



**NURSES' KNOWLEDGE, ATTITUDE AND PRACTICE TOWARDS MASS  
CASUALTY PREPAREDNESS AT ONE REFERAL HOSPITAL IN RWANDA**

UZAMUHOZA Francine

COLLEGE OF MEDECINE AND HEALTH SCIENCES

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By

UZAMUHOZA Francine

216339731

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Supervisor: Christine UFASHINGABIRE

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## **ABSTRACT**

**Background:** The numbers of disasters are increasing day by day all over the world. Nurses are the fundamental element in preparedness, they have to know and understand well all information related to mass casualty preparedness. Developing countries including Rwanda are at high risks due to many factors like population growth, climate change, terrorism, technology, road traffic accident, floods periods, earthquake, terrorists' acts, refugee holding etc., these cause loss of life and other life threatening. Regardless of these, there are no available documents in Rwanda on how nurses are prepared to receive and manage mass casualties.

**Purpose and significance of the study:** assess nurses' knowledge, attitude and practice regarding mass casualty preparedness in RMH. The research findings from this study have impact to nurses' preparedness, education and to further research.

**Methodology:** Quantitative cross sectional descriptive method used, 90 nurses selected by using total population sampling strategy from A&E, ICU and OT. Pilot conducted among 10 nurses, data were analyzed by using SPSS and presented in the form of figures and tables.

**Results:** Findings show that 38.2% working in theater, 52.6% of nurses, their working experience were between 1-5 years, most of them didn't know the correct definition of disaster and other elements related to disaster plan, which demonstrate their inadequacy knowledge (61.8%), the level of attitude was negative (53%) and their practice was poor (78%).

**Conclusion:** Nurses' attitude was negative, they have inadequate knowledge and poor practice in terms of ongoing training and simulations related to mass casualty preparedness.

**Key words:** nurses, disaster, mass casualty, preparedness.

## **DEDICATION**

I would like to dedicate to:

- God Almighty
- My adored family: My lovely son MAHINGA UWONKUNDA Rodin, my beloved daughter MAHINGA KEZA Rolande and my lovely husband UWIMANA H. Johnny
- Colleagues and lecturers of the University of Rwanda College of Medicine and Health Sciences.

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## **LIST OF ACRONYMS AND ABBREVIATIONS**

**CHUK:** Kigali University of Teaching Hospital

**ICU:** Intensive Care Unit

**KAP:** Knowledge, Attitude, Practice

**KFH:** King Faisal Hospital

**MIDMAR:** Ministry of Disaster Management and Refugees Affairs

**OT:** Operating Theater

**PPE:** Personal Protective Equipment

**RMH:** Rwanda Military Hospital

## **CHAPTER ONE: INTRODUCTION**

### **1.1. Introduction**

In chapter one, the researcher reviews general information or background about mass casualty preparedness in hospitals and plan used in mass casualty. It will discuss the problem statement, the aim of the study, the research objectives, the research questions, significance of the study, definitions of concepts and structure of the study.

### **1.2. Background**

Mass casualties following disasters and major incidents are usually characterized by a quantity, severity, and diversity of injuries and other patients that can rapidly overwhelm the ability of local medical resources to deliver comprehensive and definitive medical care. Casualties associated with natural disasters, particularly rapid-onset disasters, are overwhelmingly due to different factors like blunt trauma, crush-related injuries, drowning and mental health issues. This indicates the importance of being well prepared and ready to respond to such events (Ben-ishay et al. 2016).

Mass casualty can have different definition but some authors define mass casualty as many injured patient present at one time mostly are results from some events like a military aircraft accident, hurricane, fire, flood, earthquake, multiple vehicle accident, terrorist attack, infectious disease epidemic, building collapse, collision or armed attack but local capabilities are not overwhelmed and in this situation triage system is necessary in order to save peoples life (Christopher, 2010). While (Castro Delgado et al., 2016) defined mass casualties as results following disasters and or major incidents, usually manifested by different categories of physical trauma patients and other patients that can quickly exhausted medical institution ability to cope with. The frequency of natural disaster has increased three times in fifteen years consequently more people have been affected others have died like in Paris (Lefort&Travers, 2014).

Mass casualty preparedness is very complex for hospitals because of its uncertainty. Nobody knows when casualties come, where they will come from, or the sources of casualties. This is the reason why it's very difficult for hospital to deals with staff preparedness for unknown events similarly to other countries.

World Vision report that about 150 major natural disasters affected millions of people worldwide in 2015, floods, massive earthquake, heat wave, drought and winds continue to be the most frequently occurring natural disasters and also affect the most people worldwide.

Developing countries are at high risk to natural disasters due to different things such as high population growth, climate change, most often in a logistic and medical care undeveloped context. On the other hand, technology problems like fires, explosions, road traffic accident are increasing and the acts of hyper terrorism increase the number of casualty (Lefort&Travers, 2014).

Like other country Rwanda has some events of mass casualty like genocide against Tutsi in 1994 where around one million of Tutsi were killed or injured by Hutu. During this period there were many casualties in different hospitals even in and outside of the hospitals.

Additionally, floods happened in Northern Province of Rwanda where 14 citizens died and 2000 peoples were internally displaced in 2006. In 2012, 17 peoples were killed, many houses were destroyed, infrastructure were destroyed including damaged roads, source of water, broken bridge and landslide (MIDMAR, 2012). In addition to these events Rwanda had honor of hosting the African Nations Championship (also referred to as CHAN 2016) and many Burundian refugees coming to Rwanda since 2015 these could be a really causes of mass casualties.

According to MIDIMAR report (MIDIMAR, 2015), the acts of terrorist have been increased in 2010 and 2014 and have target place of many people stay. The specific place for these terrorist were market, school, car park, main commercial complex their acts leads to mass casualties (MIDIMAR, 2015). In addition, the location of Rwanda make it vulnerable from mass casualty event of neighboring countries, effective management of such situation requires adequate preparation as well as available resources and support services. Regardless of these significant events and some crisis situations, there are no data from healthcare unit have been communicated or presented electronically on databases on how nurses are prepared to receive those mass casualties.

It is necessary and priority for hospitals to be well prepared to respond to mass casualty events. Nurses are one of essentials groups involved in casualty management and they form also a big number of health care systems who intervene in mass casualty event. Consequently, these workers should have good knowledge and practice for delivering effective care at right time and right place in emergency responses. Nurses shown their role in preparedness since last years ago and play a greater role in intervention till now they still needed in prevention, surveillance, and response of each cause of mass casualty (Magnaye et al., 2011).

Emergency preparedness refers to the cycle of many things but when you are preparing for something you have to design plan which may include staff, infrastructure, knowledge and

capabilities of staff, and training such as fundamental elements of upholding great level of mass casualty preparedness (Abdelalim & Ibrahim, 2014). In preparedness firstly you look for the competent people can be help in such operation, secondary clarify the mainly responsibilities they should perform, lastly precise the facilities in place or the way you will get funds. Many researches in different countries showed how nurses have a greater job in all types of disaster and it is mandatory for them to be well equipped for good management of mass casualties (Back & Alfred, 2013).

In their annual report of 2015, the RMH statistics unit had recorded 43 incidents and 8 fatal accidents from road traffic accident. In 2015 emergency department had receive 18 casualties, 4 from them died from building collapses. However, in cases of mass casualties a significant of people lose their lives at the rescue place before even they are referred to RMH, to KFH and CHUK for further emergency management. So, one curiosity was to know if RMH as tertiary level hospital and military hospital is well prepared in handling mass casualty cases. From this the researcher interest in assessing if RMH nurses are well equipped in knowledge and practice and assess also their attitude towards preparedness of mass casualty.

Consequently, this research was intended to study nurses' knowledge, attitudes, practices towards preparedness of mass casualty in Rwanda Military Hospital as referral hospital and military hospital.

### **1.3. Problem statement**

Disaster profile in Rwanda is occupied by such events like droughts, fire, floods, earthquakes, landslides, heavy rain with strong winds, lightning and thunderstorms, traffic accidents, diseases and epidemics that disturb life condition, people's incomes, destroy the infrastructure, interfere economic activities and delay development (MIDMAR, 2013).

In 2010 there were 5.1 millions deaths from injuries worldwide, 89% of these occurred in developing countries, the mainly cause is road traffic accident. Rwanda is the first country in Africa and in the world which has worst road safety record (Petroze et al., 2014).

During the period from 2010-2014 many terrorist attacks have been recorded in Rwanda and targeted markets and car parks to harm a big number of victims (MIDIMAR, 2015). There are other special events occurred in Rwanda like genocide against Tutsi in 1994 where around one million of Tutsi were killed and others were severe injured; floods in northern province of Rwanda where 14 people died and 2000 were internal displaced in 2006; 17 people were killed and many houses were destroyed in 2012; infrastructure destroyed including roads, schools, hospital, source of water damaged, broken bridge and landslide; hosting of the

African Nations Championship (also referred to as CHAN 2016), many Burundian refugees coming to Rwanda since 2015 these situations should be a possible cause of mass casualties. In Rwanda Military Hospital as referral hospital and military hospital, disasters incidence are not at high level but some circumstances of violent theft, road traffic accidents, fires, buildings collapse, malaria, hepatitis outbreaks are a common happening. So, when those situations happened some casualties are treated at RMH, others may lose their lives on rescue place, during transport even in hospital or while are referred to KFH and CHUK for further management. However we don't know if the hospital was adequately prepared and equipped to attend to mass casualties, then, it is pertinent to find out how RMH is prepared to respond and manage mass casualty. Then, this creates the need for a study in RMH, to assess nurses' knowledge, attitude and practice towards preparedness of mass casualty in this hospital.

#### **1.4. The aim of the study**

The scope of this study is to assess nurses' knowledge, attitude and practice regarding mass casualty preparedness.

#### **1.5. Specific objectives**

1. To assess the existing level of knowledge among nurses about mass casualty preparedness at Rwanda Military Hospital.
2. To examine nurses' attitude towards preparedness of mass casualty at Rwanda Military Hospital.
3. To determine nurses' practice level towards mass casualty preparedness at Rwanda Military Hospital

#### **1.6. Research questions**

1. What is the level of knowledge of nurses towards mass casualty preparedness in Rwanda Military Hospital?
2. What attitude do nurses have regarding mass casualty preparedness in Rwanda Military Hospital?
3. What practice do nurses have towards mass casualty preparedness in Rwanda Military Hospital?

#### **1.7. Significance of the Study**

The results from this research have a big implication to Rwanda Military Hospital but also to other health organizations in the county even the entire country generally which facing same challenges, through the recommendations that afford possible act is to maximize skills, competences and patient care when mass casualty events occur and provide method to reduce the effects of natural and human made disasters. The medical organizations managers may

perhaps decide to provide special training in-service or out related to disaster preparedness. The emergency preparedness should be upgraded and be well organized in the management of casualties. This research adds important ideas to a present frame of knowledge but also would be a primary source of information for the future studies.

### **1.8. Definition of concepts**

**Preparedness:** It is well defined as the state of being organized or ready to serve someone or something. In this study preparedness means a phase that in healthcare system establishes the strategies, drill, exercises, and necessary simulations to reach readiness for all dangers and to provide good response to mass casualty event (Rn et al., 2011).

**Mass casualty:** is defined as a large number of casualties produced in short period of time, usually as the result of a single event such as a military aircraft accident, hurricane, flood, earthquake, road traffic accident or armed attack that not exceeds local logistic abilities. In this study mass casualty means a large number of traumatic and non-traumatic patients caused by one or more events (Christopher, 2010).

**Disaster:** Is an unexpected or catastrophic episode that extremely disturbs the functioning of a community or society and causes human, material, and economic or environmental losses that exceed the community's or society's ability to cope by using its own assets. It may have natural origin or human origins. In this study disaster refers for any conditions occurs in community at any time and cause loss life, physical traumatism, population displacement and ability to deal with is loss (Kaya & Altintas, 2015).

**Knowledge:** Facts, information, and skills acquired through experience or education; the theoretical or practical understanding of a subject (Oxford living dictionaries). In this study, knowledge refers to the awareness of basic principles elements of mass casualty preparedness by the nurses at RMH.

**Attitude:** is defined as the way a person views something. In this study term attitude discussed as how nurses are confident, motivated to report in the mass casualty events.

**Practice:** is the way you do something based on knowledge and skills you have. In this study nurses' practice are what nurses do in their daily activities in hospital or in department to be well prepared for handling mass casualty incidents when occurs (Nekooei Moghaddam et al., 2014).

### **1.9. Organization of the study**

In this dissertation, the chapter one gives the direction and essentials elements of the study. Those elements are background of the study which includes information about the research topic, problem statement, objectives and research questions and significance of the study. It was defined main terms mostly used in this study and finally it describes the structure of dissertation. In second chapter, the researcher defined and described conceptual framework of the topic. A general overview of literature was presented. In chapter three, the researcher described research design and methodology, study population, sampling procedures, the research instrument, data collection methods and analysis. This chapter also comprised ethical issues, reliability and validity of the study.

## **CHAPTER 2: LITERATURE REVIEW**

### **2.1 Introduction**

In this chapter, the researcher analyses literature from different references in all countries especially research done on the nurses' knowledge, attitude and practices regarding to mass casualty preparedness in hospitals and plan used in mass casualty preparedness in hospitals.

#### **2.1.1. Different sites used**

For getting different ideas used in my dissertation I have search on different site like Google, Hinari, Pub med, Critical Care eNewline, and other books ranged between 2010 and 2016. The main keys wards used for getting articles are knowledge, attitude, practice, mass casualty, disaster and preparedness.

### **2.2. Theoretical literature**

It is impossible to communicate in group without common understanding of specific terms. Some terms are discussed in this chapter like knowledge, attitude, practice, triage, mass casualty, disaster and preparedness.

Knowledge is defined as a set of skills acquired to fulfill an understanding of a given area. In this study the concept of knowledge is defined as state of being aware or up to date information nurse should have related to mass casualty preparedness (Diab & Mabrouk, 2015).

Attitude is defined as the way a person views something or tends to behave towards this thing. In this study nurses' attitude is how nurses are belief, motivated to report in the event and confident to manage mass casualty.

Practice is doing something based on skills you have and preparedness means all actions taken before an event occur and taking corrective measurement to ensure good organization in mass casualty response. In this study nurses' practice are drills, simulations done in hospital or in department for preparing, empowering them before event occur and manage confidently mass casualty event while occur (Nekooei Moghaddam et al., 2014).

Preparedness is one phase of disaster phase, in this study it means what should be done before mass casualty events occur for better management.

It is also including in disaster cycle, firstly preventing or mitigation, preparing for, responding to, and recovering from disasters and emergencies, it has become a priority for each health system (Rn et al., 2011).

Triage means sorting, it present the way of selecting patient based on their life threatening. Usually it was used in war then was adopted in hospital cause of most mass casualties are brought at hospital. In triage practice there some principles that you have to use and follow



like levels and colors: **RED**: immediate patient whom necessity resuscitation, **GREEN** means Minor injury (walking wounded), **YELLOW**: Delayed, people who can wait and **BLACK**: Dead (Christopher, 2010).

All patient able to respond to the following statement” IF YOU CAN GET UP AND GET OUT OF HERE DO SO NOW” are classified in GREEN category and are in stable conditions, but you can’t confirm their life condition before assessment of Circulation, Respiration and Mental status. Casualties are classified in **RED** category if respiratory rate is greater than 30/min, if heart rate is absent or if he/she cannot obey the command, those casualties require immediate resuscitation. If casualty is able to obey the command he will be classified in **YELLOW** category. **Black** category composed by dead body only (Pousi, 2014). This system is used in different hospital in Rwanda.

Disaster is defined as a sudden unpredictable situation; it can be natural origin like floods, earthquake, illness (epidemics), drought, and landslide or may be manmade fire, bombing, terrorist, and traffic accident. When disaster occur a large number of people can be injured, displaced even loss of human lives and environment change which exceeding the community's ability to cope (Sharma et al., 2016).

### **2.3. Empirical studies**

#### **2.3.1. Nurses’ knowledge towards mass casualty preparedness in hospital**

It’s better to have healthcare system and nurses ready to respond to different type disaster events, emerging infectious diseases, and intentional acts of terrorism involving chemical, biological, radiological occur in surrounding area. Most common mass casualties are caused by natural disaster or manmade if occur they can cause death, injury and displaced many people. Nurses as healthcare workers play a big role in disaster management reason why they have to learn more and have update skills and practice.

All persons interact with the patient must be well equipped with sufficient knowledge related to disaster management in order to respond effectively when disaster event occur. Knowledge is gained from training and education. Nurses are the first group in hospital even in mass casualty event so they must have current information related to disaster preparedness apart from that they are the group who must be trained at the first time as the first step in preparedness (Nekooei Moghaddam et al., 2014). However the study done in China indicated that nurses as important part in mass casualty preparedness and management but they seems to be not well prepared at school even at work place which determine their insufficient level of knowledge to address mass casualty management (Yan et al., 2015).

Different types of knowledge regarding mass casualty are mandatory like communication, health care workers have to know the ways of communications may be used in mass casualty. This awareness is for example to know where there is backup telephone, how to use it and who receive this communication. They have to know how to protect themselves and protect the patient based on hospital equipment, policy and situation. Patient transport, waste management, protection of the caregivers and collaboration of others service are basically needed (Nekooei Moghaddam et al., 2014). In this study the participant show the importance of learning from drills and flow chart similar to the really situation (disaster) that may increase their level of knowledge and show that they were not aware about reserved materials for disaster.

The study conducted in Canakkale Mart University support the above statement and it was discovered that the emergency staff has a lower level of knowledge regarding to disaster preparedness and show that if staff are well prepared will reduce the impact of disaster (Kaya & Altintas, 2015). According to the findings of the study done in Saudi Arabia show the disaster occurrence worldwide and its impact to the population, the findings from this research show also the significance of nursing in catastrophe preparedness but revealed that nurses has poorer knowledge regarding disaster and emergency preparedness conferring to the research findings (Abdelalim & Ibrahim, 2014). The study findings from South Australian display that emergency nurses' knowledge was inadequate and they didn't receive enough education and drill related to disaster preparedness (Peoples et al., 2016).

In addition to this nurses have many functions when mass casualty incident occur like triage nurses, care givers, supervisor, advisors and speaker. These functions may be achieved if such group has high skills to respond well. The findings from a study done in Egypt revealed that nurses are not aware to disaster preparedness and confirmed that they didn't upgrade their knowledge. But the findings highlight the improvement of knowledge after getting training which is good if it is used in all nursing setting (Diab & Mabrouk, 2015).

#### **2.4. Nurses' attitude towards mass casualty preparedness**

Attitude is defined as the way a person views something or tends to behave towards this thing. According to Magnaye et al. in 2011, practices and knowledge are influenced by their attitude in order to perform well their function in preparedness. Additionally, nurses' inputs in mass casualty preparedness is determined by their knowledge and practice which empowered by attitude as mentioned in study conducting in Malaysia (Ahayalimudin et al., 2012).

Differ from to the above statement nurses of emergency department in Phillipine has negative attitude regarding to the mass casualty but it is influenced by certain factors like being not supported by the institution (Gen, 2014). And the findings from other study disagree with the previous statement where they founded that nurses present have good attitude towards disaster preparedness and response (Wenji et al., 2015).

## **2.5. Nurses' practice and Preparedness of mass casualty**

Preparing for emergencies requires continual and coordinated efforts that involve every level of hospital especially in nursing and you prepare for known and unknown health situation, gathering and exchange information for intervention in case of emergency is mandatory.

It is clear to have an emergency kit ready to keep your family, your community or your hospital safe and healthy and also to have different types of kits for a variety of emergency situations such us a shelter in place, equipped ambulance in case you have to evacuate and others cars for supplies and a first aid kits in case someone is injured people, such thing are called quantifiable which related to capacity but qualitative measures are also required like staff skills, training and organization. These both must be accounted if are ready to serve the community. Most study done show inadequate nurses preparedness for instance a study conducted in Saudi Arabia revealed poor practice of nurses (Abdelalim & Ibrahim, 2014).

Similarly to the survey conducted in Philippine, the specific objectives of that study was to examine the perceived level of disaster preparedness within Philippine nurses and shown that Philippine nurses are not well-prepared (Labrague et al., 2016). Supported by the research findings from the study done in Jordanian nurses which revealed least level preparedness, it is not amazing for that outcomes because different authors discovered same results (Al Khalailah et al., 2012). One of the preparedness activities is triage training which means sorting the patient according to their life condition, many researches highlight the importance of triage in mass casualties it show that if triage well performed can help many victims (Farrohknia et al., 2011)

In addition, safe environment in hospitals is a good thing to offer during disaster (Anon, 2014). As mentioned by other authors wars are not always bad but it is a guideline for hospital and shows them how to develop, improve policies and procedure regarding mass casualty management. Not only guideline but also empowering the staff to assume their responsibility in emergency preparedness and response, improve also emergency triage and maintaining hospital function in normal condition (Sajadi & Zaboli, 2014).

A disaster cycle has similarity to nursing process and each step in nursing process is practiced in each phase of disaster cycle. The following table show how they are corresponded.

**Table2. 1. Nurses’ practice and Preparedness of mass casualty**

<b>Disaster cycle</b>	<b>Definition</b>	<b>Assessment</b>	<b>Planning</b>	<b>Implementation</b>	<b>Evaluation</b>
<b>Preparedness</b>	Refers to all actions which can be taken before disaster occur, it may be information, training, or stock of drugs even equipment	It concern the assessment of high risk population or region which big attention before during disaster if it happens.	You develop a plan based on what you expect; you plan shelter, food, water, drugs, manpower...	Consist of performing exercise, simulations and drills similar to the really disaster.	Evaluate if personnel are able to deliver care during disaster.
<b>Response</b>	Care delivering to the casualty	Assess affected people and separate them to healthy one.	Plan how triage will be done, elaborate guidelines to follow.	Staff proving care according to the standard elaborate before, make sure your stock is not out	Plan for ongoing response
<b>Recovery</b>	Consist of all activities to unable the community functioning	Reassess the community after disaster	Make a new plan for long time and the logistic you have.	Reconstitution of collapsed service and community. Help people to find new life condition	Evaluation of long term impact of disaster and make a plan to handle them.

(Health et al., 2014)

## **2.6. Critical review and Research gap**

This chapter provides general overview of nurse's preparedness toward mass casualty and study done by other researches. I revealed that most of the studies have been done in western states. Research done in Africa region revealed that there is a gap in mass casualty preparedness, they are few, they show many challenges but official standard are not applicable in all hospital. Most of them show poor nurse' knowledge however in nursing curriculum disaster management not appear so this study may be one way to fill this gap.

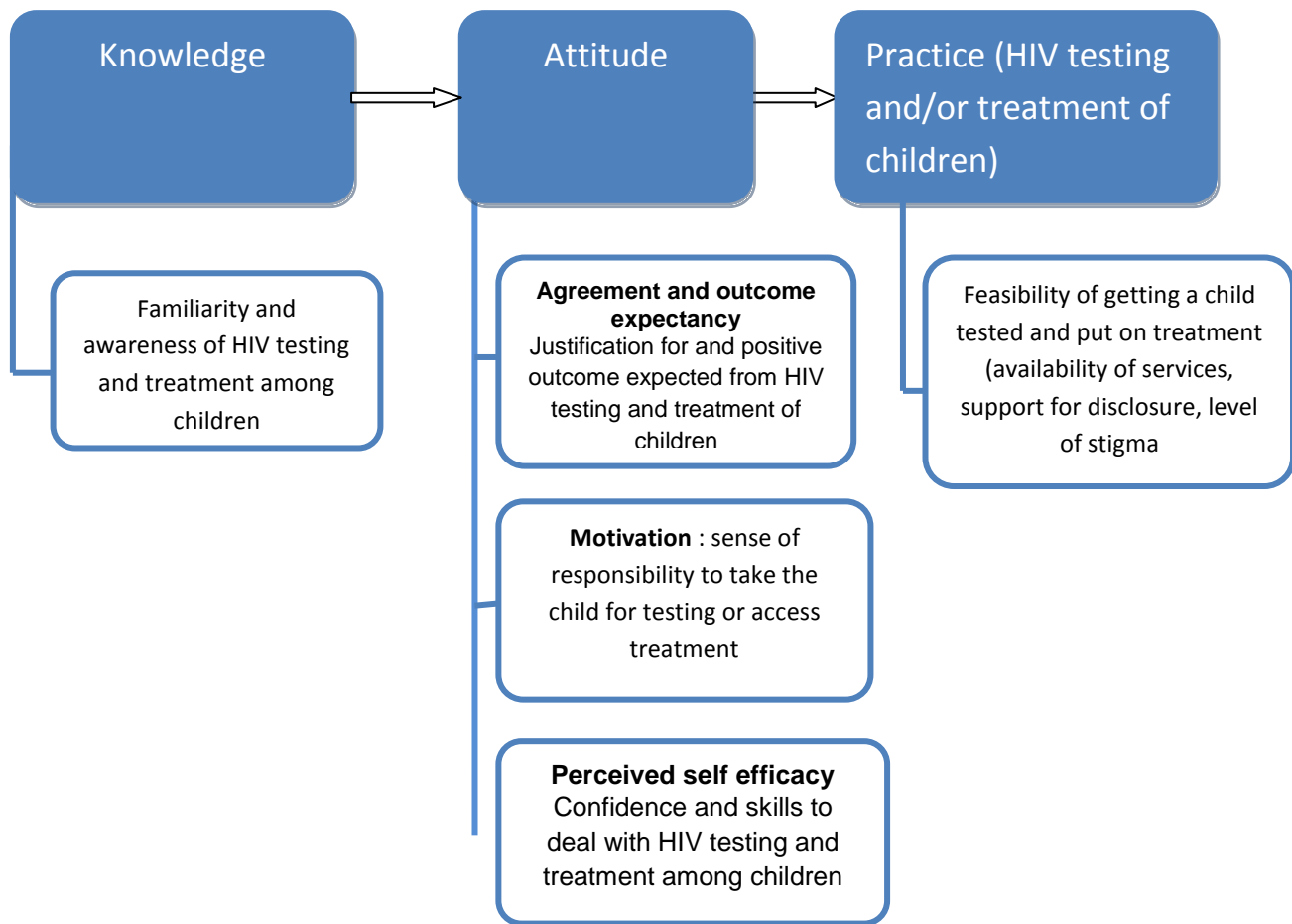
## **2.7. Conceptual Framework of the study**

It is well defined as diagram which shows the correlation between variables. Therefore, the researcher used such diagram to assess how nurses are prepared for uncertainty situation and explain how behavior change from knowledge and attitude will improve their practice and management of mass casualty event. Mass casualty preparedness deals with a lot of things such as nurse' knowledge includes current information, level of education, specialization, nurse' attitude comprises of belief and motivation, confidence to manage mass casualty event and nurses' practice covers drills, simulation, training, finally functioning system includes disaster plan, facility in place. This framework is important part because it guides the researcher to develop the study, it helps to link the findings to nurses, and finally it gives images of dissertation.

The researcher preferred to adapt the conceptual framework from Cabana et al (Cabana *et al.*, 1999, p. 1458) and firstly the above author, use a similar framework to review barriers to physician devotion to clinical guidelines if are available and explain the series of behavior change from knowledge, to attitudes and then behavior

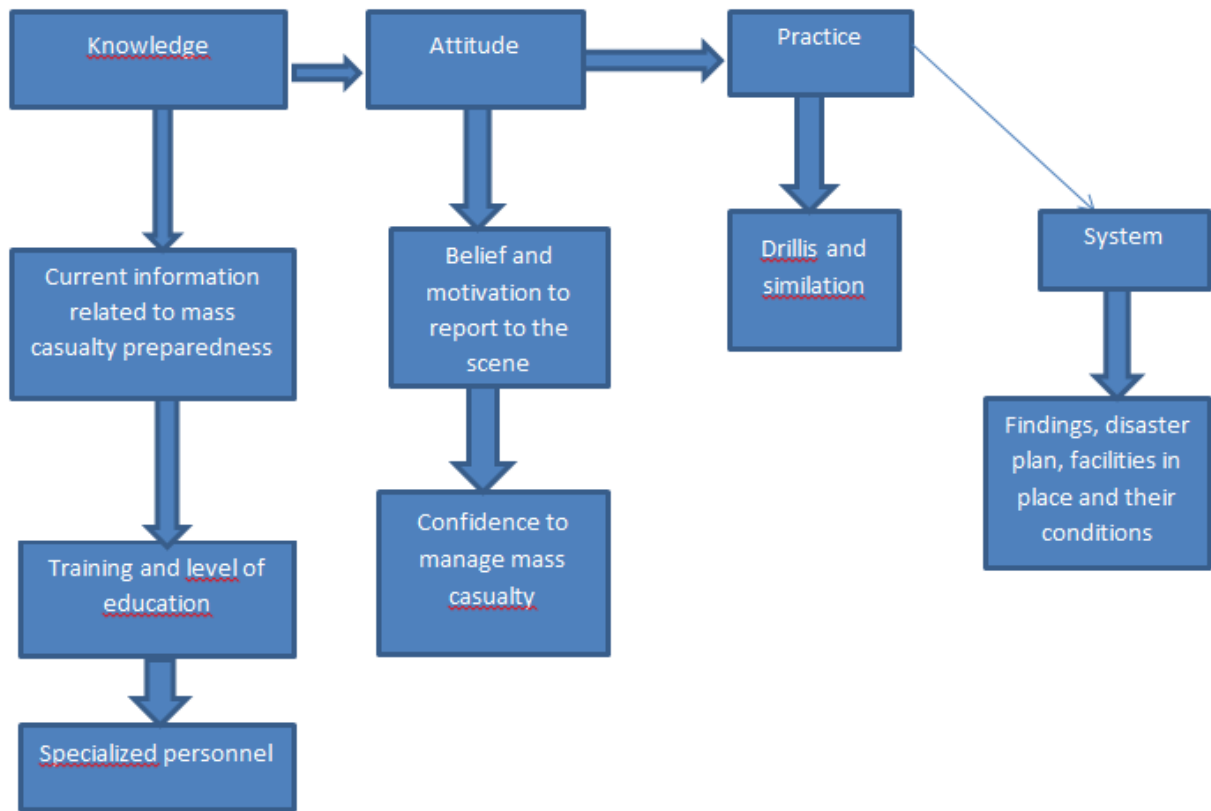
Roelens et al (Roelens *et al.*, 2006) put up warning Cabanas' behavior Framework to come up with a predictive model to assess current barriers to screening for intimate partner violence in settings where neither clinical guidelines nor specific recommandations with regards have been investigated. Additional confirm that barriers fit into the three major categories depending on whether they affect physician' knowledge, behavior or practice

So, the researcher used similar reasoning to review nurses' knowledge, practice and to see if their behavior can affect knowledge, attitude and then practice in a setting where existence of policies and guidelines are yet to give up predictable results. The conceptual framework explained how nurses, whose attitudes illustrate their feelings of insufficiency, did not initiate good mass casualty preparedness.



**Figure 1.1 Knowledge, attitude and practices towards HIV testing and treatment for children: A conceptual framework** *Source: Adapted from Cabana, Rand, Powe, Wu, Wilson, Abboud and Rubin (1999:1459) and Roelens, Verstaelen, Egmond and Temmerman (2006:4)(Matinhure, 2013)*

## Conceptual framework knowledge, attitudes and practice of nurses towards mass casualty preparedness at Rwanda Military Hospital



Source: Adapted from Cabana, Rand, Powe, Wu, Wilson, Abboud and Rubin(Cabana et al., 1999) Roelens, Verstaelen, Egmond and Temmerman (Roelens et al., 2006), and NeliaMatinhure (Nelia Matinhure, 2013).

### Conclusion

Briefly the empirical data showed that there is the training gap as far as mass casualty preparedness is concerned. This can allow CPD accumulation within the short period of time. In addition, continuous professional development and incorporation of mass casualty preparedness drills in health practioners curriculum was recommended. More empirical research was also recommended to be done in resource poor countries as most of the studies in the literature were done in developed world.

## **CHAPTER THREE: METHODOLOGY**

### **3.1. Introduction**

This chapter describes the research methodology that was used by the researcher in the study. It covers also the study area and research design descriptions. This is followed by a description of target and accessible populations of the study, it highlights also the sample size, sampling techniques that have been used and then data collection tool. This section demonstrated also the way that data have been analyzed. Problem, limitations and ethical consideration was discussed in this chapter.

### **3.2. Study Design**

This research study was adopted a descriptive quantitative method of the cross-sectional research design which was help to get more information as this study planned. The research was focused on assessment of nurses' knowledge, attitude and practice towards mass casualty preparedness.

### **3.3. Approach**

The quantitative approach was fit to define the level of gap in nurses' knowledge, attitude and practice related to mass casualty preparedness in Rwanda Military Hospital.

### **3.4. Study area**

The research was conducted at Rwanda Military Hospital, one of referral hospital in Rwanda approved by Rwandan government. RMH was built in 1968 as a military referral hospital. It is a located at street KK739st Kanombe, Kicukiro District, Kanombe sector, Kigali city in Rwanda country. After genocide against the Tutsi in 1994 was started to receive the general population and deliver health care to the military even their relatives. Currently it treats 88% civilian and 12% soldiers' patients. This study was conducted in three units: emergency, intensive care unit and operating theater. These units have 90 nurses with different qualifications. In addition, those units have also admission capacity of 20 patients in emergency, 4 patients in ICU and 15patients in OT per day.

### **3.5. Population**

The population of this study was comprised of nurses working in RMH, from three units Accident and Emergency (A&E), Operating Theater (OT) and Intensive Care Unit (ICU). When mass casualty event occur those three units are more involved rather than others. Registered nurses working in these services were asked to participate in this study. Inclusion criteria included all registered nurses who had at least six months of working experience and agreed to participate in the study, any nurse who is available on duty, all persons who had



those criteria was used as study population. Exclusion criteria include those who are not available on duty and those who are not agree to participate in the study.

### **3.6. Sampling**

#### **3.6.1. Sampling strategy**

The researcher used total population sampling strategy whereby all target population was used as sample size.

#### **3.6.2. Sample size**

As the population was small, the researcher used all participants who met the inclusion criteria which mean nurses from Accident and Emergency, Operating Theater and Intensive Care Unit. The sample was composed by 90 nurses.

### **3.7. Data collection**

#### **3.7.1. Data collection tools**

The researcher used a questionnaire which adapted from previous similar study conducted in Johannesburg Hospital by Maobi in 2008 (Maobi,2008), the permission to use this tool received to collect data on nurses' knowledge, attitudes and practices towards mass casualty preparedness at Rwanda Military Hospital. In the first section of data collection tool, the following socio-demographic information was collected: the participant's gender, age, duty station, current position, experiences and level of education. As far as age is concerned, they were asked to indicate their year of birth, on gender respondents were defined as male or female. About duty station they were asked to state in which service they work, concerning to the current position they are divided in into three categories namely registered nurses, enrolled nurses and specialist. Lastly, regarding the level of education the respondents fall into four categories, namely high school (A2 nurses), diploma (A1 nurses), undergraduate degree (A0) and others.

The second section of the questionnaire includes 9 multiple-choice questions related to nurses' knowledge. The third section deals with 12 questions related to nurses' attitude that require a strongly agree, agree, disagree and strongly disagree as response.

The last section includes items related to nurses' practices and preparedness currently taking place at RMH with yes, no or don't as answer.

The original questionnaire was in English but was translated from English version into French to make data collection process easier and the translation done by a professional translator, the questionnaires were formulated by closed questions and semi structured questions, they were distributed to the staff during day shifts. Closed questions helped the researcher to get higher response rates.

To make sure that the tool is measuring what is supposed to measure, the questionnaire was adapted to the local context. The questionnaires were pre-tested in pilot study conducted on a sample of ten respondents from Out Patient Department nurses. The purpose of this pilot study was to help the researcher to know the best questions to use and which ones to modify or castoff and to check whether the tool was well designed in a way that would allow participant to comprehend it. Apart from that researcher won't to know also the exact time respondents will use to fill the questionnaire and was found that all items in the tool were clear and 30 to 40 minutes would be required for participants to complete the tool. It was also done to confirm validity and reliability of the tool. Reliability of a data collection instrument is the degree of consistence to which it measures the attribute it is supposed to be measured whereas validity refers to the degree of which an instrument measures what it is supposed to measure.

### **3.6.2. Data collection process**

After getting ethical clearance from IRB and permission from Rwanda Military Hospital the researcher approached the unit manager for self- introduction and give information about the research. For collecting data, the researcher used self-administered questionnaires among 90 nurses from emergency unit, intensive care unit and operating theater. The instrument was designed to assess nurses 'knowledge, attitude and practice regarding mass casualty preparedness. Participants have got all information related to the topic and were ensured that their contribution is voluntary and confidential in order to get their consent. Respondents were requested to fill the questionnaire during their free time. Each participant completed their questionnaire individually. The filled-in questionnaires were place in secured box located in three services (A&E, OT and ICU).The researcher passed every two days to collect the filled in questionnaire from the box.

### **3.7. Data analysis and management**

Analysis of data is a procedure of organizing data and manipulating them in order to respond the research questions. Therefore, complete questionnaire from participants were coded, converted and analyzed by using Microsoft Excel and Statistical Packages for the Social Sciences (SPSS) software version 21.0. The analyzed data was in the form of frequencies and percentages while figures and tables were used to present the results. Mean scores was calculated to see the levels of knowledge, attitude and practice. A one way Pearson Chi-square and Fischer test with P value of 0.05was conducted to determine the relationship between participant profile, knowledge, attitude and practice.

### **3.8. Ethical Consideration**

Before starting this study, the researcher presented a research proposal to the IRB (Internal Review Board) ethics committee and University of Rwanda research committee for approval. In addition, before the data collection process started, the researcher sought and obtains permission from the Chief Executive of Rwanda Military Hospital. Written informed consent was also obtained from each respondent before their participation in the study. Then the study subjects were well insured their willingness to participate or refuse to participate in the study, and that it was their right to withdraw from the study at any time. They were also ensured that their names were not mentioned anywhere in this research but the numbers were used to protect their identity. The information provided by the participants was maintained anonymous and confidential at all the times and was used only for the purpose of the recent study. About data management, information was kept in secured place like in a locked computer with personal password and on email which only the researcher and supervisors had access.

### **3.9. Data dissemination**

The research process was complete after data collection, analysis and management. Therefore the research findings are to be used to the community and to myself as for academic purpose. The copies of this report were given to the University of Rwanda for grading and keeping, my supervisor for her record keeping. The report findings were circulated by using internet; other printed copies were kept in University of Rwanda library for other interested students. Then, health organization includes Rwanda Military Hospital had a copy so that the results would be used in improvement of mass casualty preparedness.

### **3.10. Limitations**

The small sample size should limits results generalization. No previous study done related to this topic preparedness and response have been conducted or electronically available in our country, this leads to poor update information that researcher needs. As I have chosen one referral hospital that may be a challenge to generalize the findings to other hospitals. All data are self-report so there is no way to have a confirmation of actual nurses' practice in disaster.

## CHAPTER FOUR: RESULTS

### 4.1. INTRODUCTION

This chapter present the results produced from data reported from questionnaires and after shifted in tables and figures for easily interpretation. It has four sections which are socio-demographic information of respondents, nurses' knowledge, and attitude of nurses and practice of nurses on mass casualty preparedness in Emergency, ICU and OT.

The sample was made up of 90 nurses who work in different units at the RMH namely Accident and Emergency, Intensive Care Unit, and Operating theatre. Those who completed the questionnaire were 76, where 14 either did not complete the questionnaires or were not present in the services at the time of data collection.

### 4.2. Socio-demographic data

**Table 1: 4. 1 Presentation of nurses according to their gender, age, current position and their working experience (N=76)**

Variables		Frequencies	%
Gender of participants	Male	36	47.4%
	Female	40	52.6%
Age of participants	Below 20	0	0.0%
	20-30	21	27.6%
	31-40	44	57.9%
	41-50	11	14.5%
	51-60	0	0.0%
Duty station of participants	Emergency	28	36.8%
	Theater	29	38.2%
	Intensive Care Unit (ICU)	19	25.0%
Current position of participants	Registered Nurse	63	82.9%
	Enrolled Nurse	2	2.6%
	Critical care Nurse	3	3.9%
	RAEN	2	2.6%
	Nephorogy Nurse	2	2.6%
	Periop Nurse	4	5.3%
How many years worked in current position	Less than 1 year	6	7.9%
	1- 5 years	40	52.6%
	5-10 years	26	34.2%
	10-15 years	3	3.9%
	15-20 years	0	0.0%
	More than 20 years	1	1.3%
Education level	High school	9	11.8
	Undergraduate Degree	50	65.8
	Postgraduate degree	17	22.4
	Total	76	100.0

The results in table 4.1 show that the majority of the study participant were female 52%, the predominant age range was between 31-40 (58%), most the participants work in theatre 29 (38%) and are registered nurses (83%), in addition it was reported that the participants working experience was reported to range from 1 to 5 years while more than a half of the respondents have undergraduate degree 50 (65%).

#### **4.3. Nurses’ knowledge on mass casualty preparedness and response in Rwanda Military Hospital.**

This section presents the knowledge of participants on disaster preparedness including disaster definition, special communication to use in disaster event, personal protective equipment availability, having extra store and emergency trolley. Questions rating the levels of knowledge were 24 in total. In order to get the actual levels knowledge, the knowledge scores were calculated to report whether the participant have either correctly or incorrectly answered the questions as indicated.

Furthermore, the scores were categorized into levels depending on average knowledge score. The highest of score the higher the levels of knowledge and vice versa.

**Table 2 :4. 2. Knowledge scores**

Scores	Frequency	%
6	2	3
7	1	1
8	3	4
9	2	3
10	14	18
11	5	7
12	8	11
13	12	16
14	4	5
15	9	12
16	5	7
17	1	1
18	2	3
19	5	7
20	1	1
21	2	3
Total	76	100.0

**Table 3 : 4. 3 The knowledge mean score**

Item	N	Minimum	Maximum	Mean	Std. Deviation
Knowledge	76	6	21	13	3.47

In table 4.3, the knowledge mean score was 13; therefore, all scores below 13 were categorized as inadequate knowledge while the above average scores were categorized as adequate knowledge on disaster preparedness at the study site.

**Table 4 : 4. 4 Levels of knowledge**

Variables		Frequency	%
Levels of knowledge	Inadequate knowledge	47	61.8
	Adequate knowledge	29	38.2
	Total	76	100.0

In table 4.4, the results of the present study show that the majority of the study participants have inadequate knowledge regarding disaster preparedness at the study site (61.8%).

#### **4.4. Nurses' attitude on mass casualty preparedness and response in Rwanda Military Hospital.**

This section presents attitude of participants on disaster preparedness. Questions rating the levels of attitude were 11 in total. In order to get the levels of attitude of the study participants towards mass causality preparedness, the attitude scores were calculated to report whether the participant have either correctly or incorrectly answered the questions as indicated.

Furthermore, the scores were categorized into levels depending on mean attitude score. As per knowledge levels, attitude were also reported basing on the levels of the scores. Higher scores represent positive attitude while the lowest represent negative attitude towards mass causality preparedness.

**Table 5 : 4. 5 Attitude scores**

Scores	Frequency	%	
Attitude scores	3	2	3
	4	2	3
	5	18	24
	6	18	24
	7	24	32
	8	9	12
	9	2	3
	11	1	1
	Total	76	100

In table 4.5, the highest score was 11 while the lowest was 3. The mean score as indicated in table 4.6 below is 6 therefore, those who reported on attitude below the mean are labeled to have negative attitude, and those above the mean score have positive attitudes towards mass casualty preparedness at the study site.

**Table 6 :4. 6 Mean score for attitude**

	N	Minimum	Maximum	Mean	Std. Deviation
Mean attitude	76	3.00	11.00	6.3	1.4

**Table 7 : 4. 7 Levels of attitude**

Variables	Frequency	%	
Levels of attitude	Negative attitude	40	53
	Positive attitude	36	47
	Total	76	100

The results in table 4.7 presents attitude levels of the participants towards mass casualty preparedness at the study site. It is clearly indicated that slightly above a half of the participant reported negative attitude 40 (53%) though those who reported positive attitude are quite enough (47%).

#### 4.5. Nurses' practice on mass casualty preparedness and response in Rwanda Military Hospital.

This section presents the practice of the participants towards disaster preparedness. The practice questions in the present study were 17 in total. In order to get the levels practice, practice scores were calculated to report whether the participant have either correctly or incorrectly answered the questions as indicated.

Furthermore, the scores were categorized into levels depending on mean practice score. As per attitude levels, practice were also reported basing on the levels of the scores. Higher scores represent good practice while the lowest represent bad practice towards mass causality preparedness.

**Table 8: 4.8. Practice scores**

Scores		Frequency	%
Practice scores	1	2	2.6
	2	17	22.4
	3	4	5.3
	4	20	26.3
	5	16	21.1
	6	3	3.9
	7	3	3.9
	8	7	9.2
	9	1	1.3
	10	1	1.3
	11	1	1.3
	14	1	1.3
	Total	76	100.0

**Table 9: 4. 9. The mean score**

	N	Minimum	Maximum	Mean	Std. Deviation
Mean score for practice	76	1.00	14	5	2

In table 4.9 , the mean score was calculated and found out that it is 5, therefore, the scores below that are classified as poor practice while above 5 are categorized as good practice



**Table 10 : 4.11. Levels of practice**

Variable		Frequency	Percent
Levels of practice	Poor practice	59	78
	Good practice	17	22
	Total	76	100

The levels of practice in table 4.11 show that the high majority of the respondents have poor practice (78%) on mass casualty preparedness.

**4.6. Association between knowledge and selected socio-demographic variables**

In the present study, possible associations between levels of knowledge and demographic variables were measured to test the relationships.

**Table 11:4.12. Association between knowledge and selected socio-demographic variables**

Variables		Levels of knowledge			P_Value
		Inadequate knowledge	Adequate knowledge	Total	
Gender of participants	Male	23	13	36	0.727
		63.90%	36.10%	100.00%	
	Female	24	16	40	
		60.00%	40.00%	100.00%	
Total	47	29	76		
	61.80%	38.20%	100.00%		
Age of participants	20-30	16	5	21	0.279
		76.20%	23.80%	100.00%	
	31-40	25	19	44	
		56.80%	43.20%	100.00%	
	41-50	6	5	11	
		54.50%	45.50%	100.00%	
Total	47	29	76		
	61.80%	38.20%	100.00%		
Duty station of participants	Emergency	17	11	28	0.858
		60.70%	39.30%	100.00%	
	Theater	19	10	29	
		65.50%	34.50%	100.00%	
	Intensive Care Unit (ICU)	11	8	19	
		57.90%	42.10%	100.00%	
Total	47	29	76		
	61.80%	38.20%	100.00%		

**Table 12: 4.12. Association between knowledge and selected socio-demographic variables (continued)**

Variables		Levels of knowledge		Total	P_ Value
		Inadequate knowledge	Adequate knowledge		
Current position of participants	Registered Nurse	38	25	63	0.164
		60.30%	39.70%	100.00%	
	Enrolled Nurse	2	0	2	
		100.00%	0.00%	100.00%	
	Critical care Nurse	3	0	3	
		100.00%	0.00%	100.00%	
	RAEN	0	2	2	
		0.00%	100.00%	100.00%	
	Nephrology Nurse	2	0	2	
		100.00%	0.00%	100.00%	
Periop Nurse	2	2	4		
	50.00%	50.00%	100.00%		
Total	47	29	76		
	61.80%	38.20%	100.00%		
How many years worked in current position	Less than 1 year	2	4	6	0.145
		33.30%	66.70%	100.00%	
	1- 5 years	29	11	40	
		72.50%	27.50%	100.00%	
	5-10 years	15	11	26	
		57.70%	42.30%	100.00%	
	10-15 years	1	2	3	
33.30%		66.70%	100.00%		
More than 20 years	0	1	1		
	0.00%	100.00%	100.00%		
Total	47	29	76		
	61.80%	38.20%	100.00%		
Education level	High school	4	5	9	0.282
		44.40%	55.60%	100.00%	
	Undergraduate Degree	34	16	50	
		68.00%	32.00%	100.00%	
	Postgraduate degree	9	8	17	
		52.90%	47.10%	100.00%	
Total	47	29	76		
	61.80%	38.20%	100.00%		

In table 4.12, there is no association between levels of knowledge and any demographic characteristics in the present study. All variables have p greater than 0.05.

#### 4.7. Association between attitude and selected socio-demographic variables

In the present study, possible associations between attitude and demographic variables were measured to test possible relationships.

**Table 13 : Association between attitude and selected socio-demographic variables**

Variables		Levels of attitude		Total	P_Value
		Negative attitude	Positive attitude		
Gender of participants	Male	20	16	36	0.653
		55.60%	44.40%	100.00%	
	Female	20	20	40	
		50.00%	50.00%	100.00%	
Total	40	36	76		
	52.60%	47.40%	100.00%		
Age of participants	20-30	10	11	21	0.688
		47.60%	52.40%	100.00%	
	31-40	25	19	44	
		56.80%	43.20%	100.00%	
	41-50	5	6	11	
		45.50%	54.50%	100.00%	
Total	40	36	76		
	52.60%	47.40%	100.00%		
Duty station of participants	Emergency	18	10	28	0.295
		64.30%	35.70%	100.00%	
	Theater	13	16	29	
		44.80%	55.20%	100.00%	
	Intensive Care Unit (ICU)	9	10	19	
		47.40%	52.60%	100.00%	
Total	40	36	76		
	52.60%	47.40%	100.00%		

**Table 14: 4.14. Association between attitude and selected socio-demographic variables (continued)**

Variables		Levels of attitude		Total	P Value
		Negative attitude	Positive attitude		
Current position of participants	Registered Nurse	34	29	63	0.619
		54.00%	46.00%	100.00%	
	Enrolled Nurse	0	2	2	
		0.00%	100.00%	100.00%	
	Critical care Nurse	1	2	3	
		33.30%	66.70%	100.00%	
	RAEN	1	1	2	
		50.00%	50.00%	100.00%	
Nephrology Nurse	1	1	2		
	50.00%	50.00%	100.00%		
Peri-op Nurse	3	1	4		
	75.00%	25.00%	100.00%		
Total	40	36	76		
	52.60%	47.40%	100.00%		
How many years worked in current position	Less than 1 year	2	4	6	0.238
		33.30%	66.70%	100.00%	
	1- 5 years	23	17	40	
		57.50%	42.50%	100.00%	
	5-10 years	12	14	26	
		46.20%	53.80%	100.00%	
	10-15 years	3	0	3	
100.00%		0.00%	100.00%		
More than 20 years	0	1	1		
	0.00%	100.00%	100.00%		
Total	40	36	76		
	52.60%	47.40%	100.00%		
Education level	High school	4	5	9	0.503
		44.40%	55.60%	100.00%	
	Undergraduate Degree	25	25	50	
		50.00%	50.00%	100.00%	
	Postgraduate degree	11	6	17	
64.70%		35.30%	100.00%		
Total	40	36	76		
	52.60%	47.40%	100.00%		

Table 4.14, Shows that there is no relationship between the levels of attitude and socio-demographic characteristics ( $P>0.05$ ).

#### 4.8. Association between practice and selected socio-demographic variables

**Table 15: 4.15. Association between practice and selected socio-demographic variables**

Variables		Levels of practice		Total	P_Value
		Poor practice	Good practice		
Gender of participants	Male	27	9	36	0.601
		75.0%	25.0%	100.0%	
	Female	32	8	40	
		80.0%	20.0%	100.0%	
Total	59	17	76		
	77.6%	22.4%	100.0%		
Age of participants	20-30	18	3	21	0.572
		85.7%	14.3%	100.0%	
	31-40	33	11	44	
		75.0%	25.0%	100.0%	
	41-50	8	3	11	
		72.7%	27.3%	100.0%	
Total	59	17	76		
	77.6%	22.4%	100.0%		
Duty station of participants	Emergency	18	10	28	0.030
		64.3%	35.7%	100.0%	
	Theater	27	2	29	
		93.1%	6.9%	100.0%	
	Intensive Care Unit (ICU)	14	5	19	
		73.7%	26.3%	100.0%	
Total	59	17	76		
	77.6%	22.4%	100.0%		
Current position of participants	Registered Nurse	47	16	63	0.496
		74.6%	25.4%	100.0%	
	Enrolled Nurse	1	1	2	
		50.0%	50.0%	100.0%	
	Critical care Nurse	3	0	3	
		100.0%	0.0%	100.0%	
	RAEN	2	0	2	
		100.0%	0.0%	100.0%	
	nephrology Nurse	2	0	2	
		100.0%	0.0%	100.0%	
	Peri-op Nurse	4	0	4	
		100.0%	0.0%	100.0%	
Total	59	17	76		
	77.6%	22.4%	100.0%		

The results in table 4.15 shows that duty station of participants and working experience are associated with practice of the study participants towards on mass casualty preparedness ( $P < 0.05$ ).

**Table 16: 4.15. Association between practice and selected socio-demographic variables (Continued)**

Variables		Levels of practice		Total	P_Value
		Poor practice	Good practice		
How many years worked in current position	Less than 1 year	6	0	6	0.014
		100.0%	0.0%	100.0%	
	1- 5 years	32	8	40	
		80.0%	20.0%	100.0%	
	5-10 years	20	6	26	
		76.9%	23.1%	100.0%	
	10-15 years	0	3	3	
		0.0%	100.0%	100.0%	
More than 20 years	1	0	1		
	100.0%	0.0%	100.0%		
Total	59	17	76		
	77.6%	22.4%	100.0%		
Education level	High school	6	3	9	0.671
		66.7%	33.3%	100.0%	
	Undergraduate Degree	40	10	50	
		80.0%	20.0%	100.0%	
	Postgraduate degree	13	4	17	
		76.5%	23.5%	100.0%	
Total	59	17	76		
	77.6%	22.4%	100.0%		

The remaining results such as education level, gender, age of the participants were not associated with the levels of practice of the study participants towards on mass casualty preparedness ( $P > 0.05$ ).

#### 4.9. Association between practice, levels of knowledge and levels of attitude

In the present section, practice, knowledge and levels of attitude were reported to test possible relationship. Table 4.16 shows that attitude is positively associated with practice ( $P < 0.05$ ).

**Table 17: 4.16. Association between practice, levels of knowledge and levels of attitude**

Variables		Levels of practice		Total	P_Value
		Poor practice	Good practice		
Levels of knowledge	Inadequate knowledge	39	8	47	0.154
		83.0%	17.0%	100.0%	
	Adequate knowledge	20	9	29	
		69.0%	31.0%	100.0%	
Total		59	17	76	
		77.6%	22.4%	100.0%	
Levels of attitude	Negative attitude	27	13	40	0.025
		67.5%	32.5%	100.0%	
	Positive attitude	32	4	36	
		88.9%	11.1%	100.0%	
Total		59	17	76	
		77.6%	22.4%	100.0%	

#### 4.10. Association between self-report levels of knowledge and actual knowledge levels

In this section, the possible relationship between self-report knowledge and actual levels of the participants as reported by participants themselves was reported. In table 4.16, the results show that there is a strong relationship between the self-reported knowledge and objectively assessed knowledge ( $P < 0.001$ ).

**Table 18: 4.16. The relationships between self-report levels of knowledge and actual knowledge levels**

Variables		Actual levels of knowledge		Total	P_Value
		Inadequate knowledge	Adequate knowledge		
Self-report level of knowledge	Poor knowledge	29	2	31	0.000
		93.5%	6.5%	100.0%	
	Good knowledge	18	27	45	
		40.0%	60.0%	100.0%	
Total		47	29	76	
		61.8%	38.2%	100.0%	

#### **4.11 Association between respondent's Profile and the use of emergency kits and emergency trolley in emergency events**

Pearson Chi-square and Fischer exact test were computed to determine the relationship between participant profile and the use of emergency kits and emergency trolley in emergency events; results indicate that characteristic profile did not influence use of emergency kits and emergency trolley in emergency events ( $P > 0.05$ ).



**Table 19: 4.17 Relationship between respondent's Profile and the use of emergency kits and emergency trolley in emergency events?**

Demographic characteristic	The use emergency kits and emergency trolley in emergency events?		P-value
	Yes	No	
<b>Gender</b>			<b>1.000</b>
Male	34(94.4%)	2(5.6%)	
Female	37(92.5%)	3(7.5%)	
<b>Age of participants</b>			<b>0.344</b>
20-30 years old	20(95.2%)	1(4.8%)	
31-40 years old	42(95.5%)	2(4.5%)	
41-50 years old	9(81.8%)	2(18.2%)	
<b>Duty station of participants</b>			<b>0.842</b>
Emergency	27(96.4%)	1(3.6%)	
Theater	26(89.7%)	3(10.3%)	
Intensive Care Unit (ICU)	18(94.7%)	1(5.35)	<b>1.000</b>
<b>Current position of participants</b>			
Registered Nurse	58(92.1%)	5(7.9%)	
Enrolled nurse	2(100.0%)	0(0.0%)	
Critical care Nurse	3(100.0%)	0(0.0%)	
RAEN	2(100.0%)	0(0.0%)	
Nephrology Nurse	2(100.0%)	0(0.0%)	
More than 10 years	4(100.0%)	0(0.0%)	
Peri-op Nurse			<b>1.000</b>
<b>How many years worked in current position</b>			
Less than 1 year	6(100.0%)	0(0.0%)	
1-5 years	37(92.5%)	3(7.5%)	
5-10 years	24(92.3%)	2(7.7%)	<b>0.367</b>
10-15 years	3(100.0%)	0(0.0%)	
More than 20 years	1(100.0%)	0(0.0%)	
<b>Education level</b>			
High school	8(88.9%)	1(11.1%)	
Undergraduate degree	46(92.0%)	4(8.0%)	
Post graduate degree	17(100.0%)		

#### 4.12. Logistic regression analysis of significantly related variables in uni-variate analysis

In this section, the positively associated variables in bi-variate analysis were interceded into logistic regression model to test the possible likelihood. The variables that are assessed here are practice and duty station, practice and experience of the participants, practice and levels of attitude and actual knowledge levels and self-reported knowledge.

```

Logistic regression                Number of obs =      76
                                   LR chi2(1)      =      1.14
                                   Prob > chi2     =      0.2858
Log likelihood = -39.82664         Pseudo R2      =      0.0141
    
```

levelsofpractice	Odds Ratio	Std. Err.	z	P> z	[95% Conf. Interval]
dutystation	.6793789	.250201	-1.05	0.294	.3300901 1.398272
_cons	.5816874	.4088045	-0.77	0.441	.1467146 2.306249

Figure 4.1. Practice and duty station

Figure 4.1 show that there is specific duty station to influence the levels of knowledge on mass casualty preparedness at the study site, overall [p >0.05, OR: 0.679]

```

Logistic regression                Number of obs =      76
                                   LR chi2(1)      =      3.16
                                   Prob > chi2     =      0.0754
Log likelihood = -38.815766       Pseudo R2      =      0.0391
    
```

levelsofpractice	Odds Ratio	Std. Err.	z	P> z	[95% Conf. Interval]
yearsworked	1.820572	.6353266	1.72	0.086	.9186781 3.607883
_cons	.0649862	.0607569	-2.92	0.003	.0103996 .4060936

Figure 4.2. Practice and years worked in current position

In figure 4.2, the years of experience and practice are not likely to influence the practice of the study participants. Overall p value is greater than 0.05.

```

Logistic regression           Number of obs =      76
                             LR chi2(1) =      5.23
                             Prob > chi2 =      0.0222
Log likelihood = -37.781197   Pseudo R2 =      0.0647

```

levelsofpractice	Odds Ratio	Std. Err.	z	P> z	[95% Conf. Interval]	
levelsofattitudel	.2596154	.1632091	-2.15	0.032	.075721	.8901118
_cons	.4814815	.1625384	-2.17	0.030	.2484455	.9330996

Figure 4.3. Level of practice and levels of attitude.

The levels of practice and attitude are related. Attitude is reported to influence the practice of the study participants in the present study [P<0.05, OR: 0.259]

```

Logistic regression           Number of obs =      76
                             LR chi2(1) =     25.65
                             Prob > chi2 =      0.0000
Log likelihood = -37.701255   Pseudo R2 =      0.2538

```

Levelsofknowledge	Odds Ratio	Std. Err.	z	P> z	[95% Conf. Interval]	
Selfreportlevelofknowledge	21.75	17.22341	3.89	0.000	4.606903	102.6856
_cons	.0689655	.0504195	-3.66	0.000	.0164563	.2890222

Figure 4.4. Actual knowledge and self -reported knowledge

The figure 4.4 show that there is a strong relationship between self-report knowledge and actual knowledge on mass casualty preparedness [P<0.001].

#### 4.12. Multiple Logistic regression analysis of significantly related variables

In this section, the multivariate analysis was attempted to confirm the relationship between practice and attitude as reported in figure [P<0.05, OR: 0.18].

```

Logistic regression           Number of obs =      76
                             LR chi2(3) =     12.55
                             Prob > chi2 =      0.0057
Log likelihood = -34.121024   Pseudo R2 =      0.1553

```

levelsofpractice	Odds Ratio	Std. Err.	z	P> z	[95% Conf. Interval]	
Levelsofknowledge	1.693868	1.170666	0.76	0.446	.4371165	6.563899
Selfreportlevelofknowledge	4.209795	3.335834	1.81	0.070	.8907797	19.89535
levelsofattitudel	.1836366	.1255208	-2.48	0.013	.0480993	.7010994
_cons	.1632504	.1025432	-2.89	0.004	.0476634	.5591437

Figure 4.5. Multiple logistic regression analysis.

## **CHAPTER 5: DISCUSSION**

### **5.1 Introduction**

There is an increase of worldwide disaster which leads to human and life threatening situation. These disasters require healthcare systems to be well prepared and competent to respond. The World Health Organization recommends having a comprehensive disaster plan in place. Nurses form a big group in the hospital and are frontline workers under stable conditions but more so during disaster and mass casualty events. They are working both in pre-hospital as well as in hospital.

The present study was aimed to investigate nurses' knowledge, attitude and practice toward mass casualty in Rwanda Military Hospital.

### **5.2. Demographic information**

In general views of the present study findings, the majority of respondents 52.63% of them were female and they were aged between 31-40 years old. The experience of the major respondents were between one to five years as presented by 52.6% , this leads to assume that they are relatively familiar with hospital functioning and similar study suggests that in order to handle mass casualties well, nurses need a minimal of 3 years' working experience and enhance nurses practices in mass casualty care (Wenji et al., 2015). Approximately 38.2% of respondents are working in theater, those who worked in Emergency were 36.8% and those who are deployed in Intensive Care Unit were 25% of respondents, and these results are similarly to the results findings from a study conducted in Arabia where they found that more than one quarter of them were working in critical services (Abdelalim & Ibrahim, 2014).

### **5.3 Knowledge**

According to the research findings, nurses don't know the correct definition of disaster and disaster plan even its components like communication ways, the use of PPE ...which demonstrate their limited knowledge. These results are in agreement with the findings from the study conducted in Saudi Arabia which revealed that nurses has poorer knowledge regarding disaster and emergency preparedness (Abdelalim & Ibrahim, 2014).

In order to participate in life saving and health promotion under mass casualty situation all nurses should have enough knowledge, skills and accurate competencies (Nekooei Moghaddam et al., 2014). However the results from this study revealed that there is a lack of knowledge of formal plan regarding preparedness in the practice setting and these findings have similarity to the results from a study done in China (Yan et al., 2015)

Nurses should have enough skills and knowledge to be well prepared for mass casualty management. The majority of the participants 50.0% knew the correct definition of disaster

plan but when they were asked if they have a disaster plan committee in their workplace 82.9% of them reported that they do not have it, while 2.6% don't know the existing of disaster plan, these findings have consistency to the results of a study conducted in Philippine nurses (Labrague et al., 2016).

In mass casualty, there is a need to have correct information and proper communication. Unfortunately it does not exist in RMH hospital as presented by 65.8% of respondents who reported that they don't have other way of communication if there is a power off and 75% said that they don't have special communication way to use in disaster event. Those findings are supported by the research finding from a study conducted in Tehran (Sajadi & Zaboli, 2014) showed that participants didn't have special communication to use in disaster situation.

#### **5.4 Attitude**

The participants' attitude towards disaster preparedness was negative. Even if they were well understood the importance of being ready to disaster management, and being flexible to come at work because the hospital has a large number of casualties to take care of, computed attitude show negative attitude level.

The attitude scores and levels, results show that slightly above a half of the participant have negative attitude 40(53%) though those with positive attitude are quite enough 36(47%), similarly to results from a study conducted in Philippines from emergency department, revealed that nurses have negative attitude (62.5%) towards mass casualty preparedness (Diab & Mabrouk, 2015).

In addition, the findings from other studies disagree with the findings from this study where they founded that nurses have good attitude towards disaster preparedness and response (Wenji et al., 2015).

#### **5.5 Practice**

Theoretical and practical education, exercises, drills and simulation have big impact on how nurses acts in actual situation (Labrague et al., 2016). The results from this study show that nurses have been not educated, no exercises nor simulation delivered to them as presented by 61.8% of respondent who don't know if hospital organize disaster drills.

This study found that the majority of participants 75% didn't know if the disaster plan is periodically updated which is differ from the findings of the study conducted in Peshawar (Ulfat et al., 2012) where they found that 94.4% of participants knew that disaster plan was regularly updated, this may be due to many factors like nurses negligence or hospital system.

In addition to that, 63.2% of respondents don't know if hospital performs disaster workshop or training to educate nurses about disaster preparedness. The study conducted in South Australian by Peoples (2016) emphasized one the importance of being trained and educated on disaster preparedness and management as supported by the research results (Peoples et al., 2016).

Several studies disclosed the significance of training in mass-casualty or mass-incident and disaster preparedness but revealed also it remains inadequate in some hospitals, these findings not differ from the results from this study where around 61.8% of participants were not trained (Diab & Mabrouk, 2015).

Similarly to other research, one of the preparedness activities is like triage training, BLS training (Christopher, 2010) but the present research findings discovered that the majority of respondent 64.5% were not trained about triaging for example. In general participants' practice level was poor (78%), correspondingly to the above research findings and nurses do not consider themselves well-equipped but if training opportunities are provided they will be definitely willing to advance their knowledge and skills in disaster preparedness and management

The results indicate that characteristic profile did not influence use of emergency kits and emergency trolley in emergency events after computing recorded data, the results revealed any significance  $P > 0.05$ , this is in agreement with other research (Magnaye, Steffi, et al., 2011), and there is a strong relationship between the self-reported knowledge and objectively assessed knowledge ( $P < 0.001$ ).

## **CHAPTER 6. CONCLUSION AND RECOMMENDATIONS**

### **6.1 Conclusion**

The recent study assessed nurses' knowledge, attitude, and practice towards mass casualty preparedness. It was conducted at Rwanda Military Hospital. The overall results show that these nurses from critical care units (emergency, theater and Intensive Care Unit) have inadequate knowledge towards mass casualty preparedness and its management based on present study results.

Their attitude related to mass casualty preparedness was negative even if they are aware that mass casualty can be occurring at any time, they know its impact on the hospital and the need to be prepared for mass casualties that could occur. Not only nurses want to know about disaster planning and management but also all hospital staff member as showed by nurses' response to attitude' questions.

They have inadequate knowledge and poor practice in terms of ongoing training and simulations related to mass casualty preparedness.

Based on the findings presented above, researcher can conclude that the participants have inadequate knowledge, negative attitude and poor practice towards mass casualty preparedness.

### **6.2 Recommendation**

The results of this study have some implications for nursing practice, in-service education, and research.

For this reason in and out service training, regular drills and updated information regarding mass casualty preparedness and management as the major message are needed for updating nurses because trained nurses are more confident when managing mass casualty if they were well trained.

New specific policies are needed to enhance disaster nursing and the findings will help to enhance the development of nursing disaster plan in the RMH, should be elaborated and implemented to increase the level of preparedness and for better management of mass casualties.

Further studies are needed to determine how RMH is prepared to receive and manage mass casualties because the study focused only on nurses' preparedness working in three specialties unit (emergency, theater and Intensive Care Unit but not focused on Doctors and nurses in other units.

Further research about disaster preparedness in other Rwandan referral hospitals to determine the existing level of knowledge, attitude and practice towards mass casualty.

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**APPENDICES.**

**APPENDIX ONE: QUESTIONNAIRE (English version)**

This tool is designed to collect information on *Nurses' knowledge, attitude and practice regarding to mass casualty preparedness*. I kindly request you to give me essential information on this topic. Select the appropriate response by using **X** in box.

**SECTION A: DEMOGRAPHIC INFORMATION OF RESPONDENTS**

<b>1. Gender?</b>			
a) Male		b) Female	
<b>2. Age</b>			
a) Below 20		b) 20-30	c) 31-40
d) 41-50		d) 51-60	
<b>3. Indicate your duty station</b>			
a) Emergency		b) Theater	c) Intensive Care Unit (ICU)
<b>4. What is your current position?</b>			
a) Registered Nurse		b) Enrolled Nurse	c) Specialist (specify)
<b>5. How many years have you worked in your current position?</b>			
a) Less than 1 year		b) 1-5 years	c) 5-10 years
d) 10-15 years		e) 15-20 years	f) More than 20 years
<b>6. What is your education level?</b>			
a) High school		c) Undergraduate	
b) Diploma		d) Other certificate(specify)	

**SECTION B: QUESTIONS RELATED TO NURSES' KNOWLEDGE ABOUT DISASTER PREPAREDNESS**

<b>7. What do you think is a disaster?</b>	
Earthquake and volcanic eruption causing refugees, casualties and death	
Sudden overwhelming and unforeseen event causing a mass casualty.	
An unpredictable event causing a loss of human and material exceeding the community's ability to cope	
A number of casualties exceeding normally available resource	
<b>8. What is disaster plan?</b>	
I. Drills done in preparation for a disaster	

II. A plan for coping with mass casualties or massive that may occur and disrupt normal health care services as a result of human or natural catastrophes.		
III. Actions done in advance to prevent any disaster that can occur.		
IV. A plan that include mounting posters, showing ways to use during fire or earthquake.		
<b>9. Questions related to disaster plan:</b>	<b>YES</b>	<b>NO</b>
Do you have disaster plan committee?		
Disaster plan is it available in your unit?		
Does the plan show who is in charge in mass casualty incident?		
Do you have special communication to use in disaster event?		
Does your unit have other way of communication if the event of a power off occurs?		
Is there any way of identification for staff during disaster?		
Do you have protocols and precautions on how to use PPE (Personal Protective Equipment) when communicable diseases occur?		
Have the following key area identified in your unit:		
Triage area		
Resuscitation room		
Sluice room		
Isolation room		
IX. Do you have supplementary stock of drugs and other equipment for use during disaster in your unit?		
X. Does your unit have emergency kits and emergency trolley?		

<b>10. Do you know one of disaster have been occurred in your country in past five years?</b>		
a) Yes	b) No	
If <b>YES</b> , list which of the following are likely to occur in your county		
a) Natural Disasters( floods, earthquake, drought)	b) Road Traffic Accidents (bus, rail, car)	
c) Infection disease/Epidemics	d) Fires	
e) Building collapses	f) None of the above	

g) Other specify	

<b>11. Do you know the role of your unit in mass casualty emergencies?</b>			
a) Yes	<input type="checkbox"/>	b) No	<input type="checkbox"/>
<b>12. Have you ever been in any disasters or emergencies workshops/ training?</b>			
a) Yes	<input type="checkbox"/>	b) No	<input type="checkbox"/>
If YES for how long			
a) one day	<input type="checkbox"/>	b) one week	<input type="checkbox"/>
		c) 15 days	<input type="checkbox"/>
<b>13. The training you have got do you think it has any impact on mass casualty management?</b>			
a) Yes	<input type="checkbox"/>	b) No	<input type="checkbox"/>
<b>14. Did you have and know how to use emergency kits and emergency trolley in emergency events?</b>			
a) Yes	<input type="checkbox"/>	b) No	<input type="checkbox"/>
<b>15. Which level could you give your current knowledge concerning mass casualty preparedness?</b>			
a) Excellent	<input type="checkbox"/>	b) Good	<input type="checkbox"/>
		c) Fair	<input type="checkbox"/>
		d) Poor	<input type="checkbox"/>

**SECTION C: THESE QUESTIONS ARE ASSESSING WILLINGNESS/ ATTITUDE TOWARDS MASS CASUALTY**

<b>In case of outbreak disease with high risk of contamination</b>	<b>1.Strongly agree</b>	<b>2.Agree</b>	<b>3.Disagree</b>	<b>4. Strongly disagree</b>
<b>16.</b> I am ready to work even if I am at high risk.				
<b>17.</b> I assume that risks may happen in my career				
<b>18.</b> I am assured that the hospital will provide adequate protective equipment to prevent risk of contamination.				

19. If I am contaminated during the work, I am assured that the hospital management will take my medical needs.				
20. I am afraid of losing my job if I am not reported to the workplace.				
21. I will not report for duty because I have fear to be contaminated.				
22. I will be absent on duty because I think of infection spread to my family and friends.				
23. There is no need to have information on disaster and disaster plans.				
24. Nurses must have training and education on disaster or mass casualty management.				
25. In hospital heads of departments are <b>only one</b> , to have knowledge on disaster preparedness.				
26. Would you like to receive information regarding disaster preparedness and your task in disaster events?				
27. If you were in day off and were asked to come to work because the hospital has a large number of casualties to take care of, would you be flexible to do so.				
a) Yes		b) No		

**SECTION D: THIS SECTION ASSESS PRACTICE AND DISASTER PREPAREDNESS IN YOUR UNIT AND IN HOSPITAL**

<b>28.</b>	<b>Does your hospital organize disaster drills or exercises concerning disaster situations?</b>				
<b>A) Yes</b>		<b>b) No</b>		<b>c) Don't know</b>	
<b>29.</b>	<b>Does the hospital conduct organize and perform training/workshops to educate staff members on disasters?</b>				
<b>a) Yes</b>		<b>b) No</b>		<b>c) Don't know</b>	
<b>If yes how often?</b>					
<b>a) once a month</b>		<b>b) once a year</b>		<b>c) twice a year</b>	
<b>30.</b>	<b>Have you ever been participate in mass casualty management caused by: (Select one on below list and more than one answer if suitable)</b>				
<b>a) Natural disasters</b>		<b>b) Road traffic accidents( bus, car, trails, airplane)</b>			
<b>c) Disease Epidemics</b>		<b>d) Fire</b>			
<b>e) Building collapses</b>		<b>f) None</b>			
<b>g) Other (specify):</b>					
If you have been involved, please describe what role you played.					
<b>a) Team leader</b>		<b>b) Triage officer</b>		<b>c) logistic officer</b>	<b>d) care provider</b>
<b>31.</b>	<b>Did you get triage training in service or outside of service</b>				
<b>a) Yes</b>		<b>b) No</b>			
<b>32.</b>	<b>Is the disaster plan periodically updated?</b>				
<b>a) Yes</b>		<b>b) No</b>		<b>c) Don't know</b>	
<b>If yes how often per year?</b>					
<b>a) once year</b>		<b>b) twice a year</b>			
<b>33.</b>	<b>How often did you check your resuscitation trolley?</b>				
<b>a) daily</b>		<b>b) weekly</b>		<b>c) monthly</b>	

**THANK YOU FOR YOUR PARTICIPATION**

## APPENDIX TWO : QUESTIONNAIRE (Version en Français)

Cet outil est élaboré afin de collecter les informations à la connaissance, l'attitude et la pratique des infirmières en cas des soins urgents d'accident de masse. Je vous prie de bien vouloir fournir des informations essentielles à ce sujet: Vous allez mettre la lettre **X** sur la réponse de votre choix dans la case.

### SECTION A: INFORMATION IDENTIFIANT LE REPONDEUR

<b>1. Sex?</b>					
a) Male		b) Femelle			
<b>2. Age</b>					
a) En dessous de 20		b)Entre 20-30		c)Entre 31-40	
d)Entre 41-50		d)Entre 51-60			
<b>3. Indiquez votre milieu/département de travail</b>					
a) Urgence		b) Salle d' operation		c) Soins intensifs	
<b>4. Quel est votre emploi actuel?</b>					
a) Infirmière enregistré		b) Infirmière rejoignante		c) Spécialiste (Specifies)	
<b>5. Combien d'années avez-vous travaillé dans cet actuel emploi?</b>					
a)Moins d'une année		b) Entre 1-5 ans		c) Entre 5-10 ans	
d) Entre 10-15ans		e) Entre 15-20ans		f) Plus de 20 ans	
<b>6. Quel est votre niveau d'étude?</b>					
a).Secondaire		c).Licence			
b).Baccalauréat		d).Autres(Spécifier)			



**SECTION B: QUESTIONS EN RAPPORT AVEC LA CONNAISSANCE DES INFIRMIERES A LA PREPARATION AUX CATASTROPHES**

<b>7. Quoi pensez-vous est la catastrophe?</b>		
Tremblement de terre et éruption volcanique occasionnant les refugies, blesses et morts		
Terrible évènements occasionnant les blesses en masses		
Evènement surprenants qui occasionne les pertes humaines et matériels et dépasse la capacité de la communauté en cas de résolution		
Le nombre des blesses qui normalement dépasse les ressources sur place		
<b>8. C'est quoi le plan pour la catastrophe?</b>		
I. Travaux faits pour la préparation de la catastrophe		
II. Plan pour résoudre le problème des blesses en masse ou en général pouvant subvenir et dépasse le service sanitaire normal résultant des dégâts humains ou naturels		
III. Actions faites en avances pour lutter contre chaque catastrophe pouvant être parvenu		
IV. Un plan qui rassemble à monter les affiches, montrant les façons utiles pendant l'incendie ou tremblement de terre.		
<b>9. Questions en relations avec le plan pour la catastrophe</b>	<b>OUI</b>	<b>NON</b>
Avez – vous le comité pour le plan de la catastrophe?		
Le plan pour la catastrophe est- il disponible dans votre unité?		
Est-ce que ce plan montre celui qui est charge des blesses en masses?		
Avez vous un moyen spéciale de communication pendant la catastrophe?		
Dans l'événement quand il y a coupure du courant votre service dispose d'autres façons de communication?		
Y-a-t-elle la façon d'identifier le personnel pendant la catastrophe?		
Avez-vous les détails et les précautions d'utiliser les équipements pour la protection du personnel et mesures à prendre dans l'événement infectieux?		
Avez-vous ces lieux de base identifiés dans votre unité ?		
Lieu de triage		
Lieu pour la résurrection		

Lieu de poursuite/Cheminement		
Lieu d' isolation		
IX. Avez-vous un stock supplémentaire des médicaments et autre équipements utiliser pendant la catastrophe dans votre unité?		
X. Est-ce que votre unité dispose des outils pour la catastrophe et les chariots des urgences?		

<b>10. Savez – vous l'un des catastrophes qui sont apparus dans votre région durant les 5 années passées?</b>			
a). Oui		b).Non	
Si <b>OUI</b> fait la liste de parmi les suivants ceux qui apparaissent le plus souvent.			
a) Catastrophe naturelle, (Inondations, tremblement de terre, famine)		b) Accident routiers (bus, chemin de fer, voitures, avions)	
c)Maladies/Epidémies		d) Incendies	
e) Building collapses		f) Aucun de ci –haute cité.	
g) Autre spécifier			

<b>11.Savez- vous le rôle de votre unité pendant les catastrophes/Urgences?</b>			
a)Oui		b) Non	
<b>12. Avez-vous participé dans quelque formation des catastrophes?</b>			
a) Oui		b) Non	
Si <b>Oui</b> pendant combien de temps ?			
a)Une journée		b)Une semaine	c)15 jours
<b>13.Pensez-vous que la formation que vous avez eu a un impact sur la gestion des blesses en masse??</b>			
a)Oui		b) Non	
<b>14.Est -ce- que vous avez eu ou su comment utiliser les paquets d'urgence ou bien les chariots de la catastrophe?</b>			
a)Oui		b) Non	

**15. Comment pouvez-vous mesurer votre niveau de connaissance actuelle en matière de la préparation d'accident de masse?**

a)Excellent		b)Bon		c)Assez bon		d) Médiocre	
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**SECTION C:LES QUESTIONS SUIVANTES MESURENT**

**LAVOLONTE/ATTITUDE ENVERS LES BLESSES EN MASSE**

<b>En cas d'une maladie transmissible avec le haut risque être contaminé ou en cas d'autre catastrophe</b>	<b>1.Forcement d'accord</b>	<b>2.D'accord</b>	<b>3.Pas d'accord</b>	<b>4.Forcement pas d'accord</b>
<b>16.</b> Je suis prêt à travailler même je suis à risque de contracter la maladie				
<b>17.</b> J'accepte que le risque fasse partie de mon travail				
<b>18.</b> J'ai confiance que l'hôpital m'offrira les mesures protectrices adéquates pour réduire les risques de contracter la maladie				
<b>19.</b> J'ai confiance que la gestion de l'hôpital m'offrira les soins médicaux nécessaires en cas de contraction de la maladie				
<b>20.</b> J'ai peur de perdre mon travail que si je ne viens pas au travailler je le perdrai				
<b>21.</b> Je ne viendrai pas au travail parce que j'ai peur de tomber malade.				
<b>22.</b> Je ne viendrai pas au				

travail parce que j'ai peur de contaminer ma famille et amis.				
<b>23.</b> Je n'ai pas besoin de connaître la catastrophe et son plan.				
<b>24.</b> Les infirmières doivent trainer et éduquer en matières de savoir comment gérer les situations comme la catastrophe et blesses en masse.				
<b>25.</b> Dans l'hôpital les agents administratifs et chefs de départements sont seul qui devront connaître la préparation de catastrophe.				
<b>26.</b> Voudriez-vous recevoir les informations concernant la préparation de la catastrophe et de votre rôle pendant les évènements catastrophiques?				
<b>27.</b> Si vous étiez appelé au travailler étant en récupération et on te demander de venir parce que l'hôpital et un nombre important des blesses à soigner résultant de la catastrophe, auriez-vous la volonté de le faire?				
<b>a) Oui</b>		<b>b) Non</b>		

**SECTION D: CETTE SECTION EXAMINE LA PRATIQUE ET LA PREPARATION DE LA CATASROPHE DANS VOTRE DEPARTEMENT ET VOTRE HOPITAL**

<b>28.</b>	<b>Est-ce-que votre hôpital organise les préparatifs de la catastrophe ou les activités concernant les situations catastrophiques?</b>			
<b>A) Oui</b>		<b>b) Non</b>		<b>c) Je ne sais pas</b>
<b>29. Est-ce que votre hôpital organise la formation pour enseigner les membres de votre</b>				

<b>personnel en matière de catastrophes?</b>			
<b>a) Oui</b>		<b>b) Non</b>	<b>c) Je ne sais pas</b>
Si <b>OUI</b> combien de fois?			
<b>a) Une fois par mois</b>		<b>b) Une fois par an</b>	<b>c) Deux fois par an</b>
<b>30. Avez-vous déjà participé dans le traitement des victimes causées par : (S'il vous plaît choisissez ce qui est approprié et plus d'une réponse est acceptable)</b>			
<b>a) Catastrophes naturelles</b>		<b>b) Accidents routiers (bus, voitures, camions, avion)</b>	
<b>c) Epidémies</b>		<b>d) Incendie</b>	
<b>e) Ecoulement des bâtiments</b>		<b>f) Aucun</b>	
<b>g) Autre (Spécifier)</b>			
Si vous avez participé, s'il vous plaît décrivez votre rôle que vous avez joué			
<b>a) Chef de l'équipe</b>		<b>b) Officier chargé de la sélection</b>	<b>c) Officier chargé des logistiques</b>
			<b>d) Soignant(e)</b>
<b>31. Est-ce que vous avez eu la formation de sélection dans votre service ou en dehors de votre service?</b>			
<b>a) Oui</b>		<b>b) Non</b>	
<b>32. Is the disaster plan periodically updated? Est-ce que le plan pour la catastrophe est périodiquement mis à jour?</b>			
<b>a) Oui</b>		<b>b) Non</b>	<b>c) Je ne sais pas</b>
Si Oui combien de fois par an?			
<b>a) Une fois par an</b>		<b>b) Deux fois par an</b>	
<b>33. Combien de fois avez-vous vérifié votre chariot d'urgence?</b>			
<b>a) Journalier</b>		<b>b) Hebdomadaire</b>	<b>c) Mensuel</b>

**MERCI DE VOTRE PARTICIPATION**

### **APPENDIX THREE: INFORMATION SHEET (English version)**

Nurses' knowledge, attitude and practice toward mass casualty preparedness at Rwanda Military Hospital.

#### **RESEARCHER'S DETAILS**

UZAMUHOZA Francine

Masters in nursing in Critical care and trauma track

University of Rwanda, School of nursing and midwifery

Kigali-Rwanda

Email: [uzamujohn@yahoo.fr](mailto:uzamujohn@yahoo.fr)

**TEL: + 250 783582108**

#### **SUPERVISOR'S DETAILS**

**Mrs. Christine UFASHINGABIRE**

University of Rwanda

Department of anaesthesia

Email: [ufachry@yahoo.fr](mailto:ufachry@yahoo.fr)/ [cufashingabire@khi.ac.rw](mailto:cufashingabire@khi.ac.rw)

**Dear Nurses,**

#### **INVITATION TO PARTICIPATE IN A RESEARCH STUDY**

My name is UZAMUHOZA Francine, I am a student in Masters in nursing Science in Critical care and trauma track at the University of Rwanda (UR). My research title is *“Nurses’ knowledge, attitude and practice toward mass casualty preparedness at Rwanda Military Hospital”*. The aim of the present study is to assess nurses’ knowledge, attitude and practice toward mass casualty preparedness among nurses working in emergency, ICU and theater.

You have been asked to participate in this study as you are a registered nurse working in these departments. I kindly request your active participation in this research study while stressing your significant importance in order to have worthy information about knowledge, attitudes and practice concerning mass casualty preparedness, this will help to develop possible solutions, measures and recommendations. Before deciding to participate in this research study, it is important that you read and understand the following clarification of the study.

#### **Explanation of Procedures**

This thesis is designed to assess nurses’ knowledge, attitude, practice toward mass casualty preparedness among nurses working in emergency, ICU and theater at RMH.

Participation in the study includes completion of a questionnaire, which will take approximately 45 minutes. The questionnaire is both in English and French.

### **Risks and Discomforts**

There are no risks or distresses expected from your participation in the study. But, if you experience any hesitation, please inform the researcher on the addresses provided.

### **Benefits**

There are no direct benefits of your contribution in the study. This study will be conducted to assess the nurses' level of knowledge, attitude and practice on mass casualty preparedness, how to be ready for responding to any types of disaster and possible responses will also be indicated.

### **Voluntary participation and right to withdraw**

Participation in this study is voluntary; your right to withdraw in this study at any time without giving reason will be respected.

### **Anonymity**

Information gathered during this study will be anonymous. You are not compulsory to put your name or addresses on the research tool. And there is no one who will have access to the information on the questionnaire except the researcher and supervisor. The results of this research will be submit for analysis, grading, examination, and may be published. Published documents will contain any names.

### **Opportunity to ask questions**

If you have any questions arising from the information sheet or explanation already given to you,

you have the right to ask any questions regarding the questionnaire or the study. If you have any question or would like further information about the study, please email me at [uzamujohn@yahoo.fr](mailto:uzamujohn@yahoo.fr) or phone me at +250783582108 or contact my supervisor **Mrs.**

**Christine UFASHINGABIRE** at [ufachry@yahoo.fr](mailto:ufachry@yahoo.fr)/[cufashingabire@khi.ac.rw](mailto:cufashingabire@khi.ac.rw)

You may also contact the University of Rwanda, Chairperson of the CMHS IRB at +250788 490 522 or the Deputy Chairperson at +250783 340 040

Thank you in advance for your participation.

**INFORMED CONSENT**

Study title: *Nurses knowledge, attitude and practice toward mass casualty preparedness at Rwanda Military Hospital.*

I \_\_\_\_\_, have read the Information Letter. I understand the requirement of me and I have had all my questions answered. I do not feel that I am forced to take part in this study and I am doing so on my own free will. I know that I can withdraw at any time if I so wish and that it will have no bad consequences for me.

Signed:

\_\_\_\_\_

Participant Date and place

\_\_\_\_\_

Researcher Date and place



## **APPENDIX FOUR : FORM D'INFORMATION (Version en Français)**

Connaissance, attitude et pratique de l'infirmier(e), en vers en vers l'accident de masse à l'Hôpital Militaire du Rwanda.

### **Détails de la Chercheur (se)**

UZAMUHOZA Francine

Programme de Troisième Cycles en Soins Intensifs et en traumatisme

Université du Rwanda, Collège des Sciences Infirmières et Sage femmes.

Kigali-Rwanda.

Email: [uzamujohn@yahoo.fr](mailto:uzamujohn@yahoo.fr)

TEL: + 250 783582108

### **Détails du superviseur**

Mme Christine UFASHINGABIRE

Université du Rwanda

Département d'anesthésie

Email: [ufachry@yahoo.fr](mailto:ufachry@yahoo.fr)/ [cufashingabire@khi.ac.rw](mailto:cufashingabire@khi.ac.rw)

### **Chers infirmières(e)**

#### **Invitation à la participation dans l'étude de recherche**

Je réponds au nom de UZAMUHOZA Francine, je suis étudiante en troisième cycle en sciences infirmières filière de soins intensifs et poursuite de dépressions a l'Université du Rwanda(UR). Le titre de mon étude est: **“La connaissance, l'attitude et pratique des infirmiers(es) envers la préparation d'accident de masse à l'hôpital Militaire du Rwanda”**.

L'objectif de cette recherche est d'étudier la connaissance, attitude et pratique des infirmiers(es) envers la préparation d'accident de masse parmi les infirmiers(es)qui travaillent dans les départements d'urgence, soins intensifs et dans la salle d'opérations.

Vous êtes suppliez de participer dans cette étude parce que vous êtes des infirmiers(es) enregistrés et qui travaillent dans ces départements. Je vous supplie de participer dans cette se basant spécialement sur l'information sure a la connaissance, l'attitude et pratiques des infirmiers(es) envers la préparation a l'accident de masse. Ceci aidera à développer les solutions possibles, mesures et recommandations. Avant de participer dans cette recherche il est indispensable de bien vouloir lire et comprendre sa clarification.

### **Explication des procédures**

Cette dissertation est conçue pour l'étude de "la connaissance, l'attitude et pratique des infirmiers (es) envers la préparation d'accident de masse", qui travaillent dans les départements d'urgence, soins intensifs et salle d'opérations à l'Hôpital Militaire du Rwanda. La participation dans cette inclut à fournir les informations sur le questionnaire, qui va prendre approximativement 45 minutes. Le questionnaire est en même temps en Anglais et Français.

### **Risques et dérangements**

Il n'y a pas des risques et dérangements prévus résultants de la participation dans cette étude. Cependant, si vous hésitez, s'il vous plaît informez le chercheur à travers les coordonnées disponibles.

### **Profits**

Il n'y a pas les profits directs de votre participation dans cette étude. Cette recherche sera conduite afin d'étudier connaissance, l'attitude et pratique des infirmiers(es) envers la préparation d'accident de masse, comment être prêt(e), à répondre à chaque sorte de catastrophe et les réponses possibles seront indiquées.

### **La Participation volontaire et droit de se retirer**

La participation dans cette étude est volontaire, votre droit de se retirer dans cette étude à chaque temps sans donner aucune raison sera respecté.

### **Confidentialité**

L'information collectée durant cette étude sera confidentielle. Vous n'êtes pas obligé d'écrire votre nom sur cet outil de recherche. Et personne d'autre n'aura accès à l'information sur le questionnaire à l'exception de la chercheuse et son superviseur. Les résultats de cette seront transmis pour l'analyse, compilation, inspection, et seront peut-être publiés. Les documents publiés ne contiendront d'aucuns noms.

### **L'opportunité de poser les questions**

Si vous avez des questions à propos de cette page d'information ou l'explication qui vous ai déjà donnée, vous avez tout droit de poser les questions que vous avez vis à vis du questionnaire ou sur l'étude. Si vous avez la question ou vous voulez les plus amples informations en ce qui concerne l'étude, s'il vous plaît envoi le message à l'adresse électronique [uzamujohn@yahoo.fr](mailto:uzamujohn@yahoo.fr) appelez-moi à mon numéro portable +250783582108 ou contactez mon superviseur Mme Christine UFASHINGABIRE à son adresse électronique [cufashingabire@khi.ac.rw](mailto:cufashingabire@khi.ac.rw).

Vous pouvez aussi contacter l'Université du Rwanda :

Président du CMHS au +250788 490 522 ou le Président adjoint au +250783 340 040.

Merci d'avance pour votre participation.

**Consentement information**

Le titre de l'étude: *“La connaissance, l'attitude et pratique des infirmiers(es) envers la préparation d'accident de masse à l'hôpital Militaire du Rwanda”.*

Moi \_\_\_\_\_ j'ai lu la lettre d'information. Je comprends mes nécessites et j'ai lu toutes mes questions répondues. Je ne me sens pas force(e) a participer dans cette étude et je suis entrain de le faire de ma propre volonté. Je sais que je peux me retirer de cette étude a chaque temps voulu et sans enrières conséquences sur moi.

Signe(e): \_\_\_\_\_

Participant Date et lieu \_\_\_\_\_

Chercheur (se) Date et lieu \_\_\_\_\_

**APPENDIX FIVE: LETTER TO REQUEST PERMISSION**

UZAMUHOZA Francine

UNIVERSITY OF RWANDA/CMHS

SCHOOL OF NURSING AND MIDWIFERY

E-mail: uzamujohn@yahoo.fr

Tel: +250 783582108

February 2<sup>nd</sup>, 2017

To: The Commandant of Rwanda Military Hospital

RE: Request for the permission to conduct the research at Rwanda Military Hospital

Dear Sir,

I am registered nurse with Bachelor 's degree in nursing sciences and currently I am a candidate in Masters in nursing Science in Critical care and trauma track at the University Of Rwanda (UR); whereby I am required to do and submit a research dissertation to fulfill this program.

It is in this regard I am requesting the permission to conduct the research in the hospital, under your authority. The research topic is "Nurses' Knowledge, Attitude and Practice toward mass casualty preparedness in Rwanda Military Hospital.

The general aim of the study is to assess the knowledge, attitude, practice related to mass casualty preparedness among nurses working in Emergency, Intensive Care Unit and Operating Theater. The total of 90 nurses from those three units will comprise the target population as they are affected by mass casualty event. The participation will be voluntary after signed consent form. A structured questionnaire will be used to collect the data. Study findings will be very important to the researcher, to the nurses, and to the health institutions.

I trust this request will receive your favorable consideration.

Yours faithfully



UZAMUHOZA Francine