Original Article

Disaster Nursing Competencies among Nurses Working in Tertiary Level Teaching Hospital in Kathmandu, Nepal

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ABSTRACT

Background: Nepal is prone to multiple types of natural hazards directly affecting human lives. The first responders and the largest health workforce of any country are nurses. Therefore, it is essential to determine the competencies of nurses, as one of the baseline for disaster preparedness. This study aims to explore the roles and responsibilities of nurses' with regard to disaster management, along with nurses' perception of core competencies and barriers to develop those competencies.

Methods: Cross-sectional descriptive method was used to collect data among 234 nurses of Tribhuvan University Teaching Hospital which was chosen randomly. Stratified proportionate sampling was then done to calculate samples from each wards which was then followed by random sampling of the participants. Self-administered structured questionnaire was used to collect data. Data was analyzed using descriptive statistics (mean, frequency and SD).

Results: The mean score of nurses' roles and responsibilities in disaster management was found to be very low for all items of the questionnaire. Most of the nurses' assumed their highest role to identify education and training needs for disaster management. However, nurses' opinion to develop the core competencies is high for all items. All the barriers studied were identified as barriers for developing disaster competencies. The highest barrier was found the lack of training in workplace.

Conclusions: It is noteworthy that nurses' opinion of their roles and responsibility in disaster management is very low despite of their high opinion towards developing core competencies. It may be due to the barriers perceived at workplace.

Key words: competencies, disaster, nursing, barriers

INTRODUCTION

The occurrence of disasters is continuing to rise globally with the increase in vulnerability and ongoing climate changes. "Nepal stands at the top 20th list of the most multi-hazard prone countries in the world. Likewise, its on the 4th, 11th and 30th in terms of climate change, earthquake and flood risk respectively".[1] Disaster nursing is a new and emerging concept gaining importance all around the word. In 2009, the ICN and WHO jointly proposed a set of competencies for

nurses' which are essential for nurses' to respond to any disaster. [2]

Nurses are the first medical personnel to respond to disaster. Disaster management preparedness and competencies is essential for health care providers for a successful response to disaster.[3] In Nepal, not much has been studied regarding the disaster nursing preparedness and knowledge of nurses.

This study is carried out to explore the roles and responsibilities of nurses' to encounter disaster situation, their perception of the core competencies and barriers to develop those competencies.

MATERIALS AND METHODS

A cross-sectional descriptive method was used to find out the nurses' competencies in disaster management. Among four tertiary level teaching hospitals located in Kathmandu, Tribhuvan University teaching Hospital (TUTH) was randomly chosen by lottery method.

Sample size was 234 which was calculated using Cochrane's formula. The total number of nurses working in TUTH was 408. Stratified proportionate random sampling was done for selection of research participants from each wards and selecting the research participants randomly until required proportion was met.

Nurses' with more than one years of work experience were only included in the study. To conduct the research, ethical approval was taken from Nepal Health Research Council (NHRC). After that, permission letter was obtained from Tribhuvan University Teaching Hospital. Before data collection, informed consent was obtained from all the participants of the study.

Research Instrument

The questions related to demographic and professional information were prepared by the researcher herself on the basis of literature review. For assessing disaster competencies, disaster competency tool developed and validated by Al. Thoabity [4] was used with the permission of author. The questionnaire consists of 4 sections.

Section 1: It consists of demographic and professional information section.

Section 2: It consists of 5 items related to nurses' current roles and responsibilities in disaster management ranging from 1(Never) to 10 (Very Often).

Section 3: It consists of 30 items regarding the core competencies for nurses' in disaster management ranging from 1 (Not at all important) to 10 (Very important).

Section 4: It consists of 8 items regarding barriers to develop core competencies ranging from 1 (Strongly disagree) to 10 (Strongly agree).

The approval to use the questionnaire was taken from the main author of Disaster Nursing Management Competency tool via email. Pre-testing was done in 10% of the sample population. Crohnbach's alpha for overall questionnaire was calculated as 0.96. Sample population of pretesting were not included in the study.

Data collection and analysis

Self-administered questionnaire was used to collect data for a period of 2 months from July 1, 2017 to August 30, 2017. Ethical issues were addressed during data collection procedure. The participants were explained the purpose and process of study and written informed consent was taken. Data was analyzed using Statistical Package for Social Sciences (SPSS) version 16. To summarize the results, descriptive statistics were used.

RESULTS

The socio-demographic and occupational characteristics of the nurses' are shown in Table 1. The mean age was 29.67 years. More than half (67.5%) of the nurses had bachelors degree in nursing. Majority (71.3%) of the nurses had responded 1-5 times to disaster at work while about half (49.6%) of the nurses had never participated in disaster drills in the past 10 years. More than half (53.4%) of the nurses had no any training, while few (19.2%) nurses had received in-hospital training in disaster management.

The major role and responsibility was to identify the education and training needs. Nurses' major roles and responsibility in disaster management was identifying education and training needs of the nurses. Most of the nurses' did not participate in developing disaster plan and policy at their workplace (Table 2).

All the 30 competencies were analyzed to further identify the top 10 competencies (Table 3). The topmost barrier identified by the nurses for developing core competencies in Nepal is the lack of training programs in the workplace. (Table 4)

Table 1: Socio-demographic and Occupational Characteristics of Nurses (n= 234)

S.N.	Variables	Frequency (N)	Percentage(%)
1.	Age (in years)		
	<30	178	76.1
	≥30	56	23.9
2.	Qualification in Nursing		
	Certificate	66	28.2
	Bachelors	158	67.5
	Masters	10	4.3
3.	Work experience (in years)		
	<10	182	77.8
	≥10	52	22.2
4.	Response to disaster in past 10 years		
	Never	54	23.1
	1-5 times	167	71.3
	>5 times	13	5.6
5.	Participation in disaster drill in past 10 years		
	Never	116	49.6
	1-5 times	115	49.1
	>5 times	3	1.3
6.	Training/ Education		
	Yes	109	46.6
	No	124	53.4
7.	In-hospital training		
	Yes	45	19.2
	No	198	80.8

Table 2: Nurses' Current Roles and Responsibility with Regard to Disaster Management (n=234)

S.N.	Roles and responsibility	Mean	Median	S.D.
1.	Identify education and training needs of nurses	5.17	5.00	3.387
2.	Authorized to activate a local disaster plan	2.60	1.00	2.407
3.	Participate in developing disaster plan and policy in hospital	2.21	1.00	2.250
4.	Participate in education and training activities for health care providers	3.26	2.00	2.824
5.	Participate in mock disaster drills on a regular basis	2.50	1.00	2.524

Table 3: Top 10 Competencies in Disaster management to be implemented in Nepal.

S.N.	Competencies in Disaster Management	Mean	Median	S.D.
1.	Understand how to prioritize care and manage multiple situations.	9.50	10	1.016
2.	Understand the purpose of disaster plan.	9.49	10	0.959
3.	Understand relevant disaster terminology.	9.39	10	1.266
4.	Understand the component of disaster plan.	9.38	10	1.079
5.	List and apply principles for managing patients with the most common victims presentations, e.g. environmental illnesses, burns, blasts and crush injuries.	9.36	10	1.100
6.	Prioritize patients to maximum survivability.	9.31	10	1.424
7.	Manage and supervise volunteers.	9.31	10	1.263
8.	Recognize the disaster plan in the workplace and the ones role in the workplace at the time of disaster.	9.29	10	1.361
9.	Demonstrate an ability to follow and work within an incident management system.	9.29	10	1.158
10.	Use record keeping processes to ensure continuity of patient information.	9.28	10	1.785

Table 4: Barriers to Developing Core Competencies (n=234)

S.N.	Barriers	Mean	Median	S.D.
1.	Lack of health organizational support.	8.02	9	2.403
2.	No training provisions for nurses.	8.91	10	2.281
3.	Limited role of nurses in decision making with regard to disaster management.	7.48	8	2.705
4.	No access to literature on disaster nursing.	8.12	9	2.323
5.	Lack of evaluation tools.	8.44	9	2.201
6.	Inavailability of resource person in disaster nursing.	8.20	9	2.180
7.	Lack of formal education resources.	8.39	9	2.102
8.	Ineffective training opportunities.	8.79	10	1.951

DISCUSSION

The age distribution of the study shows that the number of young professional with age less than 30 years is very high (76.1%). This is similar to the study conducted in Nepal in which maximum (78.3%) of the nurses were less than 30 years.[5] Majority (67.5%) of the nurses held bachelor's degree which is similar to the other study.[6] While in another study, majority of the nurses held diploma level of nursing education.[5,7] Minority (4.3%) of the nurses had master's degree which is similar to other studies.[5,6,7] Few (22.2%) of them had worked for more than 10 years as a registered nurse which is similar to the other study.[5]

Maximum (76.9%) nurses had responded to a real disaster at least once in the past 10 years which is similar to the study done among nurses across Asia-pacific region.[7] On contrary, a similar study shows previous experience of disaster among few (31.7%) nurses.[5] Regarding the disaster drills, almost half (50.4%) had participated for at least once whereas only few (22%) nurses had participated in a disaster drill in another similar kind of study.[5]

This study revealed that the nurses don't have a significant role and are not provided with major responsibility in managing disaster at their workplace as the mean value for all the five items of this section is low. In a similar study, nurses of Nepal had a favorable attitude of their knowledge and skills to respond to disaster at their workplace.[7] The mean score of the nurses' regarding their participation to design curricula and plan skill trainings in this study is less than the Jordanian nurses in other study.[6] Nurses role in formulation of plans and policies at their workplace is identified as the least role, which is similar to the findings of the study in which nurses are not prepared to involve themselves in formulation of guidelines, plans for emergency handling of disaster situations.[6,7]

The highest mean obtaining core competency in this study was nurses ability in understanding prioritization of care and management of multiple situations. Triage in disaster is identified as a domain of nursing competency in disaster management.[8] Multiple casualty triage is considered as a very important competency to be developed by nurses to increase the maximum number of survivability of the victims of a big disaster.[9] But in practice, nurses of Nepal don't have adequate knowledge to manage triage of disaster victims.[5]

Similarly, the second highest competency was nurses' understanding of disaster plan which is also mentioned as one of the domain of competencies for nurses necessary to encounter disaster situation in healthcare.[10] Majority of the nurses find it important to have a disaster plan and believe that nurses must have knowledge about it.[11]

The third highest competency was to understand the relevant disaster terminology also stated as the domain of the core competency in another study.[12]

Nurses also have high opinion in developing personal and family preparedness and participation in drills in the workplace and in the community. Personal preparation enables the nurses to concentrate fully on their job while participation in drills makes nurses familiar with the strength and weakness of the plan, helps in sharing information and developing coordination in the community level to tackle emergency.[9] But a study in Jordanian nurses showed that only around a half of the nurses had prepared emergency

family plans, whereas fewer of them had discussed with their family regarding its implementation.[6]

In this study, nurses are positive towards incident command system to tackle disaster in healthcare setting. Understanding the structure of incident command system (ICS) is vital to the success of any disaster plan.[9] But, only few (27.8%) nurses were very familiar with the ICS and nurses' role in it, whereas very less (2%) of them were not familiar at all in a study.[11]

Ethical and legal competency is also a major competency in nurses' opinion to be developed in Nepal in regard to allocating scarce resources and providing defensible solutions to ethical dilemmas arising in disaster. To manage a disaster situation, nurses' must be able to identify and manage the ethical and legal which emerges in times of disaster.[13] In addition, ethical issues are important for all health professionals to response to all phases of disaster.[14] Very few (8%) nurses are not familiar at all with the ethical issues involved in triage during disaster and majority (42.5%) of them reported being very familiar.[11]

Overall, the mean score for all the core competencies studied is very high. This fact makes us believed that nurses have a positive attitude in developing all the core competencies for disaster management studied, which will increase the skills of nurses in various aspects of disaster management starting from the preparation phase to the recovery phase.

All the factors included in the study were identified as barriers to developing disaster competencies as all of these factors scored high. The result supports the findings of other studies where nurses did not have access to relevant literature.[6] Likewise, organizational factors are mentioned as one of the barriers to developing core competencies for nurses.[15] The findings of the study is limited to only one hospital. Exploration of nurses' real perception is limited by the use of structured questionnaire.

CONCLUSION

Developing a sense of competence in disaster management is now vital to nurses. Nurses being the first line responders and the largest health workforce, it is necessary to develop competence in them. Also, with the increase in the occurrence of disaster globally, the subject is in focus. Nurses' managers must emphasize on disaster education, training and drills at workplace for the nursing staffs. It is seen as the most effective way to increase the competence of nurses. Also, nurses' role in disaster management should be defined properly in work setting so that they can understand their role and responsibilities and carry them effectively. Nurses' educators must focus on incorporating disaster nursing in nursing curricula so that they are able to understand their role all the phases of disaster management. This will enable them to understand disaster nursing, so that they will be able to carry out the roles later in their professional practice as nurses.

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