Original Article

Assessment of Disaster Familiarity and its Associated Factors Among Undergraduate Nurses

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ABSTRACT

A disaster is a condition that disrupts daily life, destroys infrastructure, electricity, and roads, and results in the death of people. Hence, familiarity with disasters allows nurses to help catastrophe victims. **Objective**: To assess disaster familiarity and its associated factors among undergraduate nurses. **Methods:** A cross-section study was conducted among students of two universities. It was undertaken between July 2021 to November 2022. The subjects consisted of 175 registered nurses enrolled for graduation Post RN-BS nursing program at nursing institutes of both universities. A consecutive sampling technique was used to approach the participants. The data were collected using a validated tool and analyzed on SPSS 21. **Results:** Of the 175 respondents, 58.29% were female, and the majority (63.42%)of participants were between 21-30 years old. Overall familiarity in the case of a large-scale emergency event, it was found that 48(27.4%) of the study participants were moderately familiar, 42(24.0%) were very familiar, and 41(23.4%) were average familiar. **Conclusions:** The overall familiarity of respondents with disaster preparedness was at a moderate level. While, gender, clinical experience, and age of the study participants were the most important factors impacting nurses working in emergencies. This topic needs more attention to be added to the curriculum of healthcare workers, and the government should organize periodic training sessions to enhance their level of knowledge.

INTRODUCTION

A disaster is defined as the rigorous devastation of the system that negatively impacts the functions of the specific community or society, the losses of human beings, animals, property, economic and communication tracks of the nearby cities[1]. It is categorized into natural disasters, including drought, flood, earthquakes, and landslides. Whereas, man-made are transport accidents, bomb blasts, and plane crashes, etc., [2]. The Center for Research on The Epidemiology of Disaster (CRED) reported in 2019 that 396 natural disasters occurred around the globe and are close to life. The mortality has increased to 11,755, affecting more than 95 million individuals and costing approximately 130 billion dollars[3]. Healthcare providers are the frontline soldiers who play a crucial role in this time of disaster [4]. Knowledgeable and skillful nurses can take part in providing quality care and reducing its complication and the rate of deaths [5]. The nurses working in critical areas are more considered suitable to work in a disaster situation

for emergency care of affecters of disaster [6]. Their significant role is quick assessment, identification of danger, rescue, performance mass care, triage, and first aid provision [7]. The topmost step in the Disaster Risk Management (DRM) practice is preparedness; hence the organization needs to prepare educational training programs and written plans to prevent from major public and economic losses [8]. Disaster preparedness and proper response in disastrous situations need sound knowledge to maintain a good treatment system to stabilize emergencies [9]. Moreover, all public health workers working in disasters should know the information about triage, mass immunization, victim evacuation, infection control, planning to prevent complications, and prompt treatment of needed persons [10]. Research revealed that healthcare providers are not fully prepared or confident to work in major disaster situations [10]. Knowledge is one of the factors which question the preparedness of emergency nurses, same as the experience of disaster working and educational sessions are the most factors that enhance the preparedness level of nurses [11, 12]. The other factors influencing the information regarding disaster preparedness are home, clinical experience, working department, age, and education level of nurses [13]. Knowledge is the only way to avoid the severity of the effects, especially at the time of initial treatment of the victim. At the same time, unpreparedness can lead to a waste of resources, delays in treating severe ones, dissatisfaction and a mortality rate [14]. A cross-sectional study performed on 140 Sweden registered nurses (RNs) in 2019 revealed that nurses' total mean competency in disaster (Mean 2.34, SD 0.92) dealing was low, but RNs with advanced knowledge exhibit better preparedness than others [15]. Therefore, this study aimed to assess disaster familiarity and its associated factors among undergraduate nurses.

METHODS

A cross-sectional study was conducted at two institutes such as Benazir College of Nursing, Shaheed Mohtarma Benazir Bhutto Medical University (SMBBMU) Larkana, and Ziauddin University, Faculty of Nursing and Midwifery, Karachi. The study participants who were enrolled in the Post RN–BS Nursing program and had at least one year of clinical experience were included in the study. Participants who were unwilling to participate were excluded. A consecutive sampling technique was used to select the study participants. For the sample size calculation, OpenEpi version 3.0 was used to calculate the sample size by taking knowledge 13.05% [16] with a 95% CI and 80% power (α = 0.05) total sample size of 175. The study was completed from July to November 2021 for five months of

time frame. The Ethical Review Committee approval (ERC No. SMBBMU/OFF ERC/176) was obtained. Moreover, formal permission was also taken from the Dean of both study settings, and written informed consent was gained from the subjects for their voluntary participation and data privacy was assured. The questionnaire was circulated among the participants to fill out; the primary researcher (PR) was there for any difficulty and assistance. The structured and validated tool was used with permission [17]. It consisted of three questions of demographic data, the familiarity of different situations like (emergency, incident command system, ethical issues in triage, epidemiology and surveillance, decontamination, communication, psychological issues, special population and accessing critical resources) were measured in 5 responses of Likert scale, not familiar, minimal familiar, average familiar, moderate familiar and very familiar. The Statistical Package for the Social Sciences (SPSS) version 22.0 was used for the data entry and analysis. The frequency and percentage were computed for all qualitative variables. The chi-square test was applied for association disaster familiarity with gender, age, and clinical experience of the study participants. A p-value ≤ 0.05 was considered as a significance level.

RESULTS

In this study, the female participants were in the majority 102 (58.29%) and followed by males 73 (41.71%). With three age groups, the top most frequency, 111 (63.42%) was identified between 21-30 years, followed by age groups 30-40 years 56 (32.0%) and 41 above 8 (4.6%). The frequency of participants in the age group 41 and above years was the lowest. The clinical experience of the study participants was 1-10 years, the highest at 148 (84.6%), between 11-20 years and 21-30 years was low 22 (12.6%) and 5 (2.9), respectively (Table 1).

Table 1: Description of nurses' responses regarding their familiarity in Variables Situations (n=175)

Rate of responses to:	Not Familiar Frequency (%)	Minimal Familiar Frequency (%)	Average Familiar Frequency (%)	Moderate Familiar Frequency (%)	Very Familiar Frequency (%)
Emergency	2(1.1)	16(9.1)	52(29.7)	62(35.4)	43(24.6)
Incident Command System (ICS)	3(1.7)	19(10.9)	60(34.3)	58(33.1)	35(20)
Ethical Issues in Triage	3(1.7)	33(18.9)	47(26.9)	45(25.7)	47(26.9)
Epidemiology and Surveillance	4(2.3)	24(13.7)	40(22.9)	68(38.9)	39(22.3)
Decontamination	6(3.4)	22(12.6)	41(23.4)	48(27.4)	58(33.1)
Communication	0(0.0)	25(14.3)	41(23.4)	66(37.7)	43(24.6)
Psychological Issues	0(0.0)	20(11.4)	51(29.1)	51(29.1)	53(30.3)
Special Population	4(2.3)	25(14.3)	46(26.3)	52(29.7)	48(27.4)
Accessing Critical Resources	5(2.9)	28(16.0)	55(31.4)	53(30.3)	34(19.4)

Overall familiarity with response activities/preparedness in the case of a large-scale emergency event is shown in

Table 2. It was found that 48(27.4%) were moderately familiar, 42(24.0%) were very familiar, 41(23.4%) were average familiar. A small frequency of participants was found unfamiliar 9(5.1%) with response activities/ readiness in the case of a large-scale emergency event.

Table 2: Overall familiarity with response activities/ readiness in the case of a large-scale emergency event (n=175)

Rate of responses	Frequency (%)
Not Familiar	9(5.1)
Minimal Familiar	35(20.0)
Average Familiar	41(23.4)
Moderate Familiar	48(27.4)
Very Familiar	42(24.0)

Table 3 reveals the association of gender, age, and clinical experience with overall familiarity in the case of a large-scale emergency event. The result shows that females were more 102(58.3%) familiar with readiness in case of large-scale emergency events than males, and this variable is also found statistically significant (p-value<0.001). However, no association between clinical experience and age was observed.

Table 3: Association of gender, age, and clinical experience with overall familiarity in case of a large-scale emergency event

Variables	Frequency (%) (n=175)	Rate of responses					p-value
		Not Familiar	Minimal Familiar	Average Familiar	Moderate Familiar	Very Familiar	
Gender							
Male	73(41.7)	2(1.1)	7(4.0)	27(15.4)	23(13.1)	14(8.0)	0.001
Female	102(58.3)	7(4.0)	28(16.0)	14(8.0)	25(14.3)	28(16.0)	
Age							
21-30 (Years)	111(63.4)	6(3.4)	25(14.3)	24(13.7)	27(15.4)	29(16.6.)	
31-40(Years)	56(32.0)	2(1.1)	9(5.1)	13(7.6)	19(10.9)	13(7.4)	0.4222
above 41(Years)	8(4.6)	1(0.6)	1(0.6)	4(2.3)	2(1.1)	0(0.0)	
Age							
1-10(Years)	148(84.6)	8(4.6)	33(18.9)	31(17.1)	41(23.4)	35(20.0)	
11-20(Years)	22(12.6)	1(1.6)	1(1.6)	7(4.0)	6(3.4)	7(4.0)	0.335
21-30(Years)	5(2.9)	0(0.0)	1(1.6)	3(1.7)	1(1.6)	0(0.0)	

The chi-square test was applied for the association; a p-value<0.05 was taken as significant

DISCUSSION

The findings of the present study indicated that participants were either average or moderately familiar with readiness in the case of a large-scale emergency event, Öztekin *et al.*, & Palinkas *et al.*, showed consistent results [18, 19]. However, a previous study conducted in Taiwan showed contrasting results and found that nurses were unfamiliar with large-scale emergency event management [20]. Similarly, for other situations of the study, like ICS, Ethical Issues in Triage, Epidemiology and Surveillance, Decontamination, Communication, Response to special populations and accessing critical resources, the study participants were moderately or average familiar. The frequency of unfamiliarity was very low in all the situations mentioned above. Similarly, the frequency of very familiar was also very low in these situations' exceptional decontamination. These findings are consistent with the previous report showing that the study's familiarity index of maximum nurses lies between average and moderate familiarity in the mentioned situations [21]. In the current study, the association of age, gender, and clinical experience with the familiarity response in different situations was also assessed. There was a significant difference between clinical experience and nurses' familiarity with decontamination, treating psychological issues, and accessing critical resources. Similarly, the significant association of age with familiarity in epidemiology and surveillance and accessing critical resources was also observed. These findings are in line with the previous research. The results showed that the age of the nurse was significantly linked with a higher possibility of attending disaster situations [22]. Others showed that nurses' disaster response readiness was significantly associated with clinical experience [23].The results of the present study show a highly significant difference among males in response to familiarity with the emergency, incident command systems, ethical issues in triage, epidemiology and surveillance, decontamination, communication, psychological issues, response to special populations and accessing critical resources (p-value<0.05). Similarly, the index of overall familiarity in the large-scale emergency event was found to be significantly higher in male participants than female participants. No difference was found in age and clinical experience regarding the large-scale emergency event. The literature did not support these findings and no such distinction in gender was found in previous reports. However, a contradictory result suggested that female nurses appeared more ready for the disaster phase than male nurses [24]. Ghouri *et al.*, concluded that nurses must be well-trained and prepared for disastrous situations as it is the most frequent and most destructive event in the world [25].

CONCLUSIONS

The study concluded that nurses enrolled in this study were moderately familiar with the disaster situation and its responses. Hence, it is strongly recommended that continuous educational training programs are mandatory to increase nurses' personal or professional familiarity with multiple situations of disaster.

Authors Contribution

Conceptualization: AG
Methodology: AG, MA, IG
Formal analysis: R, IG
Writing-review and editing: AG, R, AR, MA, JAZ

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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