

Disaster Preparedness Among Nurses working in A Paediatric Acute Care Setting of A Tertiary Hospital, South India

Gladston, S¹, Nayak, R².

¹Reader, Department Of Child Health Nursing, Christian Medical College, Vellore, India

²Professor, Department Of Child Health Nursing, Christian Medical College, Vellore, India

Abstract: Disasters pose unique challenge for every medical care facility in terms of infrastructure, capacity, and preparedness. World Health Organization stresses that healthcare workers need to be prepared for a disaster. As nurses are the largest manpower group in the health care team they need to be trained to equip with the competencies required during disasters to rescue life and safeguard the health of the children. International Council for Nurses (ICN) alerts all nurses to be prepared with adequate knowledge in order to respond to disaster events effectively. The purpose of the study was to assess the perception and knowledge among nurses on disaster preparedness. A descriptive study design and convenience sampling technique was adopted. The tool was prepared by the investigator under the guidance of experts which consisted of three parts, the demographic variables of the participants, scale on perception of nurses on disaster preparedness and a knowledge questionnaire on disaster preparedness. Descriptive and inferential statistics such as frequency, mean, chi-square, and Pearson's correlation were used for data analysis. The demographic profile of the staff revealed that majority (58.5%) belonged to 26 to 35 yrs, were Diploma nurses (82%), and 51.1% had experience of 1-5 years in critical care settings. The study revealed that 24.5% had adequate knowledge, 51.1% moderately adequate knowledge, and 24.5% inadequate knowledge. Most (85.1%) of the nurses had moderate perception on disaster preparedness. There was no statistically significant correlation ($r = .186$, $p = .072$) between the perception and the knowledge of the participants. There was an association between the qualification of the nurses and the perception ($X^2 = 32.182$, $p = .000$).

Keywords: perception, knowledge, nurses, disaster preparedness, paediatric

I. Introduction

Disaster refers to an event or situation that is of greater magnitude than an emergency that disrupts essential services such as housing, transportation, communications, sanitation, water, and health care¹. Asia is often hit with disasters which comprise of 40.7% of all natural disasters and 90% of the total global disaster victims. Out of world's reported natural disasters between 2004 and 2013, 41.2% or 1,690 incidences occurred in the Asia-Pacific region.

Hospital is at high risk to face disaster which can cause serious problems to the patients such as severe injury and death. Disasters pose unique challenge for every medical care facility in terms of infrastructure, capacity and preparedness. From the hospital's point of view, disaster exists when the patient load far exceeds the capabilities of an emergency department to provide emergency care and the hospital is forced to apply additional resources for providing care to a large number of victims². According to Kumar³ a fire accident in a major city of India led to the death of 89 bedridden patients due to inability to evacuate them immediately, of whom 85 were patients and 4 were staff members. An explosion in an allegedly ill-maintained ambulance killed a one-day old baby in Santacruz, Mumbai⁴. A major flood in Chennai, Tamil Nadu affected a tertiary hospital, and 18 patients admitted in Intensive Care Unit died due to failure of support system such as monitors, ventilators and lack of oxygen supply⁵. Due to oxygen cylinder blast 12 were injured in an emergency ward at Varanasi, India and 93 people were killed and over 120 injured in a bomb explosion at a civil hospital in Quetta, southwestern Pakistani province of Baluchistan⁶.

World Health Organization emphasizes on the preparedness of health care workers in a disaster situation. As nurses are the largest manpower group in the health care team they need to be trained to equip themselves with required competencies during disasters to rescue life and safeguard the health victims⁷. International Council for Nurses (ICN) alerts all nurses to be prepared with adequate knowledge in order to respond to disaster events effectively. Florence Nightingale demonstrated her role as a disaster management nurse by playing a crucial role during the Crimean war and showed the world the important responsibilities that nurses play on the front lines as a health care worker⁸.

Therefore, it is important for nurses to have adequate knowledge to respond effectively and quickly during disaster. The education and training for the nurses on disaster are still under-developed in Asian countries. Studies have found that nurses are not well prepared to respond to disaster events⁹. A study on knowledge among 300 nurses working in governmental and nongovernmental health care agency in Nepal

revealed that 78% of nurses working in private hospitals were not ready to face a future disaster and they were not educated on disaster management. Another study by Loke¹⁰ reveals that nurses in Hong Kong had inadequate perception on disaster competencies. Ali, Lubaid¹¹ states that the nurses from primary health centre in Jordan perceived themselves to have moderate preparation on disaster management. The awareness of disaster preparedness and competencies among nurses working in Pediatric Nursing Department is not known due to limited research, training and education in the field of disaster nursing. Hence this study was done to assess the perception and knowledge of nurses on disaster preparedness.

Objectives

- To assess the perception of nurses on disaster preparedness
- To assess the knowledge of nurses on disaster preparedness
- To find the relationship with the perception of nurses with their knowledge on disaster preparedness
- To associate the perception and knowledge of nurses on disaster preparedness with their demographic variables such as age, qualification, and years of experience etc.

Hypotheses

- **Hypothesis 1:** Nurses will have positive perception on disaster preparedness
- **Hypothesis 2:** Nurses will have adequate knowledge on disaster preparedness

II. Methodology

A descriptive study design was adopted for the study. All the nurses working in Pediatric Intensive Care Unit (PICU), Pediatric High Dependency Unit (PHDU), Pediatric Emergency Service (PES), Pediatric Out Patient Department (OPD), Pediatric Medical and Surgical Ward were included in the study. Convenience sampling technique was used to select 94 nurses for the study. The demographic details consisted of age, sex, marital status, years of experience in CMC, and Pediatric Department were also collected from the participants. The perception scale had 12 statements with the option of agree, moderately agree and disagree and a score of 2, 1, and 0 respectively. The scored were converted to percentage and interpreted as good (> 80%), moderate (50-79%), and poor perception (< 50%). The knowledge questionnaire had 20 questions with 4 options. Total score was 20 which was converted to percentage and interpreted as adequate (> 80%), moderately (50–79%), and inadequate (< 50%) knowledge.

III. Results and Discussion

The demographic profile of the staff revealed that majority (58.5%) belonged to 26 to 35 yrs, were married (62.8 %), were Diploma nurses (82%), had experience of 1-5 years in paediatric department (54.3%), and 51.1% had experience of 1-5 years in critical care settings (see Table 1). The study findings reveal that majority (85.1%, 51.1%) of the participants had moderate perception (85.1%) and moderate adequate knowledge (51.1%) regarding disaster preparedness (see Figure 1 & 2). This is similar to the findings of the studies conducted among nurses in Saudi Arabia and Jordan who have reported moderate perception of knowledge on disaster preparedness^{11,12}.

Table 1: Demographic Profile of the Nurses

| S.no | Demographic data | n | % |
|------|----------------------------------|----|------|
| 1 | Age | | |
| | 18 – 25 | 28 | 29.8 |
| | > 25 – 35 | 55 | 58.5 |
| | >35 | 11 | 11.7 |
| 2 | Marital Status | | |
| | Single | 35 | 37.2 |
| | Married | 59 | 62.8 |
| 3 | Qualification | | |
| | BSc | 11 | 11.7 |
| | Diploma | 83 | 88.3 |
| 4 | Experience in Paediatric Nursing | | |
| | < 1 | | |
| | 1 – 5 | 8 | 8.5 |
| | 5 – 10 | 51 | 54.2 |
| | > 10 – 15 | 24 | 25.5 |
| | > 15 | 6 | 6.4 |
| | | 5 | 5.3 |

| | | | |
|---|---|----|------|
| 4 | Experience in Paediatric Critical care settings | | |
| | < 1 | 29 | 30.8 |
| | 1 – 5 | 48 | 51.1 |
| | 5 – 10 | 8 | 8.5 |
| | > 10 – 15 | 3 | 3.2 |
| | > 15 | 6 | 6.4 |

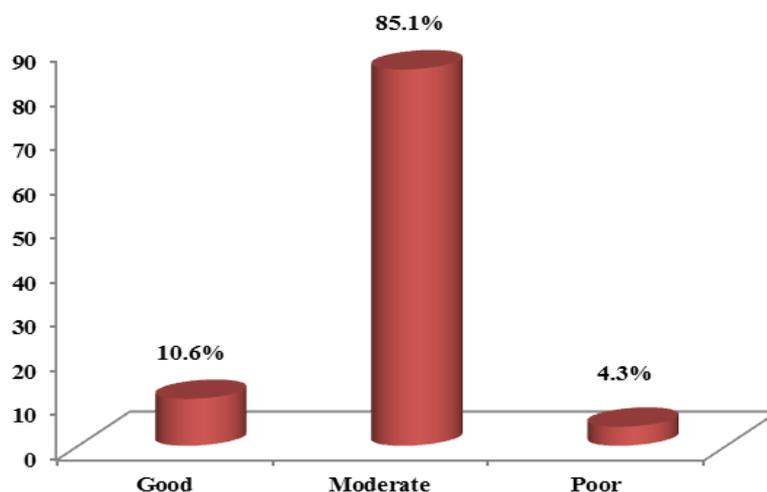


Figure 1. Level of perception of nurses on disaster preparedness

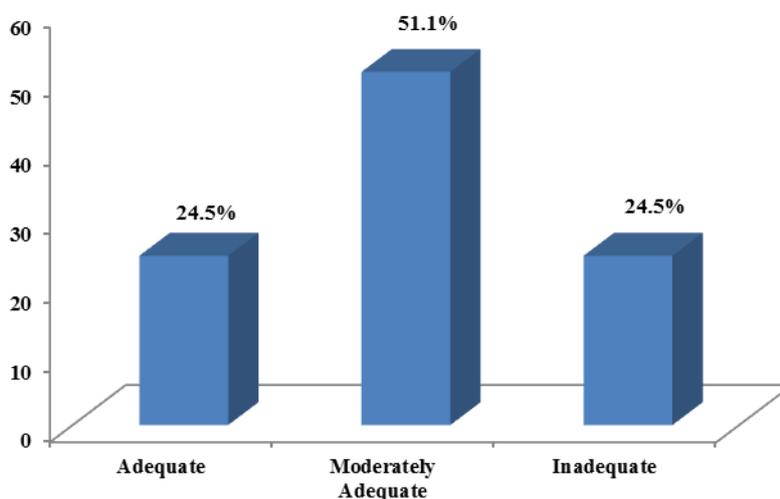


Figure 2. Level of knowledge of nurses on disaster preparedness

There was no statistically significant correlation ($r = .186, p = .072$) between the perception and the knowledge of the participants regarding disaster preparedness (see Table 2). This finding is line with the findings of Kermode et al who have reported that there is no correlation between knowledge and perception among nurses on HIV transmission¹³.

Table 2

Correlation between Knowledge and Perception of Nurses on Disaster Preparedness

| Variable | Mean | SD | r value | p value |
|------------|-------|-------|---------|---------|
| Knowledge | 43.93 | 13.46 | .186 | .072 |
| Perception | 12.85 | 2.3 | | |

There was an association between the qualification of the nurses and the perception ($X^2= 32.182, p = .000$). This finding is supported by Aluko et al. who have reported a significant association was found between qualifications of nurses with knowledge on occupational hazards¹⁴. And there was no significant association between knowledge and perception with other demographic variables.

The study was limited to small sample size and single clinical setting. Further studies are required to establish the findings. Regular in-service education and mock drills on disaster preparedness may enable nurses to be prepared during disaster and function effectively. Periodic mandatory certification in disaster preparedness may motivate the nurses and keep them abreast with the knowledge and skills.

IV. Conclusion

Globally natural and manmade disasters are increasing every day. Hospitals are also prone for such disasters. Lack of in-service education and inadequate training on disaster preparedness makes the nurse to function ineffectively during the disaster. As nurses are the major work force in the health care settings they need to update their knowledge and skills in disaster preparedness to function efficiently in order to save lives at the time of any disaster within the hospital setting. As knowledge influences good practice and good practice saves lives, nursing curriculum should include disaster preparedness to equip nursing students to manage disaster in the hospital setting.

Disclosure of conflict of Interest: This study was a faculty research funded by the College of Nursing, Christian Medical College, Vellore

References

- [1]. Adelman Etal., (2011) "Disaster Nursing; A Handbook For Practice" Ist Edition, Jones And Barlett Publishers.
- [2]. Talati Et Al. (2014). Strategic Planning And Designing Of A Hospital Disaster Manual In A Tertiary Care, Teaching, Research, And Referral Institute In India. Retrieved From [Http://Www.Ncbi.Nlm.Nih.Gov/Pmc/Articles/PMC4129869/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4129869/)
- [3]. Kumar, A. (2012). India Disaster Report. Retrieved From [Http://Nidm.Gov.In/Pdf/Pubs/India%20Disaster%20Report%202011.Pdf](http://nidm.gov.in/pdf/pubs/india%20disaster%20report%202011.pdf)
- [4]. NDTV. (2015). Ambulance Blast Kills Day – Old Child In Santacruz, Mumbai. Retrieved From [Http://Www.Ndtv.Com/Mumbai-News/Ambulance-Blast-Kills-Day-Old-Child-In-Santacruz-1254123](http://www.ndtv.com/mumbai-news/ambulance-blast-kills-day-old-child-in-santacruz-1254123)
- [5]. Janardhanan, A. (2015). Chennai Floods: Survived On Bread, Rain Water, Says MIOT Patient. Retrieved From [Http://Indianexpress.Com/Article/India/India-News-India/Doctors-Management-Abandoned-Us-When-Floods-Came-Says-Patient-At-Chennai-Hospital/](http://indianexpress.com/article/india/india-news-india/doctors-management-abandoned-us-when-floods-came-says-patient-at-chennai-hospital/)
- [6]. Singh, B. (2016). Blast In Emergency Ward Of BHU Hospital, 12 Injuries. Retrieved From [Http://Timesofindia.Indiatimes.Com/City/Varanasi/Blast-In-Emergency-Ward-Of-BHU-Hospital-12-Injured/Articleshow/52164356.Cms](http://timesofindia.indiatimes.com/City/Varanasi/Blast-In-Emergency-Ward-Of-BHU-Hospital-12-Injured/ArticleShow/52164356.Cms)
- [7]. Mcglown. (2011). The Role Of Nurse Leader And Humanitarian: Disaster Planning, Management, And Evaluation. Retrieved From [Http://Journals.Cambridge.Org/Action/Displayabstract?Frompage=Online&Aid=8275648](http://journals.cambridge.org/action/displayabstract?frompage=online&aid=8275648)
- [8]. Knebel, A. R., Toomey, L., & Libby, M. (N. D.). Nursing Leadership In Disaster Preparedness And Response. Retrieved From [Http://Lghttp.48653.Nexcessdn.Net/80223CF/Springer-Static/Media/Springer-Downloads/ARNR%20Article-Nursing%20Leadership%20in%20Disaster%20Preparedness.Pdf](http://lghttp.48653.nexcesscdn.net/80223CF/Springer-Static/Media/Springer-Downloads/ARNR%20Article-Nursing%20Leadership%20in%20Disaster%20Preparedness.Pdf)
- [9]. Pritika Et Al., (2016) "Disaster Nursing Knowledge In Earthquake Response And Relief Among Nepalese Nurses Working In Government And Non-Government Sector" Retrieved From [Www.Sciedupress.Com/Journal/Index.Php/Jnep/Article/Viewfile/9595/6008](http://www.sciedupress.com/journal/index.php/jnep/article/viewfile/9595/6008)
- [10]. Loke Et, Al, 2014, Nurses' Competencies In Disaster Nursing: Implications For Curriculum Development And Public Health.
- [11]. Al-Ali, N. M., & Abu Ibaid, A. H. (2015). Health Care Providers' Perception Of Knowledge, Skills And Preparedness For Disaster Management In Primary Health-Care Centres In Jordan. *Eastern Mediterranean Health Journal*, 21(10), 713-721.
- [12]. Al Thobaity, A., Plummer, V., Innes, K., & Copnell, B. (2015). Perceptions Of Knowledge Of Disaster Management Among Military And Civilian Nurses In Saudi Arabia. *Australian Emergency Nursing Journal*, 18(3), 156-64. Doi:10.1016/J.AENJ.2015.03.001
- [13]. Kermode, M., Holmes, W., Langkham, B., Gifford, S. (2015). HIV Related Knowledge, Attitudes, And Risk Perception Amongst Nurses, Doctors, And Other Health Care Workers In Rural India. *Indian Journal Of Medical* 122. 258 – 64.
- [14]. Aluko, O.O., Adebayo, A. W., Adebisi, T. F., Ewegbemi, M. K., Abidoeye, A. T., & Popoola, B. F. (2016). Knowledge, Attitudes And Perceptions Of Occupational Hazards Ad Safety Practices In Nigerian Healthcare Workers. *Biomed Central Research Notes*, 9(71).
- [15]. Karmode M, Holmes W, Langkham B, Thomas MS & Gifford S. HIV-Related Knowledge, Attitude
- [16]. Karmode M, Holmes W, Langkham B, Thomas MS & Gifford S. HIV-Related Knowledge, Attitudes & Risk Perception Amongst Nurses,
- [17]. Doctors & Other Healthcare Workers In Rural India. *Indian J Med Res*. 2005; 122:258-64.

- [18]. Karmode M, Holmes W, Langkham B, Thomas MS & Gifford S. HIV-Related Knowledge, Attitudes & Risk Perception Amongst Nurses, Doctors & Other Healthcare Workers In Rural India. *Indian J Med Res.* 2005; 122:258-64.
- [19]. Karmode M, Holmes W, Langkham B, Thomas MS & Gifford S. HIV-Related Knowledge, Attitudes & Risk Perception Amongst Nurses, Doctors & Other Healthcare Workers In Rural India. *Indian J Med Res.* 2005; 122:258-64.
- [20]. Karmode M, Holmes W, Langkham B, Thomas MS & Gifford S. HIV-Related Knowledge, Attitudes & Risk Perception Amongst Nurses, Doctors & Other Healthcare Workers In Rural India. *Indian J Med Res.* 2005; 122:258-64.
- [21]. Karmode M, Holmes W, Langkham B, Thomas MS & Gifford S. HIV-Related Knowledge, Attitudes & Risk Perception Amongst Nurses, Doctors & Other Healthcare Workers In Rural India. *Indian J Med Res.* 2005; 122:258-64.
- [22]. Karmode M, Holmes W, Langkham B, Thomas MS & Gifford S. HIV-Related Knowledge, Attitudes & Risk Perception Amongst Nurses, Doctors & Other Healthcare Workers In Rural India. *Indian J Med Res.* 2005; 122:258-64.
- [23]. Karmode M, Holmes W, Langkham B, Thomas MS & Gifford S. HIV-Related Knowledge, Attitudes & Risk Perception Amongst Nurses, Doctors & Other Healthcare Workers In Rural India. *Indian J Med Res.* 2005; 122:258-64.