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Dilek Yılmaz
Department of Nursing, Faculty of Health Sciences, Bursa Uludag University, Nilüfer 16059, Türkiye,
dilekk@uludag.edu.tr

Gonca Buran
Department of Nursing, Faculty of Health Sciences, Bursa Uludag University, Nilüfer 16059, Türkiye,
gburan@uludag.edu.tr

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Disaster Response Self-Efficacy of Students in the Nursing Department: A Cross-Sectional Study

Dilek Yılmaz*, Gonca Buran

Department of Nursing, Faculty of Health Sciences, Bursa Uludag University, Nilüfer 16059, Türkiye

Abstract

Background: Nurses take on important roles in disasters. In this regard, the disaster response self-efficacy of nursing students must be evaluated. The study aimed to determine the self-efficacy of nursing students in disaster response.

Methods: In this descriptive cross-sectional study, the study sample consisted of 207 nursing students who were in their third or fourth year attending the nursing department of a state university in the Marmara region of Türkiye between October and December 2023. Data were collected using a student description form and the disaster response self-efficacy scale.

Results: The mean age of the study participants was 22.05 ± 2.23 years, 73.4% were female, 50.2% were in their third year of study, 90.3% felt a need for education on disaster nursing, and 76.8% stated that they did not have sufficient knowledge and skills relating to disasters. The students' mean total score on the disaster response self-efficacy scale was 3.23 ± 0.68. In addition, the disaster response self-efficacy levels of students who stated they had sufficient knowledge and skills concerning disaster response were significantly higher than those of other students ($p < 0.05$).

Conclusions: Students demonstrated a medium level of disaster response self-efficacy.

Keywords: disaster response, nursing students, Türkiye

INTRODUCTION

Natural disasters are one of the greatest problems faced by people throughout history. A disaster is an event or situation that causes human suffering, which happens suddenly and unexpectedly, for which local resources are inadequate, necessitating emergency help worldwide, and causes damage and destruction.[1] Disasters can occur at any time in any place. They can severely injure people and damage infrastructure, thereby necessitating prompt emergency care despite insufficient resources.[2] The Emergency Event Database (EM-DAT) divides disasters into natural and technology-related disasters.[3] Between 2000 and 2019, EM-DAT recorded 7,348 disasters, which claimed a total of approximately 1.2 million lives and affected >4.03 billion people. On average, 367 disaster events occur annually, the majority of which were floods and storms (44% and 28%, respectively).[4] Disaster preparedness actions are also needed at the time of the event and various stages before and after the event.[5,6] Türkiye's geography carries a high disaster risk.[7,8] In 2020, 15 disasters were recorded. These disasters affected 76,995 people, leaving 3,022 injured and 349 dead.[9] Effective preparation and response strategies are important in preventing disasters and mitigating associated damage.[10]

The World Health Organization (WHO) recommends that health professionals in all countries be trained to respond to all types of disasters, prioritizing those most likely to occur in each country. Nurses should know about and participate in the management of all stages of a disaster response.[11] Nurses are the largest healthcare workforce, care for people affected by disasters, and play a critical role in community health.[12,13] Disaster nursing aims to respond to the community directly affected by disasters at all stages and provide care at the highest level possible.[14,15] Nurses can perform various roles in disasters such as incident commander, communications coordinator, senior nursing officer, labor pool coordinator, emergency department triage nurse, and staff nurse.[16] Nurses must have the knowledge and skills needed to respond to a disaster,[17] must also acquire essential competencies for disasters because they are expected to show effective disaster preparedness and appropriate response.[18] The International Council of Nurses (ICN) clarifies that disaster preparedness and response should be a part of a nurse's knowledge and skills and that nursing training in disaster management should be required everywhere.[19] Early response to immediate needs can prevent long-term deterioration and save many lives.[6]

Moreover, nursing students should receive adequate education to enable them, after graduation, to fulfill their roles in disasters successfully.[20] Studies have shown that health professionals with a higher knowledge level have a

***Corresponding author:**
Dilek Yılmaz
Department of Nursing, Faculty of Health Sciences,
Bursa Uludag University, Nilüfer, Türkiye
E-mail: dilekk@uludag.edu.tr

greater possibility of responding to disasters.[6,21] The WHO has emphasized the need for forming a global strategy for nursing students competent in disaster nursing and education programs arranged for any disaster.[22] Currently, no clear framework for the inclusion of disaster education into nursing education programs has been established.[15] Efforts to provide nurses and nursing students with disaster nursing competency and in setting up disaster nursing education programs are deficient, and many nursing students graduate without having received education in disaster nursing.[14] This highlights the importance of understanding nursing students' knowledge levels and education needs for disaster and disaster management nursing. When a disaster occurs, nursing students and nurses may take different positions caring for people affected. Thus, nursing students must be prepared for disasters during their education. This preparation includes being prepared to evaluate risks and response capacities.[23] Studies have emphasized the need for education, professional knowledge, and skill in disaster preparedness.[24–26]

Previous studies have shown that nurses and nursing students have low levels of knowledge and skills concerning disaster preparedness and response.[14,23,26–28] Based on the analysis of the results of studies on this subject conducted in Türkiye, nursing students' disaster response self-efficacy was not at the desired level, and a correlation was found between disaster response self-efficacy and personal characteristics.[14,23,28] However, these studies were limited. Thus, in the present study, we thought about determining the disaster response self-efficacy of nursing students in Türkiye and the variables affecting this. Accordingly, this study aimed to evaluate nursing students' self-efficacy in disaster response, examine affecting variables, and contribute to the literature. In light of all of this information, this study was conducted to determine nursing students' self-efficacy in disaster response.

METHODS

This descriptive and cross-sectional study was designed to assess the disaster response self-efficacy of students attending the nursing department of a government university in Türkiye. A questionnaire-based survey was conducted online between October and December 2023. This study was approved by the ethics committee of the university where the study was conducted (October 25, 2023, No. 2023-08).

The students were informed about the topic and content of the research, and they provided consent. The study was performed in accordance with the principles of the Declaration of Helsinki. The link to these online data collection instruments was sent to the students' email addresses. Before the students began filling out the data collection forms, they were assured that the data would be used entirely for scientific research and that their responses would in no way affect their class grades. To prevent students from answering questions more than once, only the relevant section was activated on Google Forms.

The study population consisted of third- and fourth-year nursing students at a state university in the Marmara region of Türkiye (N = 290). No sample selection was made. Data were collected from the 207 students who agreed to participate in the study and filled in the data collection forms completely, and 93.10% of the population were contacted. Only third- and fourth-year nursing students were included because those in lower-year levels were still taking basic professional classes, which do not include disaster nursing topics. Nursing students who did express voluntary participation in the study had a communication problem and could not speak Turkish were excluded.

A student description form and a disaster response self-efficacy scale (DRSES) were used to collect data. The student description form consisted of information on students' age, sex, year of study, need for education on the implementation of disaster nursing, adequacy of knowledge and skill regarding disaster response, and whether they had experienced a disaster.

The DRSES used in the study was developed by Hong-yan Li *et al*.[29] in 2017, and the validity and reliability testing of the Turkish version was performed by Koca *et al*.[30] in 2020. It consists of 19 items on three subdimensions, namely, on-site rescue competency, disaster psychological nursing competency, and disaster role quality and adaptation competency, and the responses are of 5-point Likert type (1 = no confidence at all, 2 = basically no confidence, 3 = little confidence, 4 = basically confident, and 5 = complete confidence). The subdimension of on-site rescue competency has 11 questions, disaster psychological nursing competency has 4, and disaster role quality and adaptation competency also has 4. A high score represents a high disaster response self-efficacy level. Scoring on the scale is classified as high (3.68–5.00), medium (2.34–3.67), or low (1.00–2.33).[29,30] In the previous study, the Cronbach alpha coefficient of the scale was 0.96.[30] In this study, the Cronbach alpha coefficient of the scale was 0.94.

Data collected were analyzed using IBM SPSS Statistics version 28.0 (IBM Corp., Armonk, NY, USA). The significance level of statistical comparison tests was accepted as $p < 0.05$. The conformity of the data to normal distribution was analyzed by the Kolmogorov–Smirnov test ($p > 0.05$). In data evaluation, numerical values, percentages, means, and standard deviations were utilized as descriptive statistical methods. In addition, the independent sample t-test was conducted in independent groups.

RESULTS

The overall response rate was 100%. As shown in Table 1, most participants were female aged 19–38 years, with a mean age of 22.05 years, and 50.2% were in their third year of study. Most participants stated that they had heard of the need for education on disaster nursing, they did not have sufficient knowledge and skill with regard to disaster response, and they had not faced any kind of disaster.

Table 2 shows participants' DRSES subdimension and total score means. Their mean DRSES total score was 3.23 ± 0.68. From this finding, students had a medium level of disaster response self-efficacy.

Table 3 shows the mean DRSES subscale and total scale scores of the participants according to their descriptive information. As shown, the mean total DRSES scale and subscale scores of on-site rescue competency, disaster psychological nursing competency, and disaster role quality and adaptation competency of students who stated that they had adequate knowledge and skills concerning disaster were significantly higher than those of other students (p = 0.003, p = 0.003, p = 0.001, and p = 0.003 respectively). On the contrary, no statistically significant difference was found between students' sex, year of study, need for education on disaster nursing, and experience in some kind of disaster situation in the DRSES subscale and total scale score means (p > 0.05).

TABLE 1. Descriptive information about the nursing students

Variable	N	%
Sex		
Female	152	73.4
Male	55	26.6
Year of study		
Third-year	104	50.2
Fourth-year	103	49.8
Need for education on disaster nursing		
Yes	187	90.3
No	20	9.7
Adequate skill and knowledge of disaster response		
Yes	48	23.2
No	159	76.8
Disaster experience		
Yes	116	44.0
No	91	56.0

TABLE 2. DRSES total and mean subdimension scores

DRSES	Mean ± SD
On-site rescue competency	2.97 ± 0.74
Disaster psychological nursing competency	3.04 ± 0.82
Disaster role quality and adaptation competency	3.69 ± 0.84
Total DRSES	3.23 ± 0.69

DRSES: disaster response self-efficacy scale; SD: standard deviation

TABLE 3. Mean DRSES scores by students' descriptive information

Variable	On-site rescue competency		Disaster psychological nursing competency		Disaster role quality and adaptation competency		Total	
	Mean ± SD	*p*	Mean ± SD	*p*	Mean ± SD	*p*	Mean ± SD	*p*
Sex								
Female	2.93 ± 0.68	0.154	3.05 ± 0.77	0.649	3.74 ± 0.75	0.145	3.24 ± 0.61	0.790
Male	3.09 ± 0.86		3.00 ± 0.96		3.55 ± 1.01		3.21 ± 0.86	
Year of study								
Third-year	2.95 ± 0.76	0.697	3.01 ± 0.86	0.612	3.65 ± 0.86	0.514	3.20 ± 0.70	0.542
Fourth-year	2.99 ± 0.71		3.07 ± 0.78		3.73 ± 0.82			
Need for education on disaster nursing								
Yes	2.96 ± 0.72	0.576	3.01 ± 0.80	0.164	3.71 ± 0.81	0.340	3.23 ± 0.65	0.715
No	3.06 ± 0.89		3.28 ± 0.99		3.52 ± 1.08		3.29 ± 0.92	
Adequate skill and knowledge of disaster response								
Yes	3.25 ± 0.87	**0.003**	3.39 ± 0.78	**0.001**	3.83 ± 0.84	**0.003**	3.49 ± 0.75	**0.003**
No	2.89 ± 0.67		2.93 ± 0.81		3.25 ± 0.84		3.16 ± 0.64	
Disaster experience								
Yes	3.02 ± 0.75	0.285	3.12 ± 0.83	0.128	3.63 ± 0.82	0.258	3.26 ± 0.70	0.598
No	2.91 ± 0.71		2.94 ± 0.80		3.77 ± 0.86		3.21 ± 0.66	

DRSES: disaster response self-efficacy scale; SD: standard deviation; An independent t-test was used

DISCUSSION

Disasters are a significant worldwide public health problem that interrupts community life, seriously increases mortality and morbidity, and causes economic losses.[10] Nurses may

often take on duties in natural disasters, such as earthquakes or tsunamis, and man-made disasters, such as chemical or nuclear accidents or wars.[3] During disasters, nurses must cooperate with other professionals using the resources available to assess and meet care needs.[26,28,31] The ICN, emphasizing the importance of disaster nursing education, has stated that nursing students are members of the future nursing profession and that nurses are among the health professionals providing first response in disaster situations.[32] At present, disaster nursing occupies a steadily greater place in nursing education. University nursing students must have the competency to respond to disasters.[28] A study emphasized that the most important criterion for developing disaster nursing competency was having adequate knowledge and skills on the topic.[33] This study was conducted to determine nursing students' disaster response self-efficacy. The mean DRSES total score of the nursing students analyzed in this study was 3.23. According to the scale score range, students with a score of 3.23 have a medium level of disaster response self-efficacy. Few studies have assessed the disaster response self-efficacy level of nursing students being educated on the topic in different countries and universities. In Türkiye, studies have found that the disaster response self-efficacy of nursing students was at a medium level.[10,23,26,28] The results of the present study support the results of these previous studies and show that for a country like Türkiye, which frequently experiences disasters, nursing students' self-efficacy is not at the desired level. In other countries, a study conducted with nursing students in Australia revealed that the students did not have adequate knowledge and skills regarding disaster response.[34] In a study conducted in Oman, students had a medium level of self-efficacy for disaster response.[35] This suggests potential deficiencies in responses to a possible disaster.

Nearly all (90.3%) study participants stated that they needed education in disaster nursing. In two similar studies conducted in Türkiye, 80.1% and 85.42% of the students stated that they needed education on disaster nursing.[14,23] These results show the urgency of integrating theory and practice in the nursing curriculum in topics such as emergency management, disaster nursing, and disaster management to increase nursing students' self-efficacy levels when they graduate. In many countries with high risk of disasters such as Japan, the USA, China, Britain, and Italy, disaster nursing has been made a separate field of specialization. Disaster nursing was added to the nursing curriculum in the USA at the beginning of the 1970s; however, the education content was limited to basic information on disasters and the role of nurses. Rochester University was the first nursing school to establish a master's program to educate nurses as leaders on disaster response and preparedness for emergencies. However, no education programs at the master's or doctorate level in disaster nursing have been implemented in Türkiye. At the bachelor's level, education on disaster nursing is generally included in the curriculum under public health nursing or, to a lesser extent, in other fields of nursing.[28]

In the present study, students who stated that they had adequate knowledge and skills regarding disaster response had a significantly higher mean DRSES total score. Toraman and Korkmaz[14] reached similar conclusions. However, in the present study, most (76.8%) of the participants thought that they did not have adequate knowledge and skills regarding disaster response, and this may directly negatively affect the disaster response self-efficacy of nursing students in Türkiye, which is prone to disasters.

No significant difference was found between the variables of age, sex, and year of study of the study participants and their disaster response self-efficacy. Other related studies reported no significant difference between the students' disaster response self-efficacy levels and their year of study[26,28] and sex.[14,23,28] The results of the present study support these literature findings. In some related studies, age, year of study,[23] and male sex affected disaster-related preparedness behaviors and self-efficacy.[21,26,36] The differences between the results of these studies and the present study may arise from sociodemographic variables such as participants' age, schools attended, or country of residence.

Moreover, no significant difference was found between having experienced a disaster and disaster response self-efficacy levels. Various other studies have reported similar findings.[23,28] In some studies, it is reported as being a determining factor for disaster response self-efficacy.[26,37] Expectedly, disaster experience will affect the disaster response self-efficacy level, and 44% of the participants stated that they had experienced a disaster. Therefore, the students' self-efficacy may not have been affected by the closeness of the proportions of those who had and had not experienced disaster situations. The result of the study may arise from this.

This study contributes to the literature in determining nursing students' sensitivity, knowledge and skills, self-efficacy, and inadequacies toward disasters. However, this study has some limitations. First, it only enrolled third- and fourth year nursing students at a government university. Thus, the findings can only be generalized to the study population, and replication studies with a larger sample are needed. Second, although the students were given information on the topic and the importance of the research before the study started, their responses to the questionnaires depended on self-reports. This may cause prejudice concerning objective disaster response self-efficacy. Therefore, further studies objectively assessing nursing students' self-efficacy in disasters using methods such as simulations are warranted.

CONCLUSIONS

In this study, the nursing students demonstrated a medium level of disaster response self-efficacy, and certain independent variables affected this finding. From these results, students' disaster response competency was not at the desired level. Moreover, students thought preparedness for disasters was important; however, they were not prepared for disasters. Thus, in Türkiye, where disasters occur frequently and are a significant problem for society, disaster awareness must be increased, theoretical and practical lessons on disasters should be added to nursing education curricula, lesson hours should be increased, and practical lessons should be improved with exercises. Finally, replication studies with a broader sample evaluating the effect of disaster education on disaster response competency are warranted.

CONFLICT OF INTEREST

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