

Role of the Nurse in Emergency Preparedness: A Survey of Secondary Health Facilities in Northern, Nigeria

SAMAILA Balarabe Ayuba^{1,*}, Aliyu Danjuma¹, Yashi Garda Nassa², Iliya Joseph³, Akoh Williams Matthew⁴, Shiaka Ndalayi Micheal⁴

¹Department of Nursing Services, Ahmadu Bello University Teaching Hospital Shika-Zaria, Kaduna, Nigeria

²Barau Dikko Teaching Hospital, Kaduna State University

³Ministry of Health Kaduna State

⁴School of Nursing, Ahmadu Bello University Teaching Hospital Tudun-Wada, Zaria, Kaduna, Nigeria

*Corresponding author: balarabeayubas@gmail.com

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Abstract Background: The advent of emergency or disaster has posed serious challenges to the lives of many citizens in different localities and communities. This was as a result of either inadequate preparation for emergency or insufficient knowledge and skills on how to handle emergency situation by those concerned. So many lives were claimed; properties damaged and destroyed which calls for adequate and effective preparation against future occurrences by emergency rescue team members as well as healthcare professionals such as nurses. **Methods:** This is a cross sectional, descriptive survey conducted to explore the role of a nurse in emergency preparedness among nurses in Zaria local Government area of Kaduna State. One hundred and twenty (120) structured questionnaires were administered using simple random sampling technique. **Results:** The findings of this study established that 34% of the participants were within the age range of 30-39 years. Near two third of the participants 63% were female and 25% of the participants were at the rank of Nursing Officer II (N.OII), 22% of which work in accident and emergency unit while 45% had a working experience between 1-10 years. More than half 60% of the participants had a clear and correct understanding of the concept of emergency preparedness. So also, most of the participants strongly agreed that the roles of a nurse in emergency preparedness are enormous and central to emergency preparedness. Most of the participants 53% and 55% ticked all the tools itemized for emergency preparedness use as well as the factors affecting emergency participants respectively. **Conclusion:** Disaster preparedness maximized safe condition, decreases vulnerability and minimizes risk to individuals when they are confronted by a hazard. The role of the Nurses is central to emergency preparedness as a custodian of hospital infrastructures.

Keywords: disaster, preparedness, role, nurse, Zaria, Nigeria.

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1. Introduction

Catastrophic events, both natural and man-made disasters usually create surge capacity needs for healthcare system, subsequently, the ability to handle these capacity needs requires Nurses understanding of national disaster management cycle and thoughtful planning. Disastrous emergencies may not be prevented or controlled as such, it is necessary for citizens to be prepared at various levels including individuals, families, healthcare employees and community organizations in order to mount a successful response to the events [1].

Preparedness for disasters is essential for households, business and communities, but many remain unprepared. Recent disasters seems to highlight the need for individual responsibility, local coordination and continuity plans to

ensure the ability to respond to and recover from serious events. The federal government has prioritized national preparedness as a goal without developing a plan to achieve and maintain it. Furthermore, in previous reports, public entities have been charged with the responsibilities to assess their state of readiness and identifying strengths and areas of weakness as a requirement for receiving federal funding and homeland security grant [2].

The World Disasters Report 2007 reported an increase of 60% disasters events in the last decade (1997–2006). In addition, the number of reported deaths increases from 600 000 to over 1.2 million globally. At the same time, the number of people affected rose from 230 million to 270 million [3]. Emergency preparedness is a schedule of long term development activities. The goals are to increase the overall capacity of a country to manage efficiently all types of emergency and it should take an orderly transition

from relief through recovery, and back to sustained development [4].

The objective of disaster preparedness is to ensure that appropriate systems, procedures and resources provide timely effective assistance to disaster victims thus, facilitating relief measures and rehabilitation of services. The individuals are responsible for maintaining their wellbeing and community members, resources organizations and administration, should be the cornerstone of an emergency preparedness programme [5].

The International Council of Nurses (ICN) Framework on disaster nursing competencies recognized an accelerated need to build capacities of nurses at all levels in order to safeguard populations, limit injuries, and deaths, maintain health system functioning and community well-being in the midst of continued health threats and disasters [6]. The Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN) also encourages nurses to participate actively in all phases of disaster preparedness and response within their institutions, communities and they should engage in hazards analysis planning prior to a disaster, respond during crisis and assist with mitigating hazards through out the recovery phase [7].

All hazards preparedness is a term that came to be used following Hurricane Katrina in 2005. It suggests the need to have a deliberate plan for responding to types of emergencies and disasters (natural, accidental or intentional). Multiple Professional bodies including state and local governments, health care facilities and business organization, have developed plans for potential crises. The process of planning is a continuous cycle that involves planning, organizing, equipping, training, exercising, evaluating and making plan revisions [8].

After the tragic event of September 11, 2001 (9/11), followed by Hurricane Katrina and Ike in 2005 and 2008, the wildfires of California in 2009, the massive oil spill in the Gulf of Mexico (2010) and the flood and tornadoes in 2011, it became imperative that nurse practitioners should engage in ongoing planning, development and training in disaster response and preparedness. Spellman [9] reported that one of the challenge faced by today's nurses is to discover ways in which discipline expertise can be used appropriately in emergency response effort.

The standard of clinical nursing practice provides a holistic framework for the practice of nursing. Today's nurses are faced with the challenges of responding to natural man-made and technological disasters [10]. In the United States, although disaster related content is now included in the national council licensure Examination (N-CLEX). Little time is spent in teaching or learning this information during the basic nursing education programme. However, within the realities of practice, nurses are challenged with the foundational, professional and social responsibility to assist individuals, families and communities to maintain and improve their health often through the primary care setting [1].

The unpredictable occurrence of disaster whether man-made or natural, consequently makes it uncontrollable and inevitable. The devastating impact on human life and properties necessitates man's preventive and collaborative effort to minimize or prevent greater damages to it occurrence. Although, it may not be possible to control nature and to stop the development of natural phenomena

but efforts could be made to avoid disaster and alleviate their effects on human lives. It is against the background that the roles, preparedness and management of a medical team including nurses are deemed essential [12].

Disaster management includes four stages which includes; prevention (mitigation), preparedness, response and recovery, [13,14,15,16]. Nurses have unique skills for all aspect of disaster, this include assessment, priority setting, collaboration and addressing both preventive and acute care needs. Nurses have been serving in disasters rescue for more than a century, and to this day, provides significant resources to both the employee and the volunteer disaster management workforce, unmatched by any other profession. Nurses hold a major role in providing healthcare management and assistance, and allocating care during time of disaster [17] and to reduce the impact of the disaster in the community.

Preparing for disaster or emergency is very crucial, vital and is a priority for every one to be reckon with. In every discipline, the individuals or professionals are expected to be knowledgeable and equipped for the essence of preparing for emergencies or deal with emergency situations. Nurses by virtue of their competency and intellectual abilities are not left behind and as such, have a significant role to play in terms of emergency or disaster preparedness.

1.1. Aim & Objectives of the Study

To explore the role of a nurse in emergency preparedness among nurses in Zaria local Government area of Kaduna State and to find out factors affecting emergency preparedness.

2. Methods

2.1. Background of the Study Area

The study area is Zaria local Government where the two selected secondary health institutions were located. Zaria is one of the ancient cities in the northern Nigeria. The total estimated population is 406,990 according to the 2006 census [18]. The two secondary health facilities were identified within the area of the study. They are: St. Luke Hospital Wusasa-Zaria and Hajiya Gambo Sawaba General Hospital Kafan Gayan.

The St. Luke hospital Wusasa is one of the oldest missionary hospitals in Zaria, with eight wards and administrative block. The hospital has about 160 beds while, Hajiya Gambo Sawaba General Hospital was on the 3rd March, 1975 as a health center, Zaria. The hospital is a 200 bedded hospital [19].

2.2. Study Design

This is a cross-sectional descriptive survey carried out between January -April, 2014.

2.3. Study Population

The study population for this study includes all the registered nurses working in the two selected secondary health facilities in Zaria Local Government Area.

2.4. Data Collection Tools

A total of One Hundred and Twenty (120) Structured Questionnaires were distributed to all the nurses in the two selected hospitals. The questionnaire was developed by the authors to collect data from the participants. The questionnaire was divided into five (5) sections A, B, C, D and E. Section A contained the socio-demographic data of the participants, section B constituted a question seeking the understanding of the concept of emergency preparedness, section C constituted questions on the role of a nurse in emergency preparedness, section D constituted questions on the opinions of the participants on Emergency tools and section E contained questions on factors effecting emergency preparedness respectively.

2.5. Data Analysis and Management

Data collected from the participants were coded and analyzed (descriptive) using the Statistical Package for the Social Sciences (SPSS) version sixteen for windows.

2.6. Ethics

Worded informed consent was obtained from individual participant after permission to conduct the study was obtained from the selected health facilities.

3. Results

3.1. Participants Socio-demographic Features

Table 1 below illustrate that 41(34.0%) of the participants fall within the age bracket of 30-39 years,

76(63.0%) were female and 80(67%) were between th rank of nursing officer II (N.O.II). to Senior nursing offier (SNO).

Table 1. Socio-demographic features of the participants (n=120)

Variables	Frequency	Percentage (%)
Age		
20-29 years	37	31.0
30-39 years	41	34.0
40-49 years	22	18.0
50-59 years	12	10.0
60 years and above	8	7.0
Sex		
Male	44	37.0
Female	76	63.0
Rank		
N.O.II*	30	25.0
N.O.I*	26	22.0
S.N.O*	24	20.0
P.N.O*	16	13.0
A.C.N.O*	14	12.0
C.N.O*	10	8.0

*N.O.II = Nursing Officer II, *N.O.II = Nursing Officer II, *S.N.O = Senior Nursing Officer, *P.N.O. = Principal Nursing Officer, *A.C.N.O = Assistant Chief Nursing Officer, *C.N.O = Chief Nursing Officer.

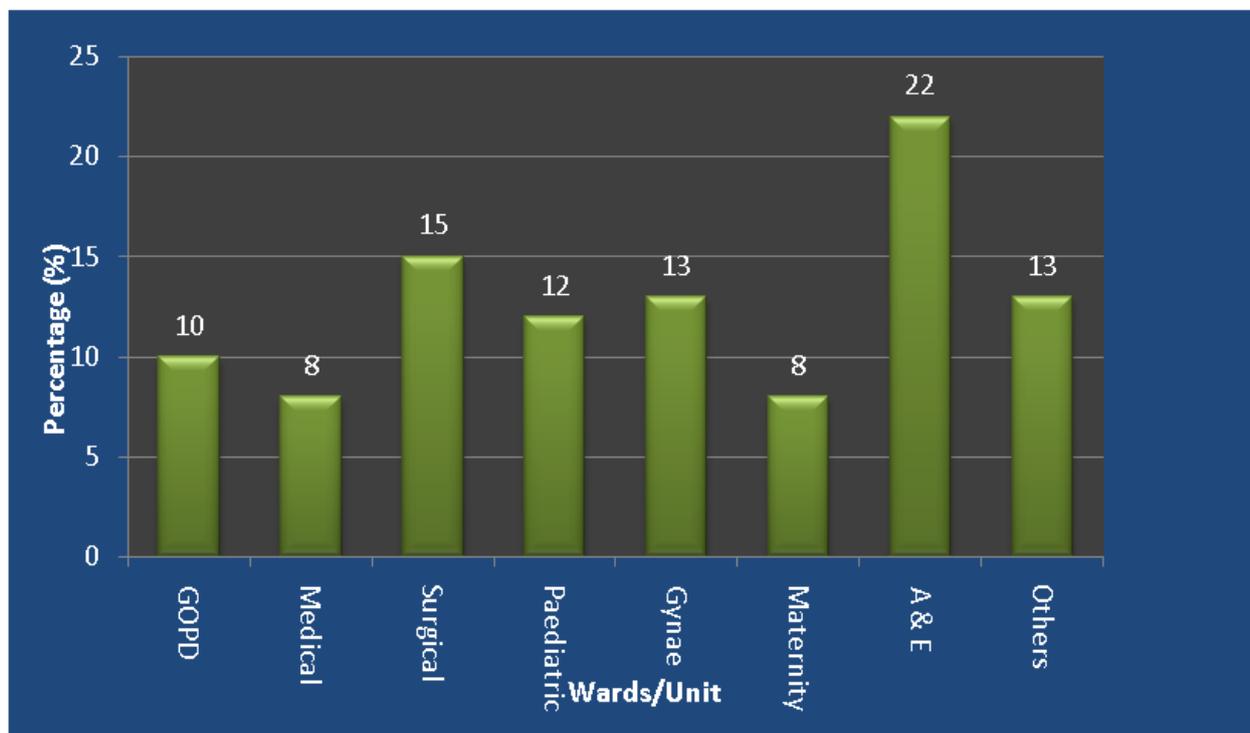


Figure 1. Showing the distribution of participants by wards/unit

Figure 1 above depicts that (22%) of the participants work in Accident and Emergency ward follow by (15%) who work in surgical ward and Figure 2 below illustrate

that 45% of the participants had a working experience between 1 – 10 years.

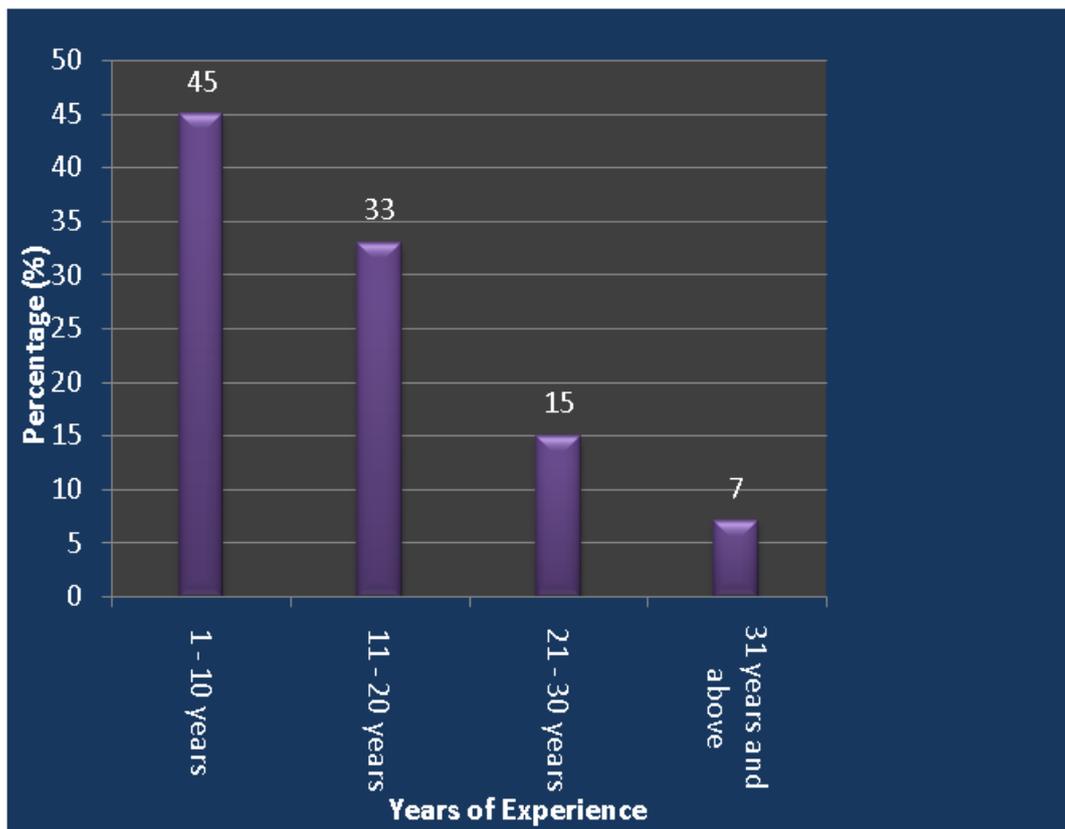


Figure 2. shows participants years of experience

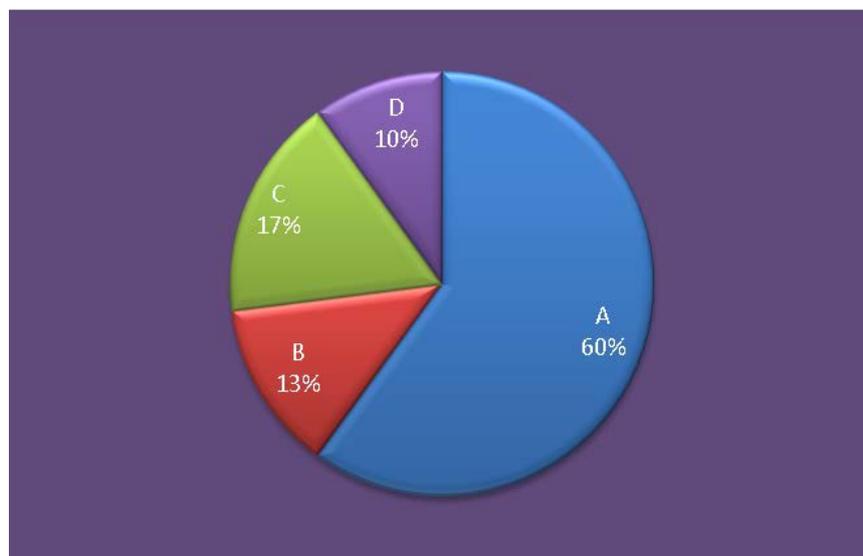


Figure 3. Present participants understanding of the concept 'Emergency Preparedness'

A - It is a coordinated effort that requires multidisciplinary approach, cooperation and participation of all sectors to ensure adequate planning and preparation before a disaster event.

B - It is coordinated effort that requires multidisciplinary approach, cooperation and participation of all sectors.

C - It is a process of planning and preparation before a disaster event.

D - It is a process that equips individuals with plans and resources that will ensure personal and family safety in a disaster event.

Figure 3 above posed that near two third (60%) of the participants indicated (A) as the concept that defined emergency preparedness and (17%) choose (C) as the best option that defined the concept of emergency preparedness.

3.2. Participants Defined Roles of the NURSE in Emergency Preparedness

Table 2 below shows that (53%) of the participants agreed that a nurse serves as a community healthcare

provider that participates and supports the effort of federal and state in promoting emergency and disaster preparedness, (43%) strongly agreed that the nurse facilitates communication and coordinates care among members of the healthcare team, patients and family during a disaster and (55%) strongly agreed that the nurse collaborates with other healthcare providers and officials involved at all level of disaster preparedness.

Table 2. Participants defined roles of the nurse in emergency preparedness

Variables	SA*(%)	A*(%)	N*(%)	D*(%)	SD*(%)
A*	27.0	53.0	7.0	10.0	3.0
B*	43.0	33.0	10.0	12.0	2.0
C*	55.0	25.0	3.0	10.0	7.0
D*	52.0	28.0	5.0	7.0	8.0
E*	57.0	22.0	10.0	8.0	3.0
F*	52.0	28.0	7.0	10.0	3.0
G*	53.0	28.0	7.0	5.0	7.0
H*	32.0	52.0	3.0	8.0	5.0

A*= A community-based healthcare provider that participates and supports the effort of federal and state in promoting emergency and disaster preparedness
 B*= Facilitates communication and coordinates care among members of the healthcare team patients and family during a disaster.
 C*= Collaborates care with other healthcare providers and officials involved at all level of disaster preparedness
 D* = Plays a role in mitigating potential hazards before a disaster strikes
 E*= Educating community and ensure strict compliance to disaster
 F*= Developing procedures that will limit injuries to the communities
 G*= Ensuring a stockpile of adequate tools and equipments for an emergency care and resuscitation
 H*= Facilitating the provision of consumables and protective materials prior to disaster.
 SA*= Strongly Agreed, A*=Agreed, N*=No Response, D*=Disagreed,SD*=Strongly Disagreed.

Table 3. Other roles of the Nurse in emergency preparedness

Variables	Reponses				
	AS(%)	A(%)	N(%)	D(%)	SD(%)
A*	57.0	27.0	3.0	5.0	8.0
B*	63.0	17.0	8.0	7.0	5.0
C*	62.0	17.0	10.0	8.0	3.0
D*	52.0	30.0	8.0	7.0	3.0
E*	49.0	36.0	7.0	5.0	3.0
F*	51.0	34.0	3.0	5.0	7.0
G*	53.0	27.0	8.0	7.0	5.0
H*	17.0	58.0	10.0	8.0	7.0

A*= Partakes in preserving lines of communication at the scene of emergency, B*= Assisting in providing adequate means of transportation of victims at the scene of disaster, C*= Ensuring quality patient care, D*=Helps influencing policy and financial decisions, E*= Assists in providing security of staff, patients and families before and during emergency, F*= Engaging in counseling of disaster victims, G*= providing vocational training to disaster victims, H*= Enhancing in behavioral modification and rehabilitation of disaster victims.

3.3. Other Roles of the Nurse in Emergency Preparedness

Other roles of the Nurse in emergency preparedness includes: partakes in preserving lines of communication at the scene of emergency, assisting in providing adequate means of transportation of victims at the scene of disaster, ensuring quality patient care, helps influencing policy and financial decisions, assists in providing security of staff, patients and families before and during emergency, engaging in counseling of disaster victims, providing vocational training to disaster victims and enhancing in behavioral modification and rehabilitation of disaster victims. It is remarkable to note that 63% strongly agreed that the nurse do assist in providing adequate means of transportation of the victims at the scene of disaster to hospital. Similarly, 62% strongly agreed that the nurse ensures quality patients care and 49% strongly agreed that the nurse assist in providing security of staff, patients and families before and during emergency.

Table 4. Participants knowledge on tools used during emergency (n=120)

Tools	N(%)
a. Identification badge	2(2.0)
b. Practicing license	2(2.0)
c. Blood pressure cuff	4(3.0)
d. Stethoscope	6(5.0)
e. Thermometers	2(2.0)
f. Gloves	4(3.0)
g. Facemasks	8(7.0)
h. Personal protective equipment (apron and boot)	6(5.0)
i. Ambu bag	4(3.0)
j. Suctioning machine	4(3.0)
k. First aid/kits	4(3.0)
l. All the above	66(55.0)
m. Others	8(7.0)

Table 4. Above showed that More than half of the participants (55.%) ticked all of the listed tools as applicable for nurses to use during emergency preparedness.

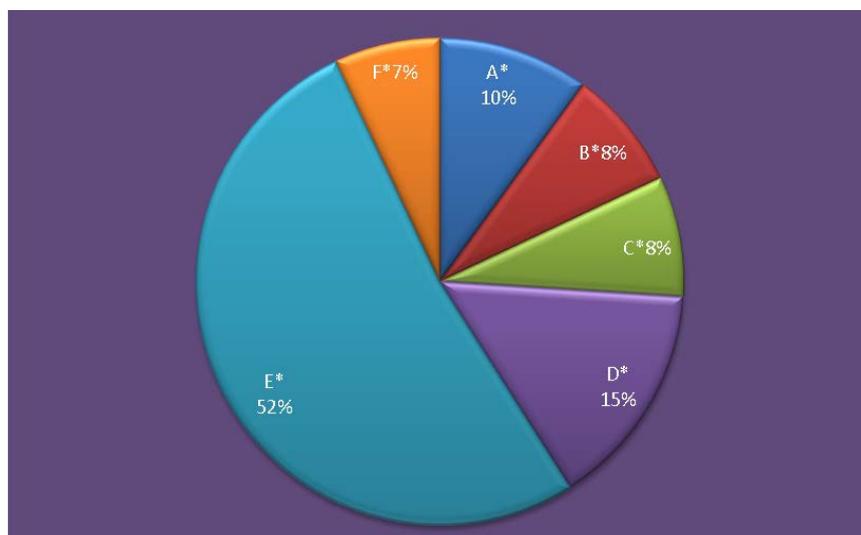


Figure 4. Factors affecting Emergency preparedness

A*= Insufficient supply of emergency tools, B*= Inadequate means of transportation, C*= Defective channels of communication, D*= Inadequate training and simulation of personnel on emergency preparedness, E*= All of the above, F*= Others.

Figure 4 above illustrates that more than half (55%) of the participants indicated that insufficient supply of emergency tools, inadequate means of transportation, defective channels of communication and inadequate training and simulation of personnel on emergency preparedness were factors affecting emergency preparedness.

4. Discussion

Majority of the participants in this study were at their youthful age and have had a working experience between 1-10 years. This is interesting because this type of work force is ideal for disaster event management as it will require them to bring their wealth of experience to bear. Similarly, this study is in line with [20] study where most of the participants' year of experience was less than 3-9 years. More than half of the participants in this study had good understanding of disaster preparedness and only few had undergone training in disaster management. Training and re-training has been shown to be very essential for personnel that are involved in disaster management to keep abreast with the current needs, new development and knowledge required in the management of disaster.

Disaster preparedness involves a coordinated and continuous process of planning and implementation. This planning is essential and particularly advocated even at the time a disaster event has not occurred. Hence, administrators are required and/or advised to invest heavily on human resource mobilization and capacity training at these periods. In addition to the training, public health education, risk assessment and regular disaster drills are essential components of disaster preparedness [1,2,21,22]. A nurse with vast knowledge of emergency preparedness can contribute immensely in providing healthcare at all levels of emergency situations including community emergency. Therefore, it is not surprising that (53%) of the participants in this study agreed that the nurse serves as a community-based healthcare provider that participates and supports the effort of federal and state healthcare systems in promoting emergency and disaster preparedness. This is in agreement with a study conducted by Phillips [23] where she established that nurses working in primary and secondary healthcare settings are community-based healthcare providers and that they have a responsibility to participate and support the federal and state healthcare system so as to promote emergency and disaster preparedness.

Natural emergencies occur without a warning and often time neither gives any prior notice. Therefore, a need for adequate stockpiling of tools and equipment as well as resuscitating gadgets are very essential to curtail the effect of any emergency that may strike. A nurse, being the chief custodian of the hospital infrastructure, needs to have all the necessary tools at their disposal, otherwise it will be disastrous to themselves, the victims and other colleagues. The findings of this study depict that (55%) of the participants strongly agreed that nurses should ensure a stockpile of adequate tools and equipment for an emergency care and resuscitation. This finding is also corroborated with a study carried out by FEMA [24] which reported that nurses should provide essential disaster kits for home, workplace, car and other essential tools and emergency supplies specific to nursing should

be prepared and stored in an easy-to-carry container for easy usage.

It is a well-documented fact that there are several factors that have been known to have negatively affected the level of emergency preparedness [14]. When these factors are detected earlier and managed by the nurses, his or her level of emergency preparedness will be better but if they are not detected in good time, they usually pose a great threat to the lives and properties of not only the victims of disaster but also to the nurses. The findings of this study also illustrate that most of the participants (55%) agreed that insufficient supply of emergency tools, inadequate means of transportation, defective channels of communication, inadequate training and simulation of personnel's on emergency preparedness were responsible factors affecting emergency preparedness.

4.1. Study Limitations

The study was limited to nurses in secondary health institutions in Zaria Local Government. The findings may not be the same with nurses in tertiary or Primary Health Care Centers and so further study will be required to assess the level of understanding and preparedness of these other categories of nurses. Also, the study was carried out in two selected secondary health facilities in Zaria local government of Kaduna State. As such the finding of this study may not be generalized.

5. Conclusion

Disaster preparedness maximizes safe circumstances, decreases vulnerability and minimizes risk to individuals when they are confronted with hazard events. The role of a nurse is central in emergency preparedness as she takes stock of the hospital infrastructures.

6. Recommendation

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

- i. there should be adequate training and re-training of all nurses in both public and private health institutions in order to provide them with sound knowledge on how to prepare and handle any emergency situations.
- ii. Effort should be made to supply the nurses with adequate tools to use in emergency events in order to avert any unforeseen situation when it needs to arise.
- iii. Administrators and Medical Directors of healthcare facilities should invest in emergency preparedness measures and also engage in carrying out periodic simulations and regular drills of staff in their institutions so as to fully equip them against disasters.
- iv. Further research should be conducted to elucidate broader findings among nurses in tertiary hospitals and primary healthcare centers across the nation.

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Competing Interest

The authors declare that no competing interests exist.

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