

Knowledge, Attitude, and Practice Regarding Disaster Preparedness among Undergraduate Nursing Students

Aftab Ghouri¹, Raja², Badil³

Benazir College of Nursing, Shaheed Mohtarrma Benazir Bhutto Medical University, Larkana, Pakistan¹

Faculty of Nursing and Midwifery Ziauddin University, Karachi, Pakistan²

Institute of Nursing and Midwifery, Dow University of Health Sciences, Karachi, Pakistan³

ABSTRACT

Background: Disaster is "the sudden onset of an event that disrupts regular living conditions and causes severe suffering, increasing the impact of community maladaptation. Nurses' knowledge and understanding of disaster management can play an important role in reducing casualties and complications.

Objective: This study aimed to determine the level of knowledge, attitude, and practice about disaster preparedness and its association with demographic variables among undergraduate nursing students.

Methods: The cross-sectional descriptive study was conducted at two institutes, Ziauddin University Faculty of Nursing and Midwifery, Karachi, and Benazir College of Nursing, Shaheed Mohtarrma Benazir Bhutto Medical University, Larkana, Pakistan. This study was conducted among 175 nursing students of semester-II and IV from July 2021 to March 2022; the sample size was determined by using OpenEpi version 3.0. The target population was approached by a non-probability consecutive sampling method. A pretested, validated, and self-administered questionnaire was used for data collection. The Statistical Package for Social Sciences version 22, independent t-test, and ANOVA were used for inferential analysis.

Results: Most (63.43%) of the participant's age was between 21-30 years, majority of them were females (58.29%), having 1-10 years of clinical experience (84.57%). The highest mean and standard deviation were identified among 31-40 years of age; the variables are knowledge, attitude, and practice, (6.32±2.5), (5.7±2.05), and (6.37±2.2), respectively. The clinical practice was found to be significant with a p-value < 0.05.

Conclusion: It is concluded that undergraduate nursing students elicit a moderate level of knowledge, attitude, and practice regarding disaster preparedness. The knowledge, attitude, and practice can be improved by organizing periodical training sessions at the undergraduate level.

Key Words: Disaster Preparedness, Nursing Students, Knowledge, Attitude, Practice.

Doi: 10.53685/jshmdc.v4i2.144

Corresponding Author:

Aftab Ghouri

Lecturer

Benazir College of Nursing,
Shaheed Mohtarrma Benazir Bhutto Medical University,
Larkana, Pakistan

Email address: georgeaftabghouri@gmail.com

Received 28.01.2023, Revised 12.12.2023,

Accepted 13.12.2023

How to cite this article: Ghouri A, Raja, Badil. Knowledge, attitude, and practice regarding disaster preparedness among undergraduate nursing students. J Shalamar Med Dent Coll. 2023. 4(2): 111-116. doi: 10.53685/jshmdc.v4i2.144

INTRODUCTION

Education and skills are core to the nursing profession, and these can play a key role in the practical life of health care providers. Nurses are considered a frontline workforce; therefore they should be competent to work efficiently in any type of disaster.¹

Disaster means "sudden occurrence of an event that disrupts the normal living condition and causes a high level of suffering that increases the effect of maladjustment in the community."²

There are two categories of disaster; natural and man-made; natural include earthquakes, floods, volcanic explosions, hurricanes, and tornadoes. On the other hand, man-made include accidents, blasts, attacks, and biological war.³ Due to the effect of natural disasters, 200 million people are affected in the 21st century, and 70,000 people were passed away every year.⁴ The intensity of disasters is not similar all over the world.⁵ According to the World Disaster Report (2016) affirmed that 32,550 human deaths were caused by earthquakes, land sliding, floods, and heat waves; among these deaths, 67% occurred in Asia.⁶ Doctors and nurses are at the highest level in the medical workforce. Their knowledge and understanding of the management of disasters play a vital role in reducing the number of casualties and complications.⁷ Preparations of nurses reported at a moderate level around the globe; hence the global training sessions recommended by the World Health Organization (WHO).⁵

Physiological features and high climate intensity of natural disasters such as land sliding and flood hazards are more significant to happen more frequently, whereas earthquakes and tsunamis occasionally appear in Pakistan.⁸ In 2005, an earthquake occurred with a rector-scale 7.9 in the Kashmir region of Pakistan, with more than 79,000 people died, and approximately 32,000 buildings were caved.⁵ Furthermore, in 2015, 272 deaths and 2123 injuries occurred due to the Hindukush earthquake.⁸ Moreover, Pakistan usually experiences floods.⁸ In 2007 the National Disaster Management Authority (NDMA) devised a plan to protect the country against these calamities. However, a successful plan still needs to be executed by the NDMA to control such events.⁹

According to a cross-sectional study of Iraq, 119 intern-nursing students participated, and it concluded that undergraduate students are required to attend a training session to enhance awareness of disaster.¹⁰ Furthermore, a research study accomplished among different medical students, highlighted a moderate knowledge,

attitude, and readiness to practice for disaster management through a self-administered questionnaire. Additionally, it is also recommended that educators and health policymakers should build a robust curriculum in disaster management and preparedness to prepare competent future healthcare professionals¹¹

Hence, the present study aimed to determine the level of knowledge, attitude, and practice regarding disaster preparedness and its association with demographic variables among undergraduate nursing students.

METHODS

This cross-sectional study was conducted at two nursing institutes, including Ziauddin University, Faculty of Nursing and Midwifery, Karachi and Benazir College of Nursing, Shaheed Mohtarrma Benazir Bhutto Medical University, Larkana, Pakistan. The study was carried out for a period of eight months, from July 2021 to March 2022. The study protocols were approved by the Ethical Review Committee of Shaheed Mohtarrma Benazir Bhutto Medical University, Larkana Ref. No. (ERC No. SMBBMU/OFF ERC/176). Moreover, permission was also obtained from the Dean of both study settings, and written informed consent was obtained from all participants for voluntary participation. The sample size was determined on OpenEpi version 3.0 by taking knowledge 13.05%¹² with a 95% CI and 80% power ($\alpha=0.05$). The total calculated sample was 175. To reduce the biasness and subjects based on inclusion criteria, Post RN-BS Nursing students were approached by a non-probability consecutive sampling method to participate. Students of all semesters were included in the study. While, students who were enrolled in Generic BSN were not enrolled in the study because Generic BSN students are not allowed to work independently until they get registration from the Pakistan Nursing Council. The participants were approached on different days during their free time to obtain verbal permission to fix meetings with all year-I and

year-II participants. Confidentiality of data was guaranteed. The questionnaire was distributed among participants; the primary investigator (PI) was there for any inconvenience and guidance. The adopted and validated questionnaire was used for data collection⁵. It consists of both structured and open-ended questions with the following sections, demographic: includes 03 items (age, gender, clinical experience); knowledge test: includes 5 items of Yes, No & Unsure responses; attitude test: includes 11 items of 3 Likert scale questions (agree, disagree and unsure) and practice items includes (yes, no and unsure). The mean score was calculated for all three variables such as knowledge, attitude, and practice.

Statistical Analysis

The Statistical Package for the Social Sciences (SPSS) version 22.0 was used for the data entry and interpretation. The frequency and percentage were computed for all qualitative variables and mean \pm standard deviation for the mean scores. To find out the mean difference between two groups like mean difference of knowledge and practice in male and female, independent t-test was used. To determine the mean difference among three groups like mean difference of knowledge and practice in age and clinical experience, Analysis of Variance (ANOVA) was utilized. A p-value \leq 0.05 was considered as statistically significant.

RESULTS

Demographic characteristics of the study participants were shown in Table 1. The demographic data includes gender, age, and clinical experience. Most participants were female 102 (58.29%) and followed by male 73 (41.71%). The majority 111 (63.42%) of the participant's age group was 21-30 years, and only 8 (4.6%) were 41 years and above. As far as clinical experience was concerned, 148 (84.6%) had experience of 1-10 years.

The mean knowledge score of the study participants towards disaster was 3.10 (1.80), the attitude mean score was 6.05 (2.27) and the

practice score towards disaster management was 3.1 (1.43). The difference in knowledge, attitude, and practice regarding disaster preparedness concerning gender, age, and clinical experience is shown in Tables 2, and 3. There was significant difference ($p=0.047$) in the participants' practice with respect to age. However, no significant difference in knowledge, attitude, and practice was found among the study population in context to their clinical experience with age in Table 2. Moreover, significant differences were found in the knowledge of males and females, with males having more knowledge regarding disaster situation as compared to females. On the other hand, the attitude of female nurses was more compared to male nurses regarding disaster situations ($p < 0.05$) (Table 3).

Table 1: Demographic characteristics of the study participants

Demographic variables	Frequency n (%)
Gender	
Female	102 (58.29)
Male	73 (41.71)
Age (years)	
21-30	111 (63.4)
30-40	56 (32.0)
>41	8 (4.6)
Clinical Experience (years)	
1-10	148 (84.6)
11-20	22 (12.5)
21-30	5 (2.9)

Table 2: Level of Knowledge, Attitude, and Practice regarding disaster situations according to clinical experience and age

Variables	Clinical Experience (years)			P-value
	1-10 (n=145)	11-20 (n=22)	21-30 (n=5)	
Knowledge	2.07 \pm 1.75	2.31 \pm 1.6	3.8 \pm 2.17	0.086
Attitude	6.1 \pm 2.5	6.31 \pm 1.3	5.8 \pm 2.17	0.883
Practice	0.68 \pm 1.04	0.95 \pm 1.0	0	0.16
	Age (years)			p-value
	21-30 (n=111)	31-40 (n=56)	\geq 41 (n=8)	
Knowledge	2.2 (1.8)	6.3 (2.5)	.81 (1.11)	0.3
Attitude	2.0 (1.7)	5.7 (2.05)	0.6 (0.87)	0.255
Practice	3 (2.1)	6.3 (2.2)	0 (0.0)	0.047*

ANOVA test was applied

Table 3: Knowledge, Attitude, and Practice regarding disaster situations in male and female subjects

Variables	Male (n=73) mean±SD	Female (n=102) mean±SD	p-value
Knowledge	2.47± 1.61	1.92± 1.82	.038*
Attitude	5.63 ±2.05	6.48 ±2.5	.018*
Practice	0.54± 0.86	0.81± 1.12	.092

An Independent t-test was applied to the difference

DISCUSSION

A disaster has severe consequences like material, financial or ecological most importantly, human being loss¹³. The effective role of nurses in disaster management expands on the urgent approach of affected victims to safely transfer to another place.¹⁴ Persons with leadership skills are required for strong strategic planning with appropriate and efficient decision-making.¹⁵

Furthermore, nurses are the healthcare providers who work in the front healthcare setting, holding managerial positions with sound knowledge and skills; they are well prepared for any type of disaster¹⁶. International nursing researchers agree that nurses should have the basic information and ability to deal with disaster challenges.¹⁷ A study emphasized that trained nurses become further prepared for upcoming events, which is one of the moral and urgent issues in the 21st century.¹⁸

The present study indicated that among all the age groups, the maximum (6.32±2.5) knowledge was found in the 31 to 40 years age group, but with an insignificant p-value, overall, it falls in moderate/average type of knowledge. Similarly, a study showed that 53.5% of participants have moderate, 32% good, and 14.5% poor knowledge. In contrast, another study evaluates the earthquake, and the majority of participants depict 62.5% knowledge regarding earthquake readiness.¹⁹ Likely, 58% of adequate and 42% of inadequate knowledge was identified among 300 healthcare workers in Nepal for earthquake awareness.²⁰ Similar results with 50.8% good

and 49.2% low level of knowledge for planning and managing the situation. The present study also revealed that males have more knowledge than females.²¹ Additionally, in males the age group 35-44 has more knowledge. In contrast female age 40-60 have more knowledge than males.²² In the current study the level of knowledge was observed to be higher in subjects with clinical experience between 21-30.

In the present study, amongst all variables, the level of attitude was higher in the age group of 31- 40 years. A higher level of attitude was found in females, whereas a greater score of attitudes was identified in the subjects with clinical experience of 11-20 years. It has been revealed that 84.9% agreed to have continued teaching sessions for improvement and also elicited no effect on the professional attitude toward disaster management.

Study findings are parallel with study which found higher mean score of attitudes toward disaster management.²² Another illustrated the necessity to have an educational session about disaster plan development and appropriate management.²³

In current study, higher practice score was computed among nurses. These findings were incongruent in the study, which assessed that only 8.3% of practice scores among 290 Healthcare workers²¹. Moreover, these study results were in line with study that exhibited 85.6% practice score among nurses.¹⁹

Conferences, seminars and workshops related to disaster management may be conducted to improve nurses' knowledge²⁸. Nurses' skills should be improved to tackle patients in terms of proper nursing care during disastrous situation.²⁴⁻²⁵

This study explored the educational needs of disaster and emergency-related nursing education in the field of the nursing profession. Secondly, it also revealed the opportunity for future research. Thirdly, organization management can take a step toward continued education and training.

As far as limitations are concerned, the present study was conducted in only two nursing institutions with a small sample size, unidentified posting of student nurses, and their training status regarding the disaster will be considered as vital limitations of the study. Hence findings of this study cannot be generalized.

CONCLUSION

It is concluded that male participants have more knowledge regarding disasters while females exhibit higher attitude scores. Moreover, it was also identified that knowledge would increase with practice. Therefore, it is highly recommended that periodical training is necessary to enhance participants' knowledge, attitude, and practice.

Acknowledgments:

We are grateful to the Heads of both Nursing Institutes and the Ethical Review Committee of SMBBMU, Larkana. Secondly, we are highly thankful to Dr. Pamela Marshal, Dr. Yasmin Amarsi for their technical support. Lastly, a warm thanks to all participants of this study.

REFERENCES

1. Ghezalje TN, Aliha JM, Haghani H, Javadi N. Effect of education using the virtual social network on the knowledge and attitude of emergency nurses of disaster preparedness: A quasi-experiment study. *Nurse Educ Today*. 2019; 73:88-93. doi:10.1016/j.nedt.2018.12.001
2. Khilji FUR, Raziq A, Shoaib M, Baloch NS, Raza S, Iqbal Z, et al. "Expecting the Unexpected:" Nurses' response and preparedness of terrorism-related disaster events in Quetta city, Pakistan. *Front Public Health*. 2021; 9:695143. doi:10.3389/fpubh.2021.695143
3. Khalil NS, Atia AS, Moustafa MF, Soliman HT. Emergency nurses' knowledge and practice regarding the preparedness of disaster management at a university hospital, Egypt. *Nurs. Healthc. Int. J.* 2019; 3: 1-2. doi: 10.23880/nhij-16000192
4. Mirzaei S, Eftekhari A, Sadeghian MR, Kazemi S, Nadjarzadeh A. The effect of disaster management training program on knowledge, attitude, and practice of hospital staffs in natural disasters. *J. Disaster Res.* 2020;2(1):9-16. doi:10.18502/jder.v2i1.566

5. Nofal A, Alfayyad I, Khan A, Al Aseri Z, Abu-Shaheen A. Knowledge, attitudes, and practices of emergency department staff towards disaster and emergency preparedness at tertiary health care hospital in central Saudi Arabia. *Saudi Med J*. 2018; 39(11): 1123. doi:10.15537/smj.2018.11.23026
6. Sanderson D, Sharma A. Resilience: Saving lives today, investing for tomorrow. *World Disasters Report*; IFRC: Geneva, Switzerland. 2016.
7. Alzahrani F, Kyratsis Y. Emergency nurse disaster preparedness during mass gatherings: a cross-sectional survey of emergency nurses' perceptions in hospitals in Mecca, Saudi Arabia. *BMJ Open*. 2017; 7(4): e013563. doi:10.1136/bmjopen-2016-013563
8. Tahir, M. Country Report of Pakistan. 2015. Cited September 20, 2022. https://www.adrc.asia/country-report/PAK/2015/PAK_CR2015A
9. Kakar AH, Siddique A. Gandhara, Pakistan faces unprecedented healthcare crisis amid mounting coronavirus infections. Cited June 19, 2020 <https://gandhara.rferl.org/a/pakistan-faces-unprecedented-healthcare-crisis-amid-mounting-coronavirus-infections/30679490>.ht
10. Sattar SA, Zahra NA, Mohamed WM. The effect of an educational intervention about disaster preparedness on knowledge and attitudes of technical nursing institute intern-nurse students. *Am J Nurs*. 2018; 7(6): 287-295. doi:10.11648/j.ajns.20180706.22
11. Gillani AH, Izham M, Ibrahim M, Akbar J. Evaluation of disaster medicine preparedness among healthcare profession students. A Cross-Sectional Study in Pakistan *Int J Environ Res Public Health*. 2020; 17(6):1-14. doi:10.3390/ijerph17062027
12. Yan YE, Turale S, Stone T, Petrini M. Disaster nursing skills, knowledge and attitudes required in earthquake relief: Implications for nursing education. *International nursing review*. 2015; 62(3):351-359. doi:10.1111/inr.12175
13. UNISDR terminology on Disaster Risk Reduction. Source: 2009. Source: United Nations Office for Disaster Risk Reduction. <https://www.undrr.org/publication/2009-unisdr-terminology-disaster-risk-reduction>
14. Bahrami P, Ardalan A, Nejati A, Ostadtaghizadeh A, Yari A. Factors affecting the effectiveness of hospital incident command system; findings from a systematic review. *Bull Emerg Trauma*. 2020; 8(2):62-76. doi:10.30476/BEAT.2020.46445
15. Chuang S, Woods DD, Ting HW, Cook RI, Hsu JC. Coping with a mass casualty: insights into a

hospital's emergency response and adaptations after the Formosa Fun Coast dust explosion. *Disaster medicine and public health preparedness*. 2020; 14(4): 467-476.doi: 10.1017/dmp.2019.69

16. Holmgren C, Jussèn S, Hagiwara MA, Rådestad M. Charge nurses' perceived experience in managing daily work and major incidents in emergency departments: A qualitative study. *Australas. Emerg Care*. 2022; 25(4): 296-301.doi:10.1016/j.auec.2022.02.003

17. Veenema TG. *Disaster nursing and emergency preparedness*. Springer Publishing Company; 2018.

18. World Health Organization I. *ICN framework of disaster nursing competencies*. Geneva: World Health Organization. 2009.

19. Ghouri A, Badil, Raja, Ali SZ, Khan AR. Effectiveness of educational training related to disaster preparedness among the nursing students. *Ann Jinnah Sindh Med Uni*. 2020; 6(2):50-53.doi: 10.46663/ajsmu.v6i2.50-53

20. Lian P, Zhuo Z, Qi Y, Xu D, Deng X. The impacts of training on farmers' preparedness behaviors of earthquake disaster—evidence from earthquake-prone settlements in rural China. *Agriculture*. 2021; 11(8): 726.doi:10.3390/agriculture 11080726

21. Devi AW, Sharma D. Awareness on earthquake preparedness: A key to safe life *Int. J. Nurs. Pract*. 2015;2(2):1-6.

22. Habte A, Addisie A, Azazh A. Assessment of knowledge, attitude and practice of disaster preparedness among TikurAnbessa specialized hospital health care workers, Addis Ababa, Ethiopia. *American J. Nurs. Sci*. 2018; 7(1): 39-48.doi: 10.11648/j.ajns.20180701.15

23. Senthilkumar T. Knowledge and attitude regarding crisis management of natural disaster among people of selected rural community in Kannur District Kerala. *Medicon Medical Sciences*. 2022; 2: 09-14.doi: 10.55162/MCMS.02.01924.

24. Africa PN. Knowledge, attitudes and practices of health care workers regarding hepatitis B vaccination, in the Ekurhuleni Metro, Gauteng Province (Doctoral dissertation, University of Limpopo (Medunsa Campus)).

25. Yin H, He H, Arbon P, Zhu J, Tan J, Zhang L. Optimal qualifications, staffing and scope of practice for first responder nurses in disaster. *J. Clin. Nurs*. 2012; 21(1-2):264-271.doi:10.1111/j.1365-2702.2011.03790.x

CONTRIBUTORS:

AG: The conceived idea, data collection, and manuscript writing.

R: Data entry, statistical analysis, drafted the manuscript

B: Literature searching, critical review, and proofreading

All authors approved the final version and signed the agreement to be accountable for all aspects of the work.

CONFLICT OF INTEREST:

All authors declared no conflict of interest.

GRANT SUPPORT AND FINANCIAL DISCLOSURE:

No specific grant was taken for this research from any funding agency in the public, commercial, or not-for-profit sectors.

DATA SHARING STATEMENT:

The data are available from the corresponding author upon reasonable request.



This is an open-access article distributed under the terms of a Creative Commons Attribution-Noncommercial 4.0 International license