DETERMINATION OF DISASTER RESPONSE SELF-EFFICACY AND RELATED FACTORS OF NURSES WORKING IN SURGICAL CLINICS

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ABSTRACT

Purpose: Disasters experienced in the world and in our country in recent years have made it necessary for health professionals to have high levels of disaster response self-efficacy. Nurses, as an important member of the healthcare team, have a key role in disaster management, especially in disaster response. Therefore, it is extremely important for nurses to be ready for disaster response and to have high levels of self-efficacy in disaster response. This study was conducted to determine the disaster response self-efficacy status and related factors of nurses working in surgical clinics.

Methodology: This descriptive cross-sectional study was conducted with 127 nurses working in surgical clinics between June and August 2023. "Sociodemographic Data Collection Form" was used to determine the sociodemographic characteristics of the nurses and "Of The Disaster Response Self-Efficacy Scale" was used to assess their disaster response self-efficacy.

Findings: The findings of the study show that nurses working in surgical clinics have a high level of disaster preparedness. Previous on-duty disaster experience and feeling competent about disaster are positively associated with disaster response self-efficacy. It may be recommended to provide evidence-based, high-quality and up-to-date training programs at regular intervals in order to increase and maintain the emergency response competencies of nurses.

Originality: The originality of this study is that it was conducted only with surgical nurses.

Keywords: disaster, disaster response, surgical nurse, self-efficacy

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INTRODUCTİON

Disasters are defined as catastrophic events that can damage homes, cause injury or death to people, displace people from their places of residence, and cause family members to be separated from each other. Disasters include events that exceed the ability of the affected community to respond [1]. Disasters can occur at any time and in any place [2].

Although disaster education is very important for everyone, it is especially important and necessary for nurses[3]. Nurses should have information about disasters, make individual and family communication plans, and create the necessary materials for sheltering or evacuation for themselves and their families are among the basic preparation behaviors required. In addition, nurses need to understand their roles and responsibilities within emergency plans and incident command structure. The fact that nurses have self-efficacy in all these behaviors helps nurses to be ready and accessible to care for patients during disaster and emergency events [4].

Self-efficacy in disaster response is extremely important for aspiring nurses [5]. The ability of nurses to respond to any disaster event is largely determined by disaster response self-efficacy, that is, their belief in their personal ability to perform certain behaviors related to disaster response [6]. As an important member of the healthcare team, nurses are expected to actively participate and fulfill their roles in all phases of disaster management and have various roles and responsibilities in the pre-disaster phase (e.g., implementation of hospital disaster plan and identification of risks), disaster phase (providing holistic care to victims, families and communities) and post-disaster phase (recovery and reconstruction activities) [7]. Thus, nurses must always be ready to respond to disasters and provide effective care to victims/affected populations. [7,8].

The fact that nurses have key roles in disaster management, have knowledge about disasters, are prepared for disasters and have high capacity to intervene quickly play an

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important role in the management of disasters [3,9]. Considering the fact that patients in disaster areas need the most critical care, it is of critical importance to ensure that nurses, especially nurses with self-efficacy in disaster, take an active role in the disaster process [6,8,10]. Veenema et al. reported that nurses trained in disaster management can assume important roles in the event of disasters and can be more successful in disaster management [11]. Initiating interventions to increase nurses' confidence to respond to disasters reveals the need to understand the different factors or variables that may contribute to the development of disaster response self-efficacy among nurses [12].

When the studies in the literature are examined, although there are different measures developed and implemented locally and internationally to increase the disaster preparedness and competence of nurses, available evidence shows that there are deficiencies in disaster management self-efficacy among nurses globally [13-16]. Being prepared for disasters and having the capacity to respond increases the effectiveness of nurses and improves patient care outcomes. Nurses working in surgical units have to cope with situations that require surgical interventions as well as continuing patient care in emergency situations. Therefore, disaster preparedness and response self-efficacy are vital for them to be able to perform their duties effectively and efficiently. According to Bandura (1997), individuals form self-efficacy beliefs by interpreting information about their own abilities. This information comes from four sources: mastery experiences, vicarious experiences, verbal persuasion, and physiological-emotional states[17]. For such reasons, it is thought that self-efficacy can be affected by individual experiences, and this study was conducted to determine the disaster response self-efficacy status and related factors of nurses working in surgical clinics.

METHODS

This study was descriptive and cross-sectional. The universe of the study consisted of surgical nurses who had at least 6 months of hospital work experience and were currently actively working in surgical clinics at one university hospital in Turkey. A power analysis was performed using the G*Power 3.1.9.2 package program to determine the number of nurses to be included in the study. As a result of the applied power analysis, the sample size was determined to be 122 nurses, according to type 1 error: 0.05, type 2 error: 0.05 (95% power level) and effect size: 0.3. The sample consisted of 127 surgical nurses who

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met the inclusion criteria. The inclusion criteria were having at least 6 months of hospital work experience, being currently actively working in surgical clinics (special unit in hospitals where diagnosis, treatment and follow-up of diseases requiring surgical intervention are performed), volunteering to participate in the study and answering the questions completely. Data were collected between June and August 2023 using an online survey system (google forms). "Sociodemographic Data Collection Form" and "Of The Disaster Response Self-Efficacy Scale (DRSES)" [16] were used for data collection. The purpose of the study was explained to the individuals who volunteered to participate in the study and their consent was obtained. The principles of the Declaration of Helsinki were followed in the conduct of the study.

Research questions:

- What is the level of disaster response self-efficacy of nurses working in surgical clinics?
- What are the factors affecting the disaster response self-efficacy of nurses working in surgical clinics?

Sociodemographic Data Collection Form: It consists of a total of 11 questions about the sociodemographic and professional characteristics of the nurses such as age, gender, educational status, years of working in the profession and clinic, the clinic where they work, weekly working time and working style, and whether they have received disaster training and whether they have disaster experience.

Of The Disaster Response Self-Efficacy Scale: The Turkish validity and reliability of the scale developed by Li et al. in 2017 [5]was conducted by Koca et al. in 2020 [18]. The scale is 5-point Likert type and consists of a total of 19 items and 3 sub-dimensions (On-site rescue competence, psychological nursing competence in disaster, quality of the role undertaken in disaster and adaptation competence). The scale is answered as not confident at all (1 point), basically not confident (2 points), somewhat confident (3 points), basically confident (4 points) and fully confident (5 points). The scale score is calculated by summing the answers given to the questions. The mean scores of the scale are classified as high (3.68-5.00), medium (2.34-3.67) and low (1.00-2.33) [5]. A high score on the scale indicates a high level of disaster response self-efficacy. In the Turkish validity and

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reliability study of the scale, Cronbach's alpha coefficient was found to be 0.96 [18]. In this study, Cronbach's alpha coefficient was found to be 0.93.

Statistical Analysis

SPSS 26 package program was used to analyze the data obtained from the study. Descriptive data were given as number, percentage, frequency, mean and standard deviation. Due to the normal distribution of the data, independent samples t-test was used for two-group comparisons and one-way ANOVA test was used for comparisons with three or more groups. The relationship between variables was examined by correlation analysis. Cronbach's alpha value of the scale used was calculated. $p<0.05$ was accepted as significant.

Ethics

Approval permission was obtained from the ethics committee of a university to conduct the study. Permission to use the scale was obtained by e-mail from the authors of the Turkish validity and reliability study of the "Of The Disaster Intervention Self-Efficacy Scale". The purpose and nature of the study were explained to the nurses and their informed consent was obtained by informing them that their participation was voluntary and that they could leave the study at any time.

RESULTS

A total of 127 surgical nurses participated in the study. The mean age of these nurses was 38.62±6.693 years and 93.7% (n=119) were female. When the educational status of the participants was examined, 59.8% (n=76) were undergraduate and 32.3% (n=41) were postgraduate. Of the nurses, 75.6% (n=96) had 10 years or more of professional experience and 33.9% (n=43) had 1-5 years of surgical clinic/intensive care experience. While 51.2% (n=65) of the nurses stated that they had not received disaster training before, 49.2% (n=32) of the nurses who stated that they had received disaster training before stated that they received disaster training in in-service trainings. 81.1% (n=103) of the nurses stated that they wanted to receive disaster training. Of the nurses, 72.4% (n=92) had not experienced a disaster on duty before, and 64.6% (n=82) stated that they felt partially competent about disasters (Table 1).

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In our study, the mean total score of the DRSES was found to be 3.78±0.64. The mean total score of the sub-dimension of on-site rescue competence was 3.72±0.68, the mean total score of the sub-dimension of psychological nursing competence in disaster was 3.57±0.82, and the mean total score of the sub-dimension of the quality of the role undertaken in disaster and adaptation competence was 4.16±0.68 (Table 2).

Table 3 shows the relationship between socio-demographic characteristics, disaster management, and exposure to disaster and DRSES. It was found to be statistically significant that nurses working in surgical clinics who had previous on-duty disaster experience had higher total scores on the DRSES than those who had no previous on-duty disaster experience (F=3.381; p= 0.001). It was found that the mean total scores of the nurses who felt adequate about disaster were statistically significantly higher than those who felt partially adequate and those who did not feel adequate (F= 19,258; p=0,000) (Table 3).

The correlation between the mean total score of the Of The Disaster Response Self-Efficacy Scale and age was not statistically significant (r=0.080; p=0.369) (Table 4).

DISCUSSION

Nurses have an important position in disaster response and nurses should be prepared to respond to disasters [2,3,11]. In this study, we determined the disaster response self-efficacy levels of nurses working in surgical clinics and the effect of sociodemographic characteristics of nurses on their disaster response self-efficacy. As a result of the analysis of the collected data, important results were obtained that may have a direct impact on the education and practice of nurses.

The increasing frequency of disasters and emergencies experienced worldwide and in our country in recent years reveals the need to equip nurses with comprehensive knowledge and skills in disaster management [19]. Nurses, who constitute an important part of the healthcare team, can take responsibility in different positions such as planner, policy maker, leader, commander, educator and researcher in disaster management in addition to their interventionist roles in disasters and emergencies [11]. In this context, training programs on disaster management can increase the disaster preparedness awareness of individuals and improve their knowledge, skills and behaviors about disaster [20,21]. In our

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study, it was found that a little more than half of the nurses (51.2%) had not received disaster training before and this result was consistent with the results of existing studies [12,14]. The majority of the nurses who received disaster training stated that they received disaster training in in-service trainings. Disaster management should be an indispensable component of undergraduate education of nursing students and in-service education of nurses, and evidence-based, competency-oriented and high-quality disaster education content should be created [22,23].

In our study, it was found that the majority of nurses (72.4%) had no previous on-duty disaster experience, and this finding was consistent with the results of previous studies. Similarly, studies in the literature reported that the majority of nurses did not experience a disaster [8,12].

In our study, more than half of the nurses (64.6%) stated that they felt partially confident (a person has a certain amount of confidence in some matters or situations, but not complete conviction or certainty) about disaster. Similarly, although the importance of nurses' high self-efficacy in disaster response has always been emphasized, nurses report that their belief in their capacity to manage disaster situations is at a moderate level [24,25]. This result reveals the necessity of providing the theoretical infrastructure for nurses to improve their self-efficacy in educational programs planned to be developed for nurses.

In our study, it was observed that the majority of nurses (81.1%) wanted to receive training on disasters. Similarly, it has been reported in studies in the literature that the majority of nurses want to receive disaster education to improve their disaster skills and preparations [26]. The fact that the majority of nurses have not participated in any training or course so far despite the fact that the majority of nurses want to receive training on disaster is consistent with the results of previous studies [16,27]. In this context, considering the importance of receiving disaster training as well as the desire of nurses to receive disaster training, it is recommended that trainings should be created especially for the responsibilities of nurses in disasters, nurses should be supported to participate in these trainings and these trainings should be accessible.

In studies conducted in different years, it has been reported that nurses are not sufficiently prepared to intervene in emergency or disaster situations, that they do not fully trust themselves, that their level of competence related to disaster management is insufficient,

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and that their readiness for disaster interventions, especially outside the hospital environment, is weak [8,15,16]. In our study, the mean total score of the AMRDS was found to be at a high level. The mean total score of the sub-dimension of on-site rescue competence was found to be high, the mean total score of the sub-dimension of psychological nursing competence in disaster was found to be moderate, and the mean total score of the sub-dimension of the quality of the role undertaken in disaster and adaptation competence was found to be high. Although it was found that nurses' disaster response self-efficacy levels were at medium and high levels in our study, it has been reported in many studies in the literature that nurses do not have the relevant competencies needed in response to recent disasters [28,29]. In addition, it has been reported that nurses have moderate (neither too little nor too much; average) level of knowledge, skills and preparedness in disaster management and that they lack knowledge, skills and training in disaster management [12,26,29]. In the literature, it has also been reported that emergency and intensive care nurses have higher levels of disaster intervention self-efficacy compared to nurses in other units [8,12,30]. In this context, it is thought that the result we obtained in our study was due to the fact that the study was conducted with nurses working in surgical clinics.

When we look at the studies in the literature, it is reported that nurses who have participated in disaster-related training or courses have higher levels of competence and preparedness for disaster situations [15,28,31,32]. Existing evidence shows that effective disaster preparedness and disaster education can significantly contribute to the development of nurses' disaster response skills as well as disaster recovery skills [28,33,34]. In our study, although approximately half of the nurses stated that they received disaster-related training, it was observed that there was no statistically significant difference in disaster-response self-efficacy levels between nurses who received training and those who did not. In contrast to our findings, studies in the literature reported that disaster awareness and knowledge levels of nurses who received training on disaster were high, and disaster response experience and participation in disaster management training positively affected the disaster knowledge, skills and preparation scores of nurses [12,18,26,35,36]. In studies conducted with clinical nurses, it was reported that trainings on disaster had positive effects on nurses' preparedness for disasters and their ability to intervene [2,37].

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Disaster intervention self-efficacy levels of nurses are closely related to their disaster preparedness and competencies. Disaster preparedness of nurses is also closely related to their disaster response experience [8]. In our study, it was found that nurses working in surgical clinics who had previous on-duty disaster experience had higher total scores on the DRSES than those who had no previous on-duty disaster experience (F=3.381; p= 0.001). In addition, it was found that the mean total scores of the nurses who felt adequate about disaster were statistically significantly higher than those who felt partially adequate and those who did not feel adequate (F= 19,258; p=0,000). Lack of experience during a disaster intervention may cause stress and fear in individuals, but individuals' belief in the adequacy of their preparation for disaster may increase their confidence in disaster intervention [38,39]. In this context, the result obtained in our study is consistent with the results of previous studies.

LIMITATIONS

The research is limited to 127 nurses working in surgical clinics between June and August 2023. The scale used is only intended to measure the disaster response self-efficacy of volunteer nurses.

Implications for Emergency Nursing:

All nurses, not just nurses working in surgical units, need to be prepared for disasters. Education is undoubtedly essential for this readiness. It is very important that trainings are given first in schools in order to raise awareness, and then repeated at regular and frequent intervals in professional life, in line with current evidence.

CONCLUSION

The readiness of nurses working in surgical clinics for emergencies and disasters is affected by the clinic they work in, their disaster training status and their disaster experience. Considering the disasters experienced in our country in recent years, it can be recommended that evidence-based, high-quality and up-to-date training programs be delivered to nurses at periodic intervals in order to increase and maintain their emergency response competencies.

Statement: During the preparation of this study, the author used DeepL Translate for translation purposes. After using this tool/service, the author reviewed and edited the content as required and took full responsibility for the content of the publication.

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REFERENCES

1. Akpınar NB, Ceran M. Afetlerle ilgili güncel yaklaşımlar ve afet hemşiresinin rol ve sorumlulukları. *Paramedik ve Acil Sağlık Hizmetleri Dergisi*. 2020;1(1):28-40.
2. Jang I, Kim JS, Lee J, Seo Y. Educational needs and disaster response readiness: A cross-sectional study of clinical nurses. *Journal of Advanced Nursing*. 2021;77(1):189-197.
3. Hasan MK, Younos TB, Farid ZI. (2021). Nurses' knowledge, skills and preparedness for disaster management of a Megapolis: Implications for nursing disaster education. *Nurse education today*, *107*, 105122.
4. Evans CA, Baumberger-Henry M. Readiness: how prepared are you? *Journal of Emergency Nursing*. 2014;40(5):448-452.
5. Li H-Y, Bi R-X, Zhong Q-L. The development and psychometric testing of a Disaster Response Self-Efficacy Scale among undergraduate nursing students. *Nurse education today*. 2017;59:16-20.
6. Hammad KS, Arbon P, Gebbie K, Hutton A. Why a disaster is not just normal business ramped up: Disaster response among ED nurses. *Australasian Emergency Care*. 2018;21(1):36-41.
7. Al Thobaity A, Plummer V, Williams B. What are the most common domains of the core competencies of disaster nursing? A scoping review. *International emergency nursing*. 2017;31:64-71.
8. Tzeng W-C, Feng H-P, Cheng W-T, et al. Readiness of hospital nurses for disaster responses in Taiwan: A cross-sectional study. *Nurse education today*. 2016;47:37-42.
9. Sattar, S. A. L. A., Zahra, N. A. I., & Mohamed, W. M. (2018). The effect of an educational intervention about disaster preparedness on knowledge and attitudes of technical nursing institute intern-nurse students. American Journal of Nursing, 7(6), 287-295.
10. Kılıç N, Şimşek N. The effects of psychological first aid training on disaster preparedness perception and self-efficacy. *Nurse education today*. 2019;83:104203.
11. Veenema TG, Griffin A, Gable AR, et al. Nurses as leaders in disaster preparedness and response—a call to action. *Journal of Nursing Scholarship*. 2016;48(2):187-200.
12. Labrague LJ, Kamanyire JK, Achora S, Wesonga R, Malik A, Al Shaqsi S. Predictors of disaster response self-efficacy among nurses in Oman. *International Journal of Disaster Risk Reduction*. 2021;61:102300.
13. Martono M, Satino S, Nursalam N, Efendi F, Bushy A. Indonesian nurses' perception of disaster management preparedness. *Chinese journal of traumatology*. 2019;22(1):41-46.
14. Rizqillah AF, Suna J. Indonesian emergency nurses' preparedness to respond to disaster: A descriptive survey. *Australasian emergency care*. 2018;21(2):64-68.
15. Labrague L, Hammad K, Gloe D, et al. Disaster preparedness among nurses: a systematic review of literature. *International nursing review*. 2018;65(1):41-53.
16. Said NB, Molassiotis A, Chiang VC. Psychological preparedness for disasters among nurses with disaster field experience: An international online survey. *International journal of disaster risk reduction*. 2020;46:101533.
17. Bandura A. *Self-efficacy: The exercise of control*. vol 604. Freeman; 1997.
18. Koca B, Çağan Ö, Türe A. Validity and reliability study of the Turkish version of the Disaster Response Self-Efficacy Scale in undergraduate nursing students. *Acıbadem Üniversitesi Sağlık Bilimleri Dergisi*. 2020;(3):515-521.

DOI: https://doi.org/10.1017/dmp.2025.10113

19. Wenji Z, Turale S, Stone TE, Petrini MA. Chinese nurses' relief experiences following two earthquakes: implications for disaster education and policy development. *Nurse education in practice*. 2015;15(1):75-81.
20. Nazli NNNN, Sipon S, Radzi HM. Analysis of training needs in disaster preparedness. *Procedia-Social and Behavioral Sciences*. 2014;140:576-580.
21. Lee J, Lee E. The effects of disaster training education on the attitudes, preparedness, and competencies in disaster nursing of hospital nurses. *Journal of Korean Academy of Community Health Nursing*. 2020;31(4):491-502.
22. Loke AY, Guo C, Molassiotis A. Development of disaster nursing education and training programs in the past 20 years (2000–2019): A systematic review. *Nurse education today*. 2021;99:104809.
23. Said NB, Chiang VC. The knowledge, skill competencies, and psychological preparedness of nurses for disasters: a systematic review. *International emergency nursing*. 2020;48:100806.
24. Mousavi M, Majidi A, Shabahang R, Besharat M, Bagheri Sheykhangafshe F, Samiee Z. The prediction of disaster nursing competency based on the self-efficacy and disaster-related experi-ences of nurses. *Journal of Clinical Nursing and Midwifery*. 2020;9(1):582-590.
25. Jonson C-O, Pettersson J, Rybing J, Nilsson H, Prytz E. Short simulation exercises to improve emergency department nurses' self-efficacy for initial disaster management: Controlled before and after study. *Nurse education today*. 2017;55:20-25.
26. Hasan MK, Younos TB, Farid ZI. Nurses' knowledge, skills and preparedness for disaster management of a Megapolis: Implications for nursing disaster education. *Nurse education today*. 2021;107:105122.
27. Jeong S, Lee O. Correlations between emergency code awareness and disaster nursing competencies among clinical nurses: A cross-sectional study. *Journal of nursing management*. 2020;28(6):1326-1334.
28. Al Khalaileh MA, Bond E, Alasad JA. Jordanian nurses' perceptions of their preparedness for disaster management. *International emergency nursing*. 2012;20(1):14-23.
29. Younos TB, Hasan MK, Nasreen M. Are nurses ready? Bangladeshi nurses' perceived preparedness for disasters: A mixed-methods approach. *International Journal of Disaster Risk Reduction*. 2021;58:102195.
30. Khairina I, Nelwati N, Maisa EA, Rahman D. Disaster preparedness assessment in emergency department: a cross-sectional study. *Disaster and Emergency Medicine Journal*. 2023;8(3):134-140.
31. Noh J, Oh EG, Kim SS, Jang YS, Chung HS, Lee O. Development and evaluation of a multimodality simulation disaster education and training program for hospital nurses. *International journal of nursing practice*. 2020;26(3):e12810.
32. Davis AH, Manning J, Germain DS, Hayes S, Pigg C. Implementing disaster simulations for baccalaureate nursing students in the Gulf-Coast region. *Clinical Simulation in Nursing*. 2020;43:26-34.
33. Duong K. Disaster education and training of emergency nurses in South Australia. *Australasian Emergency Nursing Journal*. 2009;12(3):86-92.
34. Chapman K, Arbon P. Are nurses ready?: Disaster preparedness in the acute setting. *Australasian Emergency Nursing Journal*. 2008;11(3):135-144.
35. Hisar KM, Yurdakul A. Bir üniversitenin hemşirelik öğrencilerinin afetlerde sağlık hizmetleri ile ilgili bilgilerinin değerlendirilmesi. *Mehmet Akif Ersoy Üniversitesi Sağlık Bilimleri Enstitüsü Dergisi*. 2015;3(2):54-65.
36. Huh SS, Kang HY. Effects of an educational program on disaster nursing competency. *Public health nursing*. 2019;36(1):28-35.

DOI: https://doi.org/10.1017/dmp.2025.10113

367 37. Maeda T, Kotera S, Matsuda N, Edwards GD. Disaster readiness among nurses in Japan:
368 Current status following the Great East Japan earthquake. *International Journal of Nursing*.
369 2016;3(1):15-28.
370 38. Ma D, Shi Y, Zhang G, Zhang J. Does theme game-based teaching promote better
371 learning about disaster nursing than scenario simulation: A randomized controlled trial. *Nurse*
372 *education today*. 2021;103:104923.
373 39. Kim J, Lee O. Effects of a simulation-based education program for nursing students
374 responding to mass casualty incidents: A pre-post intervention study. *Nurse education today*.
375 2020;85:104297.

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DOI: https://doi.org/10.1017/dmp.2025.10113