Emergency and Preparedness Evaluation among Nurses in Selected Hospitals in Ondo State

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ABSTRACT: *Background: Reports from various centres and studies in Nigeria show a high mortality rate for cases that present to the Accident and Emergency Department. Thus, the need for a realistic hospital and emergency service response program designed on the principle of equitable distribution of appropriate equipment and supplies and well-trained emergency medical personnel, cannot be overemphasized. The study investigated emergency preparedness for emergency situations in selected hospitals in Ondo state. Methodology: A descriptive design was adopted. Using a convenience sampling technique, a total of 248 respondents were selected from four hospitals in Ondo State, Nigeria. Data collection was done with the aid of an in-depth interview schedule; and a checklist designed by WHO for basic requirement of materials/equipments that should be possessed by each facility in readiness for emergency/disaster. Results: Results revealed varying level of emergency preparedness as regards resourcefulness among nurses. Nurses in hospital A scored 41%, B (47%), C (45%) while nurses in hospital D scored 27%. The use of contingency plans, networking, use of worldwide web as well as multimedia were identified as available solutions by 12.5%, 11.7%, 10.5% and 9.3% of the nurses respectively. The study further identified the current roles played by nurses in achieving disaster preparedness as follows: facilitating communication and coordination of care (22.5%), acquisition of skills to give psychological support (17.7%), provision of quality health care (15.7%), giving first aid treatment (14.9%), and learning to triage victims (13.5%). The barriers and solutions to emergency preparedness were also investigated through interview schedule. The study showed that all the selected hospitals scored below average in terms of emergency preparedness. Specifically, hospital B recorded the highest score (47.4%) while hospital D recorded the lowest score (28.8%). Conclusion: It was concluded that emergency preparedness among nurses and in selected hospitals in Ondo State was at low level and materials/equipments needed to rescue the victims were inadequate.*

KEYWORDS: emergency, preparedness, nurses, evaluation and hospitals

INTRODUCTION

The Accident and Emergency (A and E) Department, which is also referred to as the Emergency Room (ER), Emergency Ward (EW), or Casualty Department is a medical treatment facility that specializes in the acute care of patients who present without prior appointment. Emergency care is one delivered in the first few hours after the onset of an acute medical condition, e.g., a childbirth complication, heart attack, injury, or any health problem that reaches an acute stage and poses a threat to life (Uzoechina Jr, Abiola, Akoku, Mbakwem, Arogundade, Tijani & Adegbesan-

Omilabu,2012; Adenekan, Balogun, & Inem, 2016). The Emergency ward responds to and manages a variety of cases in all the clinical areas and it provides insight into the quality of care available in the institution. The quality of care in the ER is an indirect indicator of the standard of health-care delivery that is provided in a health institution; therefore, the ability of a hospital to respond to an emergency depends on having staff who know what to do and have the skills needed to do so. According to Adenekan, Balogun & Inem (2016) reports from various centres and studies in Nigeria show a high mortality rate for cases that present to the Accident and Emergency Department. Therefore, the need for a realistic hospital and emergency service response program designed on the principle of equitable distribution of appropriate equipment and supplies and well-trained emergency medical personnel, cannot be overemphasized. In 2010, a study carried out at Imo State University Teaching Hospital located in the suburban town of Orlu in Imo State, Nigeria recorded that there was a total of 281 deaths out of 5754 cases treated at the A and E, showing a crude mortality rate of 4.88%. A similar study done in Port Harcourt, Nigeria in an urban teaching hospital over a 3-year period reported a crude mortality of 2%. About 23.13% of all these deaths were caused by injuries and trauma sustained from road traffic accidents.

Often times when emergencies/disasters occurred, there are no warning signals, they are always sudden, unpredictable and uncontrollable. This makes tremendous human casualties in terms of loss of precious lives, resources and disability in addition to huge economic losses inevitable. (Magnaye, Munoz, Munoz, Munoz & Muro,2011;NDMD,2008; WHO,2013; Akinpelu, Olaogun, Abiodun, Monehin, Ayeni & Ashaju-Kayode, 2018).

Research questions:

This study is designed to answer the following Research questions:

1. To what extent are nurses in clinical practice prepared for disaster in terms of existing protocols and resourcefulness?
2. What roles do nurses currently play in achieving emergency preparedness?
3. Are there similarities in the level of disaster preparedness in the selected hospitals?

Main objective.

This study aims at determining registered nurses preparedness for disaster in selected hospitals in Ondo State.

Specific objectives are to:

1. Investigate the level at which nurses in clinical practice are emergency prepared in terms of resourcefulness
2. Identify the current roles played by nurses in achieving emergency preparedness.
3. Compare the levels of preparedness in the selected hospitals for emergency.

METHODOLOGY

Research design: The study employs a descriptive design- mixed method consisting of qualitative and quantitative approaches to assess Disaster preparedness among nurses in selected hospitals in Ondo State.

Research Setting: The following hospitals in Ondo State, Nigeria were selected for the study:

1. Federal Medical Centre, Owo- This is the only Federal Hospital in the State.
2. State Specialist Hospital, Akure - Akure is central to Ondo State.
3. State Specialist Hospital, Ikare - This is the only state specialist hospital in the north east of Ondo State.
4. State Specialist Hospital, Ondo- This is the only state specialist hospital in the south west of Ondo State.

Target population: The target population for this study were the registered nurses in the above selected hospitals in Ondo State.

Sampling Technique and Sample size: Convenience sampling technique was adopted to select the 268 nurses that responded to the questionnaire calculated with Yamane's formula. Only the nurses that were available and agreed to take part in the study were given the questionnaires to fill and 248 were retrieved.

Instruments: Information was obtained from the respondents through the use of an adapted questionnaire and modified through literature review; an in-depth interview schedule was also conducted.

Data analysis: Data was analysed with both descriptive and inferential statistics and depicted in frequency distribution such as percentages to summarize and provide description of the data from sample.

Ethical considerations: Permission was obtained from the Ethical Committee of Federal Medical Centre Owo and Ondo State Hospital Management Board. Informed consent was obtained from each of the respondents. They were informed that their names were not required and the information given is only for academic purpose.

RESULTS:

Table 1: Respondents' response to adequacy of equipment for emergency preparedness in the four Hospitals

Hospitals	Adequacy of equipment		
	Adequate	Not adequate	Total
A (n=115)	47(41%)	68 (59%)	115(100%)
B (n=72)	34(47%)	38 (53%)	72(100%)
C (n=31)	14(45%)	17(55%)	31(100%)
D (n=30)	8 (27%)	22(73%)	30(100%)
Total (n=248)	103(160%)	145(240%)	248(400%)

Table 1 shows that 41% of the equipment available in hospital A was adequate according to the response of nurses there. In hospital B 47% was adequate, C (45%) and D had the least adequate equipment (27%). This shows that all the selected hospitals scored below average in terms of emergency preparedness. Specifically, hospital B recorded the highest score (47%) while hospital D recorded the lowest score (27%).
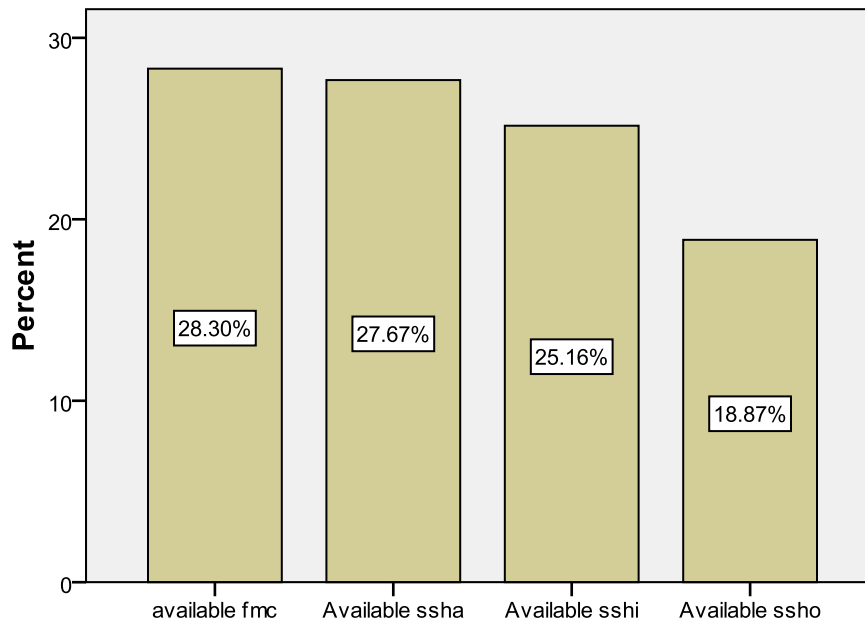
Figure 1 : Availability of instruments in the hospitals

Figure 1 above shows varying levels of disaster preparedness as regards resourcefulness among nurses. Nurses in hospital A scored 28.3%, B (27.7%), C (25.2%) while nurses in hospital D scored 18.9%.

Table 2: Respondents identification of nurses' roles in disaster situations

	Hospitals				
Roles identified	A	B	C	D	Total
Providing quality care	21	10	3	5	39
Triaging victims	17	13	3	4	37
Giving psychological support	19	15	6	4	44
Giving first aid	18	12	5	3	38
Addressing women and children's needs	23	14	10	9	56
Facilitating communication /coordination	17	8	4	5	34
Total	115	72	31	30	248

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As reflected in table 2 above 39 respondents said that providing quality health care for people is one of the nurses' roles in disaster situations. 37 respondents identified triaging victims as one of the nurses' role in disaster situation. Other identified roles are as shown in the above table according to each of the selected hospitals.

FINDINGS FROM IN DEPTH INTERVIEW

The interview was conducted in the four selected hospitals which are Federal Medical Centre, Owo, State Specialist Hospital, Akure, State Specialist Hospital, Ikare and State Specialist Hospital, Ondo. Eight nurses were interviewed from the above selected hospitals, two from each. The findings are as follows:

Table 3: Qualitative Responses of nurses to their identified roles during emergency

Variables	Frequency(N)
Resuscitate the victims.	+ + ++
Assess the scene of emergency and call for help.	+
Triage before appropriate actions are taken.	+
Assist the victims to relief their pains and prevent complication	+
Give first aid treatment	++
Transport victims to nearby health facility.	++
Mobilise people to evacuate victims from the site of emergency/ accident	+
Stabilize victims of emergency/disaster.	+

Key

+ = least reported

++ = more reported

$\geq$+++ = most reported

Table 3 highlighted the identified roles of nurses in disaster situations, resuscitation of victims was mostly reported as one of the role of nurses followed by giving of first aid treatment and transporting of victims to nearby health facility which were more reported and other roles that were least reported are shown in the above table.

Table 4: Qualitative Responses of nurses on preparation towards handling victims of emergencies

Variables	Frequency(N)
Ensure adequate resources to cater for victims	+ ++
Inform the government and the non-government organisations on what is needed to care of casualties.	+
Make plans ahead.	+
Adequate personnel	+++
Mobilise the key workers.	++
Getting information on the type of disaster that occur i.e. flood or bomb blast so as to make necessary preparations	+
All your senses must be at alert	+
First aid box should be made available	+
Use of internet to update yourself	+

Key

+ = least reported

++ = more reported

≥+++ = most reported

Table 4 highlighted the nurses' preparation towards handling victims of disasters. Ensuring adequate resources to cater for victims and adequate personnel were mostly reported; mobilization of key workers was more reported while the use of internet to update yourself and others as shown above were least reported.

Table 5: Qualitative Response of nurses to barriers encountered in disaster situations

Variables	Frequency(N)
Lack of appropriate instruments/equipment to use during disaster	+ + + +
Shortage of staff/manpower	+ + + +
Inadequate preparation for disasters	+
Lack of orientation on disaster preparedness.	+
Level of understanding of people.	++
Problem of communication.	+
Problem of Mobility /transportation to the areas.	++
Attitude of emergency room nurses especially non emergency trained.	+

Key

+ = least mentioned

++ = more mentioned

≥+++ = most mentioned

As highlighted above in table 4.8c lack of appropriate instruments/equipment to use during disaster and shortage of manpower were mostly mentioned as barriers encountered by nurses during disaster situations, problem of mobility /transportation to the areas of disaster and level of understanding of people were more mentioned while problem of communication and others as shown above were least mentioned.

Table 6: Qualitative Response of respondents' solutions to barriers encountered by   nurses in emergency situations

Variables	Frequency(N)
Government should provide appropriate instruments/equipment in all the units.	+ + + +
Government should employ more personnel.	+ +
Government should provide emergency vehicles at the road sides	+ +
Enough staff should be available at the emergency unit.	+
Medical health education of the public on emergencies.	+
Adequate preparation of nurses for emergencies.	++
Provision of incentives for those doing extra work.	+
Encourage all health practitioners to go along with their first aid boxes.	+
Health education about emergencies should be given to drivers and people.	+
Mobile phone should be made available for communication.	+
Inform security officers to clear the bystanders.	+

Key

+ = least mentioned

++ = more mentioned

≥+++ = most mentioned

As highlighted in table 4.8d above provision of appropriate instruments/equipment in all the units by the government was mostly mentioned; government should provide emergency vehicles at the road sides, employ more personnel and adequate preparation of nurses for disasters were more mentioned while provision of incentives for those doing extra work and others as shown in the above table were least mentioned.

DISCUSSION

None of them met the minimum requirement recommended by the World Health Organization. Thus nurses in hospital A (41%) and C (45%) had below average level of preparation, those in hospital B (47%) had just below average level of preparation while those in hospital D (27%) had extremely poor level of preparation. Only 32.8% of the respondents agreed that their institutions perform disaster drill exercise at least twice in a year in preparation for disaster. This is corroborated by WHO (2010) and CCHP (2006) which stated that ''Often, exercises are only done as frequently as standards for accreditation require. However, emergency exercises (drills) should be done as often as necessary to keep all staff members up-to-date on the emergency response''; ''Practice emergency drills every month (although California regulations only require a fire drill every six months). Hold drills at different times of the day, from different exits, during varied activities including naps. Discuss drills afterward to explore any concerns that need to be remedied''. (CCHP, 2006).

Only 15.4% of the respondents have practised cardiopulmonary resuscitation without bending their elbow on the sternum of the victims successfully. This is in line with Mayo Clinic Staff (2014) findings that ''in carrying out cardiopulmonary resuscitation place the heel of one hand over the centre of the person's chest, between the nipples then place your other hand on top of the first hand. Keep your elbows straight and position your shoulders directly above your hands and use your upper body weight (not just your arms) as you push straight down on (compress) the chest at least 2 inches (approximately 5 centimetres)''.

Only 32.4% of nurses said that they have undergone training and possess the skills to assess victims quickly and can label them red, yellow, green and black during mass casualty events. This is in consonance with WHO (2007) that ''doctors working in casualty will immediately conduct a triage i.e. sorting out cases into 4 categories by putting coloured triage bands on patient's left/right upper arm and take steps accordingly, (i) Red: needing immediate resuscitation – in the red area i.e. Main Casualty Hall. (ii) Yellow: needing urgent medical attention and possible surgery after 4 to 6 hours – in the yellow area i.e. disaster room. (iii) Green – walking wounded (non-urgent ambulatory) needing first aid and delayed treatment – in the green area i.e. observation room. (iv) Black – dead, to be shifted to mortuary''. Majority of Nurses (86.1%) believe that there is a lack of disaster preparedness in some institutions and instances where nurses are involved. This correlates with the findings of Magnaye et. al.(2011) that majority of nurses believed that disaster preparedness is lacking in some institutions and there are instances where nurses were involved.

Majority of Nurses (96.3%) *agreed that* one of the challenges faced by nurses is poor communication of disaster plan expectations to nurses. This is supported by Good (2007) which stated that many nurses expressed concern that disaster plan expectations were not clearly communicated, and a clear connection between the plan itself and those expected to carry it out was not conveyed.

Implication for Nursing

Education

The roles of nurses in disaster preparedness cannot be over emphasized. Therefore, nurses should be well informed about necessary technical know-how to handle victims of disasters. Training and retraining on emergency preparedness should be organised for nurses to update their knowledge on disasters.

Practice

Nursing practice should be founded on empirical evidences. More theories should be introduced as a basis for practice. For example, learning theories could be used to develop appropriate nursing model for emergency/disaster preparedness.

Research

Subsequent studies on disaster preparedness among nurses should be conducted with larger samples in different states to assess the knowledge of practising nurses on emergency/disaster preparedness to ensure full preparation of nurses for this.

Recommendations

Based on the findings from this study, the following recommendations are made:

1. There should be training and retraining of nurses in clinical practice on emergency preparedness especially those working in accident and emergency unit and those that are likely to be posted there.

2. Disaster/emergency drill exercise should be conducted by each of the institutions at least four to five times in a year and lapses should be identified each time and the gap breached through adequate preparation.

3. Government should provide adequate equipment/ instruments needed to safe lives of victims of disaster/emergency into all the hospitals so as to improve the quality of nursing care provided at such times.

4. Nurses should make use of World Wide Web, multi-media, conferences, networking with community partners, academic courses, and current professional journals to acquire knowledge and skills needed to be prepared for disaster/ emerency.

Further studies are recommended to assess emergency preparedness among health workers.

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