked, and the mother should be informed about the baby's condition to help calm her, while reassuring her of her safety. A prenatal examination should then be conducted, considering the available conditions at the site, followed by intervention for any emergencies" (K16).</i></p>
		After Disaster	<p><i>"After a disaster, hospitals may be damaged and access to healthcare services may be limited. We advise pregnant women to monitor fetal movements, check for any bleeding or water leakage, and track their pain levels. They should then visit an established medical tent to have both their general condition and the baby's status checked. There, the baby's heartbeat can be monitored using a Doppler device, and the mother should be moved to a safe area. We provide information to help manage stress and panic, along with psychological support. Training is given to the pregnant woman and any accompanying family members about recognizing signs of emergency labor." (K6)</i></p> <p><i>"Shelter, warmth and nutrition for pregnant women, new mothers and babies are critical issues in the postdisaster period. Their nutritional routines need to be restored to normal living standards as quickly as possible. They require high-calorie, high-protein foods rich in vitamins and minerals. While most people can tolerate being without food or water for 2–3 extra hours, I believe pregnant women should not. Just as the elderly and children are considered vulnerable priority groups during disasters, I believe pregnant women should be treated the same way." (K12)</i></p>
Categories of Institutional Support in Preparedness		Institution-Supported Trainings	<p><i>"In January, I was sent by my institution to training about midwives' disaster preparedness. The training included 160 midwives and 23 healthcare service managers from all 81 provinces. The curriculum covered normal delivery interventions, disaster triage, and materials needed for disaster response. However, I cannot say the training was very effective or achieved its purpose - I do not believe it was adequate. They did not have us practice anything hands-on; it was only theoretical training, which I do not think leads to lasting competence." (K14)</i></p> <p><i>"At minimum, training should be more comprehensive regarding fires and earthquakes. Especially since our country is built on fault lines, we frequently encounter earthquake and fire situations. I believe the relevant institutions and organizations are not providing adequate training in this area." (K4)</i></p>
		Drills	<p><i>"Our institution conducts disaster drills, but I do not consider them adequate. The drill focused only on self-rescue during disasters. However, as a healthcare professional, I wasn't instructed on how to assist my patients under those conditions. The evacuation plan was explained solely using a floor plan diagram, and I was assigned an evacuation role—but even my specific duties weren't communicated in detail." (K15)</i></p>
		Volunteering	<p><i>"With the awareness instilled by my profession, I would like to help people to the best of my ability in responding to disasters, especially since there are many individuals with insufficient education on healthcare during such times who need us. Therefore, whether as a volunteer or if assigned by my institution, I am willing to take on responsibilities in disaster response." (K3)</i></p>

**Table 4** (continued)

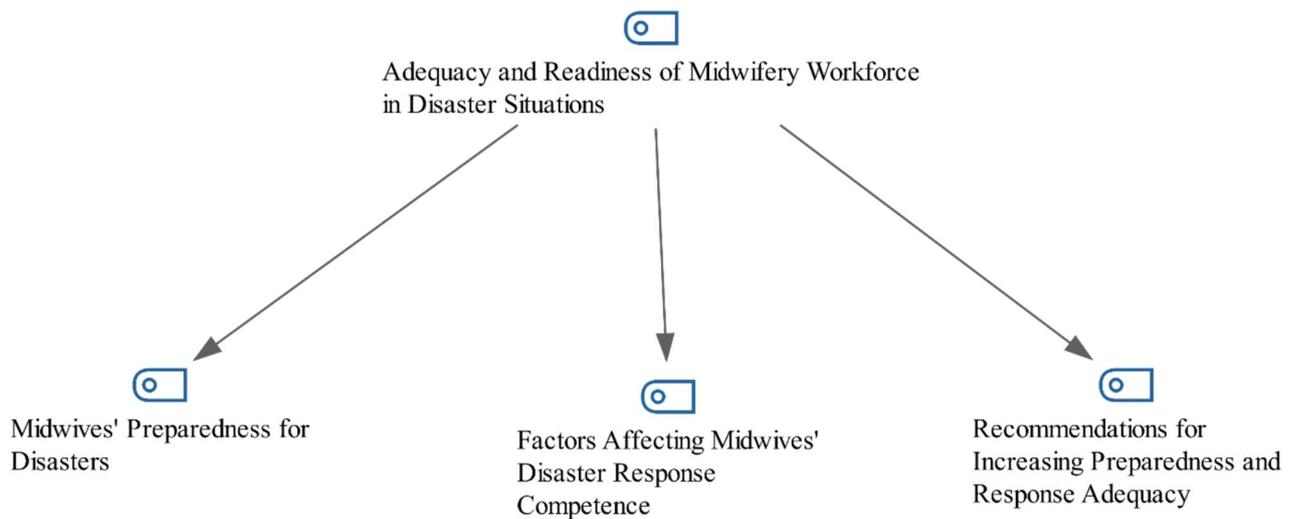
Theme	Subthemes	Codes	Participant quotes
Factors Affecting Midwives' Competence in Disaster Response	Disaster Response Plan Knowledge		"It is being attempted to implement disaster response protocols, but I do not think there is an effective disaster management plan. These efforts are primarily conducted through UMKE. In UMKE, everyone is provided with equal training without distinctions between midwives, nurses, or 112 emergency personnel. If there are two patients—one a woman in labor and the other a regular adult patient—the midwife is directed to the woman in labor, and they aim to utilize them more actively in that setting." (K10)
		Self-Perceived Competence in Disaster Response	Lack of Knowledge
		Psychological Preparedness	"I don't consider myself adequately prepared, as I have no prior disaster response experience and would likely experience shock—uncertain of how to act. The sight of collapsed buildings might impair my ability to prioritize interventions. While I could perform triage coding for patients arriving at a hospital, I would struggle to determine response priorities if working alone in the field. At most, I could assist 1–2 individuals." (K1)
Recommendations to Enhance Preparedness and Response Competence	Disaster training		"Training in this area should be improved and delivered by qualified professionals. The individuals selected for training should be carefully chosen—those who can be active and effective in such situations. A midwife is also an excellent neonatal nurse, and with a midwife, coordination on both sides can be well-managed. I believe volunteers who are both willing and skilled in this area should be selected. Trainings are usually conducted as earthquake drills and mostly at elementary school level. However, during my university education, we did not have such a course or drill; these activities stay limited to early education and are not repeated afterward. Additionally, I think only psychologically resilient individuals should be sent to disaster zones for intervention." (K9) "Trainings can be expanded. Practical trainings are more permanent and more effective in the long run, so there should be more hands-on sessions. Theoretical training should also be enhanced and repeated at regular intervals." (K7)
		Virtual Simulation	"Training programs should incorporate simulation technologies to keep pace with advancements, thereby improving knowledge retention and comprehension. Through simulation-based training, first-response techniques for fractures, dislocations, and extrication of trapped individuals can be effectively demonstrated. Given that trauma and disaster scenarios are not routine occurrences—making hands-on practice for all participants impractical—simulator-assisted training should be prioritized." (K8)
	Rotational Work		"I believe midwives should work in rotational assignments across hospital units. Particularly during disasters, midwives must maintain competency in both conducting deliveries and providing neonatal care. However, many of our colleagues have worked exclusively in hospital wards for years without delivery room experience. Implementing rotational shifts in labor/delivery units is critical to ensure these midwives can manage emergency deliveries during disasters." (K15)

pregnant women themselves and their babies in case of a disaster situation.

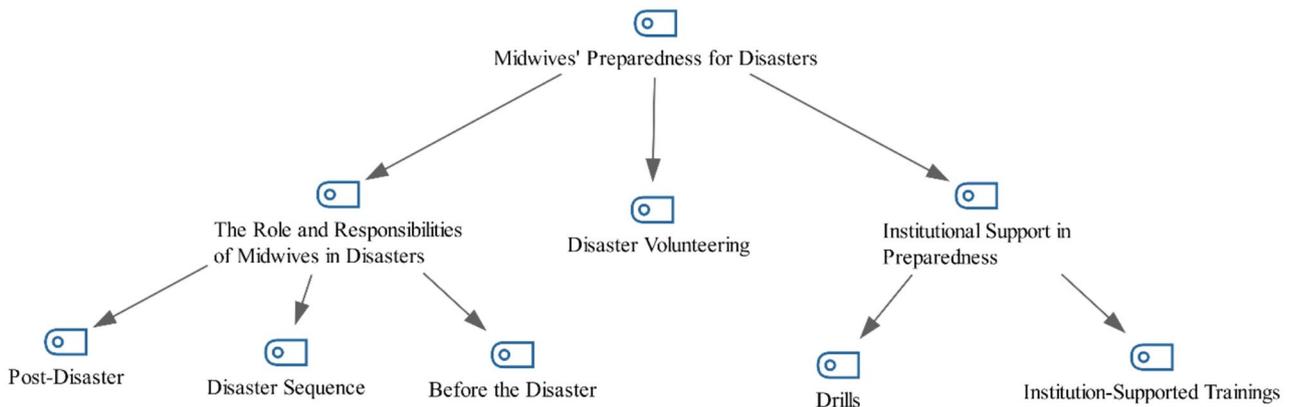
*In the pre disaster period, it is essential to explain how to behave during a disaster, what position to take, how to protect herself and her baby, and the necessity of keeping a disaster kit at home. Midwives should provide training to pregnant women in the pre disaster period about remaining calm in potential situations and stress management techniques. Because women may experience extreme fear and*

*stress at that moment. Owing to hormonal effects, they may feel more intense panic and potentially harm themselves or their babies. Therefore, training should be provided about staying calm and being prepared at all times (K13)*

The participants emphasized that during disasters, midwives must not only provide psychological support to pregnant women but also first relocate them to a safe area and then assess both the mother's and baby's medical conditions to help calm the pregnant woman.



**Fig. 1** Adequacy and Readiness of Midwifery Workforce in Disaster Situations; Representation with Qualitative Research Themes



**Fig. 2** Code-Subcode Model for the Theme of Midwives' Disaster Preparedness

Additionally, participants highlighted that stress-induced premature labor may commence immediately following a disaster, underscoring midwives' critical roles in managing emergency deliveries, monitoring maternal and fetal status, and providing ongoing obstetric surveillance.

*Midwives should provide support to pregnant women during a disaster, monitor for signs of emergency labor, conduct prenatal examinations, perform delivery if emergency labor begins, and relocate the mother to an appropriate safe area (K5)*

During the post disaster period, pregnant women and new mothers need specialized physical and psychological care and support. The participants emphasized the critical importance of nutritional support, access to healthcare services and psychological counseling. With respect to midwives' post disaster roles, participants highlighted their responsibilities in providing psychological support to pregnant and postpartum women, nutritional

guidance, prenatal examinations, safe evacuation to secure locations, and facilitation of healthcare access.

*In the postdisaster period, they may face difficulties while trying to access food supplies for a certain period; initially, they may have to rely on ready-to-eat foods. However, they need to be nourished with high-calorie and high-protein contents later. During disasters, sodium and potassium imbalances occur rapidly, and dehydration further exacerbates these conditions. We can provide nutritional recommendations to help maintain this balance (K9)*

**Institutional Support for Preparedness**

The category of Institutional Support for Preparedness was expressed through two codes based on participant statements: institution-supported training and drills (Table 4; Fig. 2).

When participant responses are analyzed, the training support provided in midwives' healthcare institutions

is inadequate, and there is a greater need for hands-on training. The participants reported that hospitals provided disaster management and safety training, although the practical training components remained insufficient. In addition to these findings, it is emphasized that there is a critical need to expand and maintain continuous fire and earthquake preparedness training. Importantly, healthcare staff should also be equipped with practical intervention skills alongside theoretical knowledge to ensure effective disaster interventions. Thus, the necessity for healthcare institutions and relevant authorities to make training programs more functional and practice-oriented is clear.

*Yes, training is provided. In fact, we received training from our hospital's occupational health and safety department, specifically from workplace **physicians and nurses**. We were trained on what the hospital disaster plan included, the **hospital floor plan**, how evacuation routes should be designed, and which emergency numbers to call during disasters. Disasters **are not limited to earthquakes**; in fact, last week, for **example**, fire department personnel conducted fire safety training. We learned what to do in case of a hospital fire, where fire extinguishers were located, and how to use them properly (K8)*

It is critical to conduct disaster drills for emergency preparedness in healthcare institutions. However, participant responses indicate that current drills lack sufficient information and practical application regarding the roles healthcare workers take for granted during disasters and related patient care procedures. A significant majority of the participants reported that the drills conducted by their institutions to reinforce disaster preparedness were qualitatively and quantitatively inadequate and were often limited to tabletop exercises. They emphasized the need for more hands-on drills and a greater frequency of such training sessions.

*It wasn't sufficient, because not all employees participated. I believe that full participation is important to raise awareness. (K3)*

### **Disaster volunteering**

Midwives' willingness and sense of responsibility in response to disasters are among the most crucial components of disaster management. The participants' statements indicate that midwives are eager to help disaster victims not only because of their professional duties but also because of their humanitarian and occupational sensitivity. However, to specialize in disaster response and act more effectively, it is necessary to undergo specific training. In this context, midwives' willingness to be part

of professional teams such as UMKE will enable them to act more consciously and competently in disaster zones and enhance their level of preparedness for such situations (Fig. 2).

*I truly wanted to intervene when the earthquake happened, but I wasn't part of the UMKE team at that time, and UMKE always has priority in disasters. Therefore, I supported my colleagues by working at the hospital back then, but I truly wanted to be at the scene and help people directly. That's why I joined the UMKE team and received my training. I want to provide even more professional help to people in such situations (K10)*

### **Factors affecting midwives' competence in disaster response**

On the basis of participant statements, the theme factors affecting midwives' competence in disaster response are categorized under the code "knowledge of disaster response plans" and the category "perceived competence in intervention." The subthemes and codes related to this theme are presented in Table 4; Fig. 3.

#### **Knowledge of disaster response plans**

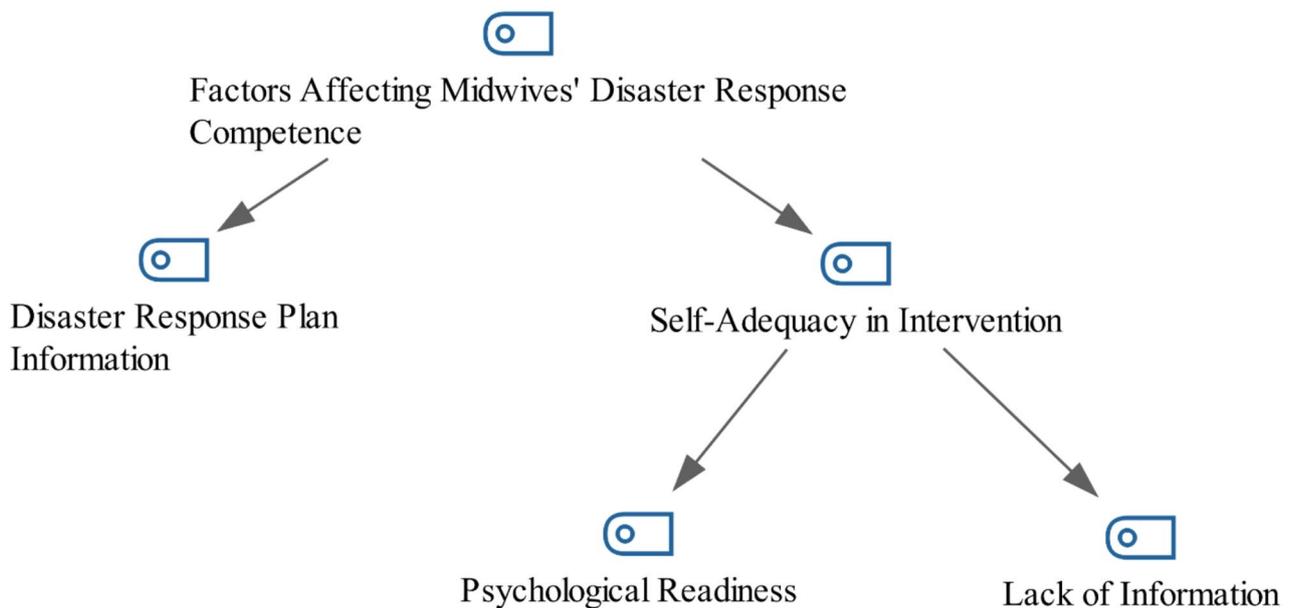
While healthcare workers play a crucial role in disaster response processes, the existence of an effective disaster management plan and the awareness of this plan by field personnel are critically important. The participant statements indicate that although disaster management plans are in place, they are not sufficiently communicated to healthcare workers, and there are some shortcomings in practice. In particular, the data suggest that disaster response capacity is negatively impacted by a lack of specialization-based planning and clearly defined roles for field personnel (Fig. 3).

*There is definitely a disaster response plan, but we are not aware of it. I don't think it distinguishes between midwives, nurses, or doctors—it probably just includes us all under the term 'healthcare workers'. (K7)*

#### **Perceived competence in the disaster response**

The subtheme *perceived competence in disaster response* was derived from participant statements and included two main codes: *lack of knowledge* and *psychological preparedness* (Table 4; Fig. 3).

In disaster response processes, a lack of knowledge and skills is a significant factor that hinders midwives from performing effectively in the field. According to the participants' statements, owing to the sudden and unpredictable nature of disasters, midwives often do not know



**Fig. 3** Code-Subcode Model for the Theme of Factors Affecting Midwives' Disaster Response Competence

exactly what to do, and the current training they receive is not sufficiently applicable in real-life situations.

Furthermore, the participants highlighted issues such as organizational problems, crisis conditions, and lack of coordination. Even if midwives are competent within their areas of expertise, they noted that they do not have adequate knowledge and skills to intervene in disaster situations involving severe traumatic injuries.

*I don't feel competent because I haven't received training to intervene in all situations. For example, I don't know how to respond under debris, I don't know how to manage myself, or how to rescue someone trapped. I mean, I don't have enough training in search and rescue. I also don't fully know how to approach someone psychologically. (K2)*

Psychological resilience is just as important as intervention skills for midwives in disaster settings. The participants' statements indicate that a lack of experience in disaster response can lead to anxiety and a lack of self-confidence among midwives. This highlights the impact of psychological preparedness on intervention capacity. The fact that participants expressed potential difficulties in prioritization and triage processes—especially when left alone in the field—suggests that these topics should be emphasized more in disaster training programs. While midwives working in hospitals operate within a structured environment, the chaotic nature of disaster sites and the need for rapid decision-making require an additional level of preparedness.

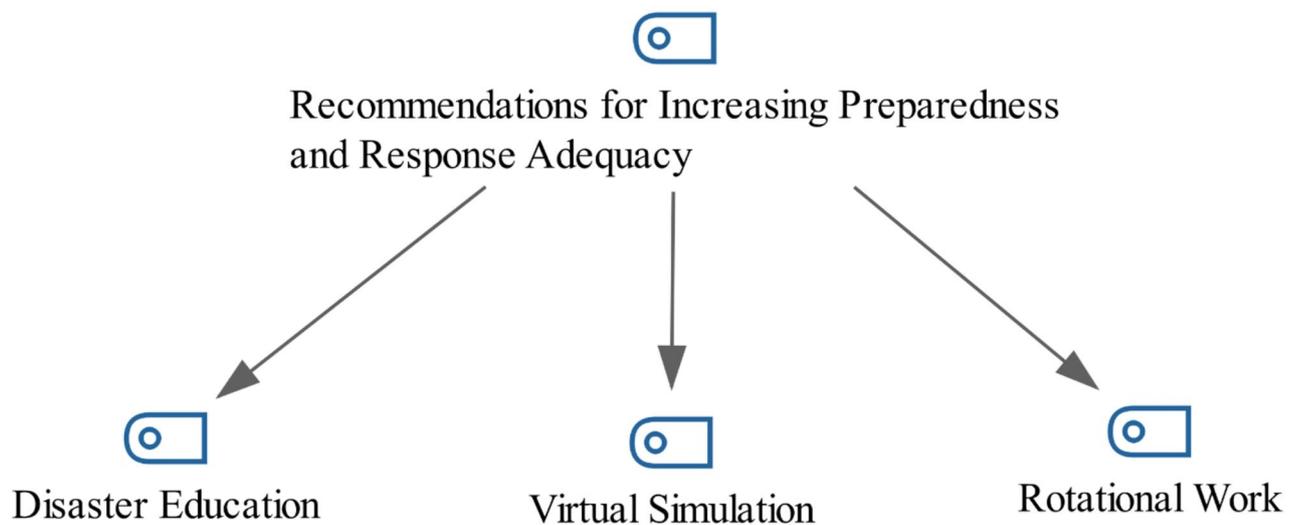
*If there's a scale, I would say I'm at a moderate level. Because no matter how much we are healthcare professionals, we're still human beings, and we have emotions. We might panic in the moment, get anxious. If our loved ones or family are somewhere else while we are in the field, our minds might stay with them. We might not be able to remain calm (K13)*

#### Recommendations for enhancing preparedness and intervention competence

The theme “Recommendations for Enhancing Preparedness and Intervention Competence” was expressed through three subthemes based on participant categories: disaster training, virtual simulation, and rotational work (Table 4; Fig. 4).

The participants' statements revealed significant deficiencies regarding the quality and availability of disaster preparedness training. It was emphasized that midwives expected to serve during disasters should be equipped not only with technical knowledge but also with psychological resilience and crisis management skills. They also clearly stated that training should not be limited to theoretical content but must be supported by practical and realistic schemes. Additionally, such training should not be confined to in-service programs but should also be integrated into undergraduate and postgraduate curricula. Finally, the participants highlighted the importance of repeating training regularly to increase their long-term effectiveness and retention.

*It is essential for individuals to possess mechanisms enabling them to manage the sequence of events occurring within the departments where they work,*



**Fig. 4** Code-Subcode Model for the Theme of Recommendations for Increasing Preparedness and Response Adequacy

*underpinned by the training they have received. This capability is not achieved through panic but rather through calmness. Regardless of whether they work in a maternity ward or another department, the safe departure of the mother and baby can be effectively taught. I believe it is imperative for professionals to establish a sequence of actions that can alleviate the psychological distress of those involved. A compulsory or elective course on disaster management should be integrated into the undergraduate curriculum, not only for midwifery students but also for all academic programs. Such a course may be included at the undergraduate level, offered as an elective course at the graduate level, or delivered through periodic training sessions in workplaces. (K4)*

The participants emphasized that disaster training should not be limited to theoretical knowledge. Training effectiveness and retention can be significantly enhanced through simulation exercises and model-supported practices. Simulations augmented with audio and visual effects contribute not only to the development of technical skills but also to improved psychological preparedness. Given the infrequent occurrence of disasters, such practices allow midwives to prepare for emergency situations in a more realistic manner.

*Through education on disaster management, practical training with mannequins, and simulation exercises incorporating audiovisual effects, psychological preparedness levels can be **increased**. (K1)*

The participants emphasized the extensiveness and versatility of midwives' duties and emphasized the importance of rotating their work in hospitals, especially in terms of disaster preparedness. Rotating duties in units

such as the emergency department and delivery room increases the experience of childbirth and improves the ability to intervene quickly and effectively in times of crisis. This approach seems to be an important application suggestion that will support midwives in taking multidimensional roles in times of disaster.

*Midwives and nurses perform similar tasks, and midwives have extensive duties and responsibilities, allowing them to work in Yesious settings. I believe that rotational assignments between emergency departments and maternity wards could be implemented. Owing to the nature of emergency services, they are believed to psychologically prepare individuals for disaster situations. Therefore, midwives could be periodically assigned to work in emergency departments as part of this rotational system. (K2)*

## Discussion

Given the limited research on the preparedness and competence of midwives in Türkiye for disaster scenarios, this study holds significance and offers valuable contributions to the literature on empowering midwives. Discussion was held according to the research questions.

1. How is the disaster preparedness status of midwives?

The interviews conducted in this study showed that the majority of midwives were inadequate in disaster preparedness. Preparing in advance for disasters and emergencies is crucial for ensuring timely interventions, accurate responses, and increasing survival rates [26, 27]. Therefore, it is essential to have competent individuals with the right skills available in the right place at the right time. In this context, as in the rest of the world, midwives and nurses in Türkiye play a front-line role during disaster situations. Hence, ensuring the

preparedness and competency of midwives for disasters is vital. Reflecting this perspective, the WHO has initiated a process to review and enhance the contributions of nursing and midwifery during emergencies and subsequently, in 2007, recommended the inclusion of courses in undergraduate programs while considering their role in emergencies [28]. Moreover, the International Council of Midwifery highlighted the critical importance of midwives in emergencies by setting the theme for 2025 as “midwives are vital in every crisis,” emphasizing the necessity of their readiness [29]. The literature outlines midwives’ roles during disasters, which include planning, leadership, reproductive health and childbirth services, breastfeeding support, ensuring birth control, safeguarding maternal and neonatal health, reducing mortality rates, providing care to victims of sexual assault, primary care, medication support, psychological and emotional care, caring for vulnerable groups, and collaboration with other healthcare professionals [26, 30, 31]. Notably, midwives may need to take on broader nursing roles, such as trauma care, and assume increased administrative responsibilities during disasters [32]. In this study, midwives emphasized their roles, which included (i) pre disaster, (ii) disaster, and (iii) post disaster phases. Additionally, considering the impact of Türkiye’s catastrophic earthquakes, often referred to as the disaster of the century, the midwives in this study frequently highlighted their roles in preparing specifically for earthquake scenarios.

This study similarly reveals that institutional support for ensuring the preparedness and competence of midwives in disaster situations is insufficient, as observed in other studies [32, 33]. Sugino et al. (2014) reported that the inadequacy of midwives in responding to disasters was associated with receiving less comprehensive training and having fewer opportunities [32]. Numerous studies conducted in Türkiye also indicated that healthcare professionals, including midwives assigned during the February 6 earthquakes, felt inadequate in disaster response and identified numerous organizational challenges during the intervention phase [5, 15, 34]. Furthermore, in this study, midwives frequently emphasized that disaster drills remained largely theoretical and limited to paperwork, highlighting the insufficiency of institutional support. This outcome underscores the necessity for Türkiye, a country that has experienced such significant disasters, to undertake more systematic and effective disaster preparedness efforts. During disasters, the collaboration of volunteer service providers is crucial in assisting victims, fixing communities and educating the public. Identifying these individuals before disasters occur and providing them with training, capacity building, and effective intervention strategies in critical areas are crucial [35]. Owing to challenges in training

accessibility for all professionals in disaster preparedness, Turkey has established the Disaster and Emergency Management Presidency (AFAD) and National Medical Rescue Teams (UMKE) to facilitate volunteer participation and training in disaster response. This study revealed that midwives predominantly expressed a willingness to engage in voluntary activities. In this context, institutions identifying and directing volunteer midwives would significantly contribute to disaster preparedness efforts.

2. How is the competence of midwives in disaster response?

In this study, midwives stated that they do not consider themselves competent in disaster response, are not psychologically prepared, and lack sufficient resilience. Preparation, knowledge, competence, and psychological strength are highly important in disaster response, and these factors have been emphasized in many studies [27, 30, 34, 36]. As mentioned in the introduction of this article, midwives constitute a significant portion of the healthcare sector in Türkiye and take on multiple roles during disasters. However, in this study, the midwives reported feeling inadequate in terms of disaster intervention, which resulted in a lack of self-confidence. This lack of self-confidence may, in turn, lead to insufficient disaster response. Although studies on the preparedness and competence of midwives in Türkiye are limited, similar findings have been reported in studies involving nurses, where nurses were also found to be either partially or inadequately prepared for disasters [27, 37, 38]. Moreover, professionals with low psychological resilience may deliver inadequate services, which may cause time loss and contribute to decreased motivation among other team members. In this study, midwives frequently emphasized the importance of psychological readiness and resilience. To ensure the competence of individuals who respond to disasters, psychological support and resilience-strengthening programs should be integrated as essential training components [36].

In this study, midwives emphasized that to enhance preparedness and competence, disaster training should not be limited to theoretical knowledge alone and should be delivered by experts. They also suggested that such training should be made more realistic through simulations and laboratory practices, that disaster-related courses should be included in undergraduate and postgraduate curricula, and that midwives should work rotationally in emergency departments and delivery rooms to strengthen their skills in disaster care. Other studies have similarly reported that midwives and nurses have proposed comparable recommendations regarding disaster education [10, 15, 27, 34, 39]. Furthermore, in October 2007, the WHO, in collaboration with partners, including the Jordan Nursing Council, reviewed the role and contribution of nursing and midwives in emergency

preparedness and response and developed recommendations for integrating relevant skills and competencies into undergraduate curricula [40]. In line with the findings of this study, disaster education for midwives should be strengthened, particularly considering their critical role in improving maternal health outcomes.

The theory developed in this study addresses both individual midwifery outcomes and organizational outcomes because it focuses on midwives' disaster preparedness and competence rather than the preparedness of communities or systems. However, future research could incorporate patient and community impacts and outcomes into the framework to provide more practical and concrete data, and a community-centered approach, such as allocating resources based on disaster awareness preparedness levels, could allow for tailored strategies to address a community's specific needs and vulnerabilities.

### Limitations

This study has several limitations. First, all participants were based in eastern Türkiye, which may limit the transferability of findings to other geographical or cultural contexts. Second, the relatively small sample size, though appropriate for qualitative research, may not fully capture the diversity of experiences among all midwives across the country. Finally, as with all self-reported data, participants' responses may be influenced by recall bias or social desirability. However, it is important as a resource for further studies.

### Implications for clinical practice

Firstly, midwifery educators should actively integrate the disaster midwifery course into their curriculum to bridge the gap between theory and practice. Course content should not only include theoretical knowledge; practical training should be provided through simulation or modeling. Not only practical but also technology-supported continuing training should be provided for midwives working after graduation. First, volunteer midwives should be identified and provided with both physical and psychological preparation, especially for volunteers. Standardized bags should be created for midwives to use during disasters. Furthermore, rotating midwives between specific units within institutions to increase their competence could be beneficial. It has also been emphasized that institutional support for midwives' disaster preparedness has been insufficient. In this context, the need to provide institutional support that will enable midwives, like all healthcare professionals, to explore their role in disasters has been highlighted.

Furthermore, the findings indicate that the training of disaster educators and the competence of educators in disaster training should be strengthened.

### Conclusion

Although Türkiye occasionally experiences various types of disasters, such as floods and fires, its location within an earthquake-prone zone necessitates the development of organized, systematic, simulation- and practice-based disaster training programs that encompass all institutions and healthcare professionals. Given that many midwives reported feeling unprepared in terms of both knowledge and psychological readiness, disaster training programs should incorporate components that provide psychological support and strengthen resilience. Courses aimed at improving midwives' awareness and competencies in disaster management should be integrated into undergraduate and postgraduate curricula and delivered by experts in the field. In addition, awareness campaigns can be carried out to promote volunteerism.

### Abbreviations

EM-DAT	Emergency Events Database
AFAD	Disaster and Emergency Management Authority
AKUT	Search and Rescue Association
UMKE	National Medical Rescue Teams
KIZILAY	Turkish Red Crescent
SRQR	Standards for Reporting Qualitative Research
WHO	World Health Organization

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### Author contributions

All the authors are in agreement with the content of the manuscript. Study conception and design Ö.Ş.B, G.G, YA, K.O.B. Data collection, statistical expertise, analysis and interpretation: Ö.Ş.B, G.G, YA, K.O.B. Manuscript preparation, supervision, administrative support and critical revision of the paper: Ö.Ş.B, G.G, YA, K.O.B. Final approval of the version to be published: Ö.Ş.B, G.G, YA, K.O.B.

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### Data availability

The data (in Turkish) used and/or analyzed during the current study are available from the corresponding author upon reasonable request.

### Declarations

#### Ethics approval

Approval dated 31.12.2024 and numbered 81829502.903/140 was obtained from the Non-Interventional Studies Ethics Committee of Kafkas University Health Science Faculty before the study. All participants provided informed consent after receiving a clear explanation of the study's purpose, procedures, potential risks, and benefits. It was stated that participation would be voluntary and that they could leave the study at any time. All stages were carried out in accordance with the Declaration of Helsinki.

#### Consent for publication

Participants gave informed consent for their personal or clinical information and descriptive images to be published in this study. All authors have read and approved the final manuscript for publication.

#### Competing interests

The authors declare no competing interests.

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