

How Did You Feel During the Earthquake? The Earthquake Experiences of Nursing Students: A Phenomenological Study

Depremde Neler Hissettin? Hemşire Öğrencilerinin Deprem Deneyimleri: Fenomenolojik Araştırma

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ABSTRACT Objective: This study was conducted to investigate the experiences of nursing students who experienced the earthquake with its epicenter in Kahramanmaraş, Türkiye, and affecting 12 provinces. **Material and Methods:** In this study with a qualitative design, the phenomenological method was used, and the nursing students who experienced the Kahramanmaraş earthquake constituted the study's population. Data were collected using the "Descriptive Characteristics Questionnaire" and a "Semi-Structured Interview Form". **Results:** Within the scope of the research, in-depth interviews were conducted with a total of 15 nursing students. The interviews were categorized into 4 main themes and 19 sub-themes. The main themes identified were (1) Difficulty in Meeting Basic Needs, (2) Post-Traumatic Emotional Reactions, (3) Post-Traumatic Physiological Reactions, and (4) Gains from the Loss. Students experienced significant challenges in fulfilling their basic needs for clean water, food, shelter, and communication following the earthquake. Physiological responses included a reluctance to eat, sleep disturbances, and difficulty in communicating. Emotional reactions such as a fear of death, feelings of helplessness, anxiety, sadness, and pain were also observed. However, it was noted that students also experienced positive outcomes in several areas, including a stronger belief in disaster preparedness, a re-evaluation of the meaning of life, and a heightened desire to spend time with loved ones. **Conclusion:** The earthquake significantly affected students, highlighting the need for psychological support. It is also essential to plan for reducing vulnerability and losses, and to promote a disaster-aware culture to minimize future impacts.

Keywords: Earthquakes; qualitative research; life change events; students; nursing

ÖZET Amaç: Bu araştırma, Türkiye'de merkez üssü Kahramanmaraş olan ve 12 ili etkileyen depremi deneyimleyen hemşire öğrencilerin deneyimlerini, derinlemesine incelemek amacıyla gerçekleştirilmiştir. **Gereç ve Yöntemler:** Nitel tasarımda fenomenolojik yöntem kullanılarak gerçekleştirilen çalışmada, Kahramanmaraş depremini deneyimleyen hemşirelik öğrencileri araştırmanın evrenini oluşturmuştur. Veriler "Tanımlayıcı Özellikler Soru Formu" ve "Yarı Yapılandırılmış Görüşme Formu" ile toplanmıştır. **Bulgular:** Araştırma kapsamı toplam 15 hemşire öğrenci ile derinlemesine görüşme yapılmıştır. Yapılan görüşmeler 4 tema ve 19 alt tema altında toplanmıştır. Ana temalar (1) Temel İhtiyaçları Karşılamada Zorluk, (2) Travma Sonrası Duygusal Tepkiler, (3) Travma Sonrası Fizyolojik Tepkiler ve (4) Kaybın Kazanımları olarak belirlenmiştir. Öğrencilerin depremden sonra temiz su, yiyecek, barınak ve iletişim gibi temel ihtiyaçlarını karşılamada önemli zorluklar yaşadılar. Fizyolojik tepkiler arasında yemek yeme isteksizliği, uyku bozuklukları ve iletişim kurma zorluğu yer aldı. Ölüm korkusu, çaresizlik hissi, kaygı, üzüntü ve acı gibi duygusal tepkiler de gözlemlendi. Ancak öğrencilerin afetlere hazırlık konusunda daha güçlü bir inanç, hayatın anlamını yeniden değerlendirme ve sevdikleriyle zaman geçirme isteğinin artması gibi çeşitli alanlarda olumlu sonuçlar da yaşadıkları kaydedildi. **Sonuç:** Deprem öğrencileri önemli ölçüde etkilemiş olup, etkilenenlere psikolojik destek sağlanması gerekmektedir. Ayrıca, afetlerin etkilerini azaltmak için kırılganlığı ve kayıpları azaltmaya yönelik planlar yapılmalı ve bir afet kültürü geliştirilmelidir.

Anahtar Kelimeler: Depremler; nitel araştırma; yaşam değiştiren olaylar; öğrenciler; hemşirelik

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Earthquakes, caused by sudden fractures in the earth's crust, are major public health threats due to their unpredictability, high mortality, and widespread impact.^{1,2} Between 1998 and 2017, they caused 750,000 deaths and displaced over 125 million people globally.³ As traumatic events, earthquakes can lead to serious psychological issues; for example, studies have shown high rates of depression and PTSD among survivors of the Haiti and Van earthquakes.^{4,7} Preparedness for disasters is crucial in reducing the impact of earthquakes on individuals and communities.⁸ Nurses, play a key role in disaster preparedness, emergency response, and recovery. As future healthcare providers, understanding the earthquake experiences of nursing students is important for improving disaster response strategies.

Numerous studies have focused on various aspects of earthquake preparedness, knowledge, and attitudes.⁹⁻¹¹ However, there is a limited number of studies specifically examining the experiences of individuals who have lived through earthquakes.¹² Notably, 2 research studies have explored the earthquake experiences of nursing students following the Kahramanmaraş earthquake. The findings from these studies revealed that the nursing students' experiences encompassed areas such as search and rescue activities, lifestyle changes after the earthquake, normalization processes, fear, and sleep disturbances.¹³ In the 2nd study, the perceptions of nursing students regarding earthquake definitions, awareness, and coping mechanisms were assessed.¹⁴ This research aims to examine the earthquake experiences of nursing students, focusing on their difficulties in accessing basic needs, emotional and physiological reactions, and earthquake gains. It is anticipated that the results will contribute to the literature by addressing the gaps in understanding earthquake experiences and evaluating coping mechanisms. Additionally, the findings are expected to inform the planning of effective public health strategies to protect and promote public health during disaster situations, including earthquakes.

MATERIAL AND METHODS

THE PURPOSE AND TYPE OF RESEARCH

This phenomenological qualitative study explores the in-depth earthquake experiences of nursing students

affected by the Kahramanmaraş earthquake in Türkiye. The research focuses on the phenomenon of "earthquake experiences" and follows the Consolidated Criteria for Reporting Qualitative Research (COREQ) guidelines.¹⁵

SETTING, POPULATION, AND SAMPLE OF THE RESEARCH

The population of the research consisted of nursing students studying at a state university in Türkiye who had experienced the earthquake on February 6, 2023. The purposeful sampling method was employed in the selection of the sample. Purposeful sampling is chosen when in-depth investigation is sought, particularly in cases where participants are expected to possess deep and rich knowledge about the subject.¹⁵ It was believed that nursing students who experienced an earthquake might have numerous experiences related to this process, and this research approach was chosen to examine these experiences appropriately. The sample size for the research was determined based on data saturation, which is the point at which data repetition or redundancy is reached.¹⁵ In this context, in-depth interviews were conducted with 15 nursing students.

DATA COLLECTION TOOLS

The research data were collected using a Descriptive Characteristics Questionnaire and a Semi-Structured Interview Form, both prepared by the researchers after reviewing the literature.^{12,16-19}

DESCRIPTIVE CHARACTERISTICS QUESTIONNAIRE

The questionnaire consists of 8 questions that inquire about the following descriptive characteristics: age, gender, year of study, previous earthquake experience, possession of an earthquake emergency kit at home, experience of losing a family member in an earthquake, receiving education on earthquakes, and awareness of the earthquake risk of the place of residence.

SEMI-STRUCTURED INTERVIEW FORM

The form was created to assess the earthquake experiences of nursing students. The interview form was developed through a thorough review of existing lit-

erature. Subsequently, expert opinions were sought, and a pilot application was conducted. The experts involved include 2 researchers with doctoral degrees in public health and psychiatric nursing, both of whom have experience in disaster and qualitative research. Minimal corrections were made to the interview form based on the experts' suggestions. During the pre-application phase, a pilot test was conducted with a student who had experienced the Kahramanmaraş earthquake. Data from pilot applications were not included in the scope of the research. It contains 6 open-ended questions. The questions in the form are as follows:

1. How did you feel during the earthquake? Please describe.
2. What difficulties did you encounter after the earthquake? Please explain.
3. Did you participate in any relief efforts after the earthquake?
 - If yes, how did you feel? Please explain.
 - If no, how did you feel? Please explain.
4. Have your thoughts about earthquakes changed after the Kahramanmaraş earthquake? Reflect on your life at home, in your dormitory, or at your workplace, and explain.
5. What was the most significant lesson that the earthquake you experienced taught you? Please explain.
6. Is there anything else you would like to add?

DATA COLLECTION PROCESS

Research data were collected via face-to-face in-depth interviews between March 20 and April 10, 2023. Nursing students affected by the Kahramanmaraş earthquake were first identified and informed about the study. Interviews were scheduled with willing participants and conducted in a private office at the Faculty of Health Sciences without disrupting students' academic schedules. Each interview lasted 20 to 45 minutes. The setting was arranged to ensure comfort and privacy, and students were informed that participation was voluntary. During the interviews, students were asked the questions in the interview forms clearly and understandably. When needed, additional questions were used to explore

their experiences in more depth, and their responses were noted verbatim. Audio recordings were not made. First, the Descriptive Characteristics Questionnaire was completed, followed by the semi-structured interview. Following the completion of the interviews, the notes/transcripts obtained were given to the students for their review, and they were asked if there were any corrections or additional statements they wanted to provide. After verifying the transcripts, the interviews were concluded. Interviews continued until data saturation was reached. No participants withdrew or experienced emotional distress during the interviews, and no repeated interviews were conducted.

RESEARCH INCLUSION AND EXCLUSION CRITERIA

In the literature, in-depth interviews are generally recommended to be conducted after some time has passed since a traumatic event to obtain more reliable data. Therefore, data collection was planned to occur at least 4 weeks after students had left the disaster area, returned to university, and had their basic needs met. Nursing students who experienced the earthquake, were away from the disaster zone for at least 4 weeks, had their basic needs fulfilled, and volunteered were included in the study. Students who did not experience the Kahramanmaraş earthquake or did not volunteer were excluded.

DATA ANALYSIS

In the analysis of the research data, an inductive approach was used, and content analysis was employed. The data were analyzed in four stages, which are as follows: 1) Transcription and data validation, 2) Coding of the data, 3) Identification of themes, and 4) Organizing and defining the data based on codes, themes, and sub-themes. The transcripts obtained from the interviews were transferred to a Word (Microsoft, USA) document after the interviews, resulting in a data set of approximately 78 pages. No software or program was used for the analysis of the research data. The data were evaluated by both researchers through repeated readings at different time intervals. The expressions in the data set were examined under categorical frameworks considering the headings in the semi-structured interview form and the literature knowledge. Within these categorical

frameworks, conceptualizations were made by repeatedly reading the transcripts, and themes and sub-themes were identified. During the analysis, attention was paid to ensure that the themes formed a meaningful whole within themselves, and after the analysis, the conceptual map obtained was evaluated by the researchers. Subsequently, it was reviewed by two researchers holding doctoral degrees in Mental Health and Diseases Nursing and Public Health Nursing, both of whom have experience in qualitative research. After receiving expert opinions and recommendations, the conceptual map was finalized.

VALIDITY AND RELIABILITY

Validity and reliability are crucial aspects to ensure in qualitative research. This study used multiple data sources and compared results with the literature, finding consistency. Participant checking was also done after interviews to ensure accuracy.

In qualitative research, external validity is assessed as transferability, achieved through purposeful sampling, clear inclusion/exclusion criteria, and detailed descriptions of context and participants. In terms of transferability, it is important that the results obtained from the study can be applied to other similar studies.²⁰ This study's results closely align with existing literature, supporting transferability and ensuring research validity.

Reliability in qualitative research is concerned with whether the results will be similar when the study is replicated under similar conditions with similar participants.²⁰ In this research, one of the triangulation methods, researcher triangulation, was employed. The research results were presented to 2 nursing experts with doctoral degrees and experience in qualitative research, who were not part of the research team, for their input. Based on this information, it can be concluded that the reliability of the research results has been ensured.

ETHICAL CONSIDERATIONS

Before conducting the research, Artvin Çoruh University Ethics Committee (date: March 05, 2023; no: E-18457941-050.99-83813) and Artvin Çoruh University, Faculty of Health Sciences permission (date: March 17, 2023; no: E-82587833-605.01-85895)

were obtained. Prior to the commencement of the research, informed consent was obtained from all participants, both verbally and in writing. This study was conducted in accordance with the principles of the Helsinki Declaration, 2013.

RESULTS

The study conducted in-depth interviews with a total of 15 nursing students (7 females and 8 males) who experienced the earthquake. Some descriptive characteristics of the students are presented in Table 1. It was determined that only one of the students had received earthquake-related training, and only one had an earthquake kit at home (Table 1).

The findings from the interviews with the students revealed four main themes and 19 sub-themes. These themes are (1) Difficulty in meeting basic needs, (2) Post-traumatic emotional reactions, (3) Post-traumatic physiological reactions, and (4) Gains from the loss (Figure 1). Direct quotations from the participants' statements during the interviews were provided, and the participants were coded as P1, P2, etc.

DIFFICULTY IN MEETING BASIC NEEDS

The theme "Difficulty in Meeting Basic Needs" consists of sub-themes including "water needs", "food needs", "housing needs", "hygiene needs", and "communication needs".

Water Needs

"Especially water! We couldn't even find water to drink. The earthquake is over, but there is still no water." (P13)

"Water was a huge problem. We found water about 3 days after the earthquake." (P8)

Food Needs

"Food was a huge problem, such a big problem... We could only find something on Thursday, that is, 4 days later. There was no bread or anything. People had money in their pockets but there was nowhere to buy food." (P8)

Housing Needs (Safe Housing and Heating)

"Our greatest need was heating; we were sleeping outside; the tents arrived very late."

TABLE 1: Some sociodemographic and descriptive characteristics of the students

Participant	Age	Gender	Year of study	Having experienced a disaster before	Loss of a first-degree family member in the earthquake	Having received earthquake-related training	Presence of earthquake kits at home	Knowledge of earthquake risk for the current residence
1	23	Male	4	No	Yes	No	No	Yes
2	23	Female	4	Yes	No	No	No	No
3	20	Female	1	Yes	No	No	No	No
4	23	Male	4	Yes	No	No	No	Yes
5	19	Female	1	No	No	No	No	Yes
6	18	Female	1	Yes	No	No	No	No
7	21	Male	4	No	No	No	No	No
8	23	Male	4	Yes	No	Yes	No	No
9	23	Male	4	Yes	Yes	No	No	Yes
10	19	Female	1	Yes	No	No	No	No
11	22	Male	4	Yes	No	No	No	No
12	23	Male	4	Yes	No	No	No	No
13	24	Male	4	Yes	No	No	Yes	No
14	19	Female	1	Yes	No	No	No	No
15	24	Female	4	Yes	No	No	No	No

Hygiene Needs (Shower and toilet needs, difficulty in accessing hygiene products)

“There was a great need for showers; some people didn’t take a shower for 20-25 days.” (P13)

Communication Needs

“Communication was definitely very hard. We could not get any news from anyone; the phones did not work; there was no electricity. If we were lucky, we were able to talk on the phone for a few seconds only to say “I’m fine”. When we could not reach our loved ones on the phone, we tried to go to their homes.” (P9)

POST-TRAUMATIC EMOTIONAL REACTIONS

The theme of Post-Traumatic Emotional Reactions consists of the subthemes of “helplessness”, “fear of death”, “fear of uncertainty and the unknown”, “sorrow and grief”, “general anxiety and panic”, and “Numbness”.

Helplessness

“Helplessness really wore us out; not being able to help people really wore us out.” (P12)

Fear of Death

“I was asleep. I woke up and looked around. My sister came right on top of me. She started pray-



FIGURE 1: General overview of the themes and sub-themes

ing. The only thing I felt was the fear of death. I really thought we were going to die because the earthquake was very severe. I still feel the fear of death. It feels like it can come any time. When I think of an earthquake, death comes to my mind.” (P2)

Fear of Uncertainty and the Unknown

"There was uncertainty. What happened? What will happen? We were not in a good mood. We did not understand what happened; suddenly everything disappeared." (P12)

Sorrow and Grief

"Should I talk about people hugging each other or little children? I especially felt sorry for the little children. Most of them died in stairwells." (P1)

"We suffered a lot of losses; we had a lot of damage. What can I say? I'm very sorry. I'm still shocked." (P13)

General Anxiety and Panic

"We're always on the alert at home. For example, in addition to the earthquake kit, my mom put a rug, thermos flasks, clothes, dry food, and a flashlight next to the door in case we are able to get out of the house in the next earthquake. At the slightest tremor, we say, 'Go down, go down, don't wait, don't say it's a small or big earthquake, just go down immediately. We've established a protection system like that.'" (P11)

Numbness

"I feel very numb. That's why, I can't think about some things very well. I don't feel very good; I can't think." (P7)

POST-TRAUMATIC PHYSIOLOGICAL REACTIONS

The theme of Post-Traumatic Physiological Reactions consists of the following sub-themes: "loss of appetite", "sleep disturbances", "reluctance to communicate", and "ineffective coping."

Loss of Appetite

"My appetite has worsened; I eat less than before; I don't feel like eating." (P11)

Sleep Disturbances

"I couldn't sleep at night. I think there will be an earthquake at 4 every day, so I go to sleep around 5 or 6." (P2)

Reluctance in Communication

"I feel like I've closed myself off, and I don't want to talk to anyone. I'm always watching some-

thing on my phone, not really talking to anyone. I guess it's related to this process, and I think it will be over. In the first few days, I hardly talked to anyone." (P2)

Ineffective Coping

"After the earthquake, I started smoking excessively. I wasn't a heavy smoker before, maybe one cigarette a day, but now I finish one or two packs (20-40 cigarettes) a day." (P9)

GAINS FROM THE LOSS

The theme of "Gains from the Loss" consists of sub-themes including "increased belief in disaster culture", "rethinking the meaning of life", "living in the present moment", and "spending time with loved ones".

Increased Belief in Disaster Culture

"We learned to be prepared at all times; we should have earthquake kits, and we need to learn what to do when there is an earthquake." (P7)

Rethinking the Meaning of Life

"I realized that extravagance, buying new things, living in multi-million-dollar houses don't matter at all. Everything is temporary; I guess they call this world "mortal"." (P5)

Living in the Present Moment

"We shouldn't make too many plans for the future. We should live in the moment and appreciate the value of this moment." (P2)

Spending Time with Loved Ones

"We should hug our loved ones tightly; there's no guarantee for tomorrow. Today, we are face to face, but we might not be here tomorrow. We should never hold grudges with anyone." (P2)

DISCUSSION

The recent earthquake in Kahramanmaraş, which affected many people in Türkiye, has once again highlighted that disasters are a significant public health issue, and preparedness for disasters is crucial for society.²¹ This study was conducted to investigate the earthquake experiences of nursing students and contribute to the literature.

The study found that the students who experienced the earthquake faced difficulties in meeting various needs such as water, food, housing, hygiene, and communication. The literature on this topic indicates that after the Haiti earthquake, 1.5 million people were left homeless, and many experienced food and water shortages.²² Similarly, in Türkiye, after the Marmara Earthquake, numerous homes and businesses were damaged, and the city's infrastructure was significantly disrupted.²³ This situation can be considered as a likely and expected consequence of earthquakes and disasters, given their sudden onset and the disruption they cause to community life.²

The fact that only 1 student in the study had an earthquake kit at home and only one had received earthquake training suggests that disaster preparedness is inadequate. An emergency or disaster kit is a bag that includes water, food, clothing, hygiene items, and first aid supplies that may be needed in the first 72 hours after an earthquake, before professional rescue teams arrive, and it can increase the chances of survival.²⁴

The study revealed that the students experienced feelings such as helplessness, fear of death, fear of uncertainty and the unknown, sorrow and grief, anxiety and panic, numbness, and difficulty in concentration after the earthquake. Canel and Balcı conducted a study on trauma narratives of individuals who experienced an earthquake, and their participants reported that they significantly experienced feelings of helplessness, fear, and sadness after the earthquake.⁵ In their study with adolescents 3 years after the China earthquake, Tian et al. reported that more than half of the participants experienced concentration problems.¹¹

The present study revealed that the students experienced problems with nutrition and sleep, as well as a lack of interest in communication and substance use problems after the earthquake. Chen et al. found that sleep disorders were quite common among survivors even 10 years after the Wenchuan earthquake.²⁵ Rajabi et al. found that participants ate less after the earthquake, and loss of appetite due to fear was observed.²⁶ Lee et al. conducted a study with parents in South Korea following a disaster in 2014 and found that even individuals living in the same house-

hold communicated less with each other and were reluctant to communicate with each other.²⁷ Bianchini et al. reported that disasters were associated with an increase in tobacco, alcohol, and substance use. Furthermore, as stated in the literature, disasters can increase the risk of substance use disorders.²⁸⁻³⁰ It is also noted that individuals who use tobacco, alcohol, or substances after a disaster may experience more mental health problems compared to non-users.³¹

The study found that the nursing students had some gains after the earthquake. They had an increased belief in disaster culture, reevaluated the meaning of life, and understood the importance of living in the present moment and spending time with loved ones. Mao et al. found that healthcare professionals participating in disaster search and rescue operations gained positive aspects such as improving their relationships with others, seeing new possibilities in life, personal strength, spiritual growth, and appreciation for life.³² Turan and Oral reported that experiencing disasters was an important experience in recognizing the deficiencies in disaster policies, and it increased the belief in creating disaster preparedness programs through collaboration between local governments and the community.³³ This may be related to individuals who have experienced disasters directly, as they have experienced the shortcomings in disaster preparedness and response efforts firsthand.

This study suggests that nursing students who experienced the Kahramanmaraş earthquake gained professional insight, increased awareness of disaster preparedness, and may take more active roles in future disaster responses. Their experiences can enhance empathy and improve their ability to support individuals affected by disasters.

LIMITATIONS

This study was conducted at a single state university, which limits generalizability. It did not consider the severity of students' personal losses (e.g., death of relatives, property damage, or income loss), which may have influenced their experiences. Additionally, recall bias may have occurred due to trauma-related factors like shock or grief. The findings reflect only the experiences of the nursing students who agreed

to participate, possibly excluding those with more severe trauma.

CONCLUSION

This study examined the experiences of students affected by the Kahramanmaraş earthquake in Türkiye and categorized their experiences under four main themes: Difficulty in Meeting Basic Needs, Post-Traumatic Emotional Reactions, Post-Traumatic Physiological Reactions, and Gains from the Loss. In line with the fundamental public health principle of "Prevention is better than cure," it is recommended to establish a culture of disaster preparedness, increase awareness of disaster resilience, promote multidisciplinary collaboration, and develop strategies to prevent destruction and minimize losses during emergencies. Considering the potential emergence or exacerbation of psychological issues such as sleep and eating disorders, post-traumatic stress disorder, and substance use disorders following earthquakes and crises, it is also recommended to provide timely psychological first aid and age-appropriate mental health support.

Source of Finance

During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.

Conflict of Interest

No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.

Authorship Contributions

Idea/Concept: Deniz S. Yorulmaz Demir; **Design:** Deniz S. Yorulmaz Demir; **Control/Supervision:** Deniz S. Yorulmaz Demir, Nurhayat Kılıç Bayageldi; **Data Collection and/or Processing:** Nurhayat Kılıç Bayageldi; **Analysis and/or Interpretation:** Deniz S. Yorulmaz Demir; **Literature Review:** Deniz S. Yorulmaz Demir, Nurhayat Kılıç Bayageldi; **Writing the Article:** Deniz S. Yorulmaz Demir, Nurhayat Kılıç Bayageldi; **Critical Review:** Deniz S. Yorulmaz Demir, Nurhayat Kılıç Bayageldi; **References and Fundings:** Deniz S. Yorulmaz Demir.

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