



**ASSESSMENT OF NURSES KNOWLEDGE, ATTITUDE AND PRACTICE IN  
EMERGENCY CARE OF ROAD TRAFFIC ACCIDENTS VICTIMS AT  
THREE SELECTED RWANDA HOSPITALS**

by

**NSHUTIYUKURI Claudine**

**Registration number: 216338956**

A dissertation submitted in Partial Fulfillment of the requirements for the degree of MASTERS of

**Nursing Sciences**

In the

Track of Critical care and Trauma

**IN THE COLLEGE OF MEDICINE AND HEALTH SCIENCES**

Supervisor: Dr GISHOMA Darius

Co-Supervisor: Prof BUSISIWE Bhengu

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**DECLARATION**

I declare that this Dissertation contains my own work except where specifically acknowledged

Claudine NSHUTIYUKURI: 216338956

Signature.....

Date.....

## **AKNOWLEDGEMENTS**

In first place, I thank Rwamagana School of Nursing and Midwifery for facilitating my studies.

I wish to convey my honest thankfulness to my supervisors, Professor BUSISIWE Bhengu &Dr GISHOMA Darius because of their valuable courage, critics, sacrifice and meticulous guidance that permitted me to produce this piece of work on time.

I also thank Dr Rominski, Sarah who gave me permission to use her questionnaire

I thank the administration of UR/SMHS and HRH for availing to me the opportunity to carry out my study and always encouraged me in all my education activities.

I thank my husband Jean Bosco RUTAYISIRE; his endless love will not be forgotten.

My thanks and appreciations are extended to Sister Epiphanie MUKABARAMBA and all Rwamagana School of Nursing and Midwifery staffs.

I thank all my lecturers who imparted knowledge throughout the program at UR/SMHS.

I thank all my friends and all my classmates for a good job, well done throughout the program during my education.

## **ABSTRACT**

The present study entitled assessment of nurses' knowledge, attitude and practice in emergency care of road traffic accidents victims at three selected Rwanda hospitals. Emergency nursing care of RTA victims is very crucial in order to reduce the number of deaths and disabilities. Nevertheless, in Rwanda there is no documented study that has assessed the knowledge, attitude and practice of nurses in emergency care of RTA victims. The objectives of the study were to determine the knowledge of nurses on emergency care of RTA victims, to describe the attitudes of nurses on emergency care of RTA victims, to describe the nurses' emergency care practices to be delivered to RTA victims, to establish the relationship between demographic characteristics and KAP of nurses at Accident and Emergency departments. The study hopes to inform quality improvement initiatives and development of guidelines and or protocols.

The study used a quantitative cross sectional descriptive study using the entire population with a sample size of 51 nurses. The study had been conducted in three selected Rwanda hospitals. The data was collected using a self-administered questionnaire. A tool that has been tested for reliability and validity in previous studies was used with permission. The SPSS version 21 software was used for analyzing the data, statistical tests such as chi square test and multinomial logistic regression test were used. The findings showed that the big proportion (39.2%) of participants had the high level of knowledge, the majority of them (73.657%) had positive attitude and the big proportion (41.1%) of them had very high level of practice towards emergency management of RTA victims and the majority. The findings showed association between demographic information and level of practice: Training on emergency management of trauma victims before was associated with level of practice ( $\text{Chi}^2=12.632$ ,  $P=0.006$ ). Respondents who reported being trained and reported having very high level of practice had sixteen less than very low practice.

This study revealed that the knowledge and practice of nurses is generally good and their attitude is generally positive in emergency management of RTA victims. It also revealed that training contribute greatly to good practice in terms of emergency management of RTA victims. The findings of this study should be used to design a module regarding the gaps of nurses working at A&E service and guidelines and protocols should be made easily accessible. The newly employed in A&E service should receive prior training in emergency care of RTA victims and the experienced employees should receive refresher courses regularly.

## **KEY WORDS DEFINITION**

**Knowledge:** The level of understanding the different subjects regarding RTA victims' emergency management

**Attitude:** The way to behave when it becomes necessary to manage a RTA victim in an emergency situation

**Practice:** The necessary actions to do in front of RTA victims emergently within the first 24hours including prehospital and hospital emergency care.

**Road Traffic Accident (RTA):** RTA can be defined by any unintentional wounds or loss of life caused by a motor vehicle circulating in a public road and this can happen when there is a direct collision among motor vehicles on one hand or motor vehicle and pedestrians on the other hand (Jha et al.,2004). It is any injury resulting from a crash of motor vehicles.

**Nurse:** Nurse is health care professional who gained the scientific knowledge and skills through education and training and has a certificate or diploma of A2, A1, A0, masters or PhD in nursing to be able to fulfill the assigned responsibility. He/she must have a validated license certifying that she/he is sufficiently quipped in knowledge and skills for being able to prevent illness, promote health, provide care to ill people, cure diseases and rehabilitation of sick people within her/his scope of practice (NCNM,2008) . A nurse is a health care provider who is allowed to provide health care to clients with a certificate certifying her/his ability of working as a nurse.

**Emergency care of RTA:** It is an urgent health care delivered to the victim of RTA by trained personnel in order to save lives, to reduce the severity of injury or to prolong lives. It is the first aid or medical care provided to RTA patients at the accident scene, during transport en route till the arrival at health care setting that will provide further medical care (Jha et al.,2004).

## **List of acronyms and abbreviations**

?: Percentage

&: and

A/E: Accident and Emergency

ALS: Advance Life Support

BLS: Basic Life Support

GNI: Gross National Income

KAP: Knowledge, Attitude and Practice

LMIC: Low and Middle Income Countries

MDH: Masaka District Hospital

MOH: Ministry of Health

NCNM: Nursing Council for Nurses and Midwifery

NGO: None Governmental Organization

RMH: Rwanda Military Hospital

RPH: Rwamagana Provincial Hospital

RTA: Road Traffic Accident

TT: Tetanus toxoid

UR/SMHS: University of Rwanda/School of Medicine and Health Sciences

US\$: American dollar

WHA: World Health Assembly

WHO: World Health Organization

# TABLE OF CONTENTS

DECLARATION .....	i
ACKNOWLEDGEMENTS.....	ii
ABSTRACT.....	iii
KEY WORDS DEFINITION .....	iv
List of acronyms and abbreviations .....	v
LIST OF TABLES .....	ix
List of figures .....	xi
CHAPTER 1: INTRODUCTION .....	1
1.2. Background .....	1
1.3. Problem statement.....	4
1.4. The aims of the study .....	4
1.5. Specific research objectives .....	4
1.6. Research questions .....	5
1.7. Significance of the study .....	5
1.8. Organization of the study .....	6
2.1. Introduction .....	7
2.2. Theoretical Literature.....	7
2.2.1. RTA deaths worldwide.....	7
2.2.2. RTA in Africa.....	7
2.2.3. RTA victims triaging.....	8
2.2.4 RTA emergency care within the first twenty four hours .....	10
2.3. Empirical Literature .....	16
2.3.1. Different studies done on emergency care RTA victims.....	16
2.4. Critical Review and Research Gap identification .....	19
2.5. Conceptual framework .....	20
CHAPTER 3: RESEARCH METHODOLOGY .....	23
3.1. Introduction .....	23
3.2. Research design.....	23
3.3. Research approach.....	23

3.4. Research setting.....	23
3.5 Population.....	24
3.6. Sampling.....	24
3.6.1. Sampling strategy .....	25
3.6.2. Sample size .....	25
3.7 Data Collection.....	25
3.7.1. Data Collection Instruments .....	25
3.7.2. Data collection procedure .....	27
3.8. Data analysis .....	28
3.9. Ethical considerations .....	29
3.10. Data management.....	29
3.11. Data Dissemination .....	29
3.12. Limitations and challenges.....	30
CHAPTER 4: PRESENTATION OF RESULTS .....	31
4.1 Introduction .....	31
4.3. Knowledge of nurses on emergency care of RTA victims.....	33
4.3.1 Knowledge on suspicion of spinal injury for RTA victim (N=51) .....	33
4.3.2 Knowledge on how to know if the victim is severely injured (N=51) .....	33
4.3.3 Knowledge on how to know if the victim is breathing (N=51).....	34
4.3.4 Knowledge on how to know if the victim has circulatory shock (N=51).....	34
4.3.5 Knowledge on how to quickly assess the injured victim of RTA (N=51) .....	35
4.3.6. Knowledge of some equipment used in A&E service.....	36
4.4 Attitude assessment regarding RTA victims (N=51) .....	43
4.5 Nurses' emergency care practices to be delivered to RTA victims .....	45
4.5.1 Having been involved in emergency care to RTA victims (N=51).....	45
4.5.2 What to do first in case of mass casualty with difficult breathing and haemorrhage (N=51).....	46
4.5.3 During triaging you will start providing emergency care to: (N=51).....	46
4.5.4 What to do when attending the unconscious victim, with no neck injury (N=51).....	47
4.5.5 How to check if the victims heart is beating or not (N=51). .....	48
4.5.6 The victim is having big cuts on his leg with severe bleeding, what are you going to do? (N=51) .....	48
4.5.7 During the accident you find the victim with the back and neck injury, how can you handle this victim at the scene? (N=51) .....	49

4.5.8 How are you going to move victim to the hospital? (N=51) .....	49
4.5.9 During transport and within the first 24hours, which IV fluids are you going to give? (N=51) .....	50
4.5.10 which are other further emergency treatment to be given within 24 hours (N=51) .....	50
4.6 Relationship between demographic characteristics and KAP of nurses at A/E.....	52
4.6.2 Association between demographic information and attitude of respondents towards emergency care .....	54
4.6.3 Association between demographic information and level of practice.....	55
4.6.4 Effect of being trained before, on level of practice .....	56
CHAP 5: DISCUSSION .....	59
5.1 Introduction .....	59
5.2 Sociodemographic characteristics of participants .....	59
5.3 Knowledge .....	60
5.3.1 Knowledge of equipments used in A&E with their usage.....	61
5.4 Attitude.....	63
5.5 Nurses' emergency care practices to be delivered to RTA victims .....	64
5.6 Relationship between demographic characteristics and KAP.....	66
CHAPTER 6: CONCLUSION and RECOMMENDATIONS .....	68
6.1 Introduction .....	68
6.2 Conclusions .....	68
6.3 Recommendations .....	68
REFERENCES .....	71
APPENDICES .....	A
APPENDICE 1: ENGLISH QUESTIONNAIRE ADRESSED TO NURSES .....	A
Appendice 2: RESPONDENTS' INFORMED CONSENT FORM FOR RESEARCH STUDY .....	M

## LIST OF TABLES

Table 1: Content validity .....	27
Table 2: Sociodemographic characteristics .....	32
Table 3: Knowledge on when to suspect spinal injury for RTA Victims (N=51) .....	33
Table 4: How to know if the victim is severely injured?(N=51) .....	34
Table 5: How to know if the victim is breathing? (N=51).....	34
Table 6: How to know if the victim has circulatory chock? (N=51) .....	35
Table 7: Throughout quick assessment of injured victims of RTA, what to assess immediately?(N=51) .....	35
Table 8: To name hard board (N=51) .....	36
Table 9: What is it (hard board) used for? (N=51) .....	36
Table 10: To name cervical collar .....	37
Table 11: What is it (cervical collar) used for?.....	37
Table 12: To name oxygen Cylinder .....	38
Table 13: The usage of Oxygen Cylinder .....	38
Table 14: To name bag valve mask (N=51) .....	39
Table 15: The usage of bag valve mask.....	39
Table 16: To name oral pharyngeal cannula.....	40
Table 17: The usage of Oropharyngeal cannula .....	40
Table 18: To name backslap covered by crepe bandage (N=51).....	41
Table 19: What is it used for( Back slap covered by crepe bandage).....	42
Table 20: Knowledge grade of participants (N=51) .....	43
Table 21: Attitude of nurses (N=51).....	44
Table 22: Have you ever involved in emergency care of RTA victims? (N=51).....	45
<b>Table 23: What to do when called to provide care at the scene for victims who have difficulty breathing and hemorrhage? (N=51).....</b>	<b>46</b>
Table 24: During triaging, you will start to provide emergency care to whom? (N=51) .....	47
Table 25: What to do when attending unconscious victims without neck injury? (N=51).....	47
<b>Table 26: How to check if the victim heart is beating or not? .....</b>	<b>48</b>
<b>Table 27: The victim is having big cuts on his legs with severe bleeding, what are you going to do? (N=51) .....</b>	<b>48</b>
Table 28: You find the victim with back and neck injury, How can you handle him at the scene?(N=51) .....	49
Table 29: How to shift the RTA victims to hospital? (N=51) .....	49
<b>Table 30: During transport and within 24hours, which fluids are you going to administer? (N=51).....</b>	<b>50</b>
<b>Table 31: Which are further emergency treatments to give within the first 24hours (N=51) .....</b>	<b>51</b>
Table 32: Practice level of practice (N=51).....	51
Table 33: Association between demographic information and level of knowledge ( N=51) .....	53
Table 34: Association between demographic information and attitude of respondents towards emergency care (N=51).....	54
Table 35: Association between demographic information and level of practice (N=51).....	56

Table 36: Effect of being trained before and level of practice (N=51)..... 58

**List of figures**

Figure 1: KAP concept framework ..... 22

## **CHAPTER 1: INTRODUCTION**

Road traffic accidents are serious problems worldwide and become worse in Low and Middle income countries, Rwanda included. RTA victims need immediate and adequate care and nurses' responsibilities include the provision of emergency care to such kind of vulnerable patients. This study is intended to assess the nurses' knowledge, attitude and practice in emergency care of road traffic accidents victims at three selected Rwanda hospitals. In this first chapter the background of the study, the problem statement of the study, objectives of the study, significance of the study and organization of the present study were discussed in details.

### **1.2. Background**

Anecdotal observation showed that nurses are the first persons to provide the first emergency care to all victims including the ones of road traffic accidents either from the scene of accidents, in ambulance or at emergency traumatic unit at health facilities in Rwanda.

Injury is the most important source of death and disability worldwide and a lot of people who are injured live with impairment or lifetime disabilities. The highly affected age groups are older children between five to fourteen years, adolescents and younger adults between fifteen and forty four years. The trouble is major in low and middle income countries. Globally, 1.2 million people pass away every twelve months and 50 million are gravely injured on RTA (Neway,2015). The RTA is the 1<sup>st</sup> amongst five accidental injuries related leading causes of death of citizens of fifteen to twenty nine years old which are RTA, drowning, burns, poisoning and falls(Chandran et al.,2010).The RTA deaths is rated at 1.24 million per year and this can be due to lack of inclusive road traffic safety laws in many countries (Chandran et al.,2010).

More than eighty five per cent of RTA related death are found in middle and low income countries and ninety per cent of disability adjusted life years lost result from RTA (WHO,2015). In East Africa, RTA is one of the main causes of injuries related death (Onyachi et al.,2011). In Kenya fatal accidents from RTA were estimated to be high at 57.8% between 1962 and 1992, growing from 7.3 to 8.6 per 100,000 populations (Macharia et al.,2009). In Uganda, there is an augmentation of human and vehicular populations against a limited and non-increasing road and rail network, vehicle of bad quality and lack of respect of road traffic

regulation. All these factors contribute to the high rate of victims from RTA on public roads, with over 2000 deaths per year (Onyachi et al.,2011).

According to WHO (2015), the countries with high mortality rate related to RTA in ascending way are (1)Libya with 73.4 deaths per 100000 population (2)Thailand with 36.2 deaths per 100000 population (3)Malawi with 35 deaths per 100000 population (4) Liberia with 33.7 deaths per 100000 population (5) Democratic Republic of Congo with 33.2 deaths per 100000 population (6) Tanzania with 32.9 deaths per 100000 population (7) Central African Republic with 32.2 deaths per 100000 population (9) Iran with 32.1 deaths per 100000 population (10) Rwanda with 32.1 deaths per 100000 population and (11) Mozambique with 31.6 deaths per 100000 population.

Rwanda like other countries in LMIC has been hit by RTA and has a large number of RTA deaths where mortality rate reached 3.16% of total deaths. The age adjusted death rate was 24.06 per 100,000 of population and this put the Rwanda on number 43 of RTA related death in the world (WHO,2014). Injury and deaths due to RTA are one of the major public health problems in Rwanda and the mortality rate is counting for 32.1 per 100000 populations(WHO,2015) .

A study done in Ghana on needs assessment on nurses' skills and educational needs of accident and emergency by Rominski et al. (2011) showed a discrepancy in a team based approach to be concerned for emergencies and a deficiency in self confidence in the clinical skills and clinical knowledge in terms of emergency management based on established protocols.

Regardless of efforts used to reduce the RTA, people are still losing life from road accidents. The aggravation of injury and life losses mostly occur in the first hours following the accidents and this can be alleviated by correct management in providing the first emergency care to RTA victims. The timely and effective emergency health care provided to RTA victims predicts the possibility and value of survival. The earlier and more efficiently the care provided, the better chances of surviving and good recuperation with less complications (European commission,2013).

In Rwanda, like in other countries with middle and low income, most of trauma patients are being handled by nurses, but the literature concerning knowledge, attitude and practice in relation to emergency nursing care of RTA victims is still limited especially in Rwanda.

### **1.3. Problem statement**

The nursing action in emergency care of RTA is very crucial with the intention to decrease the amount of RTA related deaths and disabilities. According to Sasser et al. (2012), the pre-hospital and hospital trauma care is to calm the patient, recognize life threatening circumstances so that the complications are reduced and start supportive treatment, systematize definitive treatments or transfer for definitive treatment. Moreover, airway must be preserved, cervical spine and spinal cord protected, management of external bleeding and shock prevention is vital.

Worldwide nurses are very significant health care staffs that build an emergency care team including RTA emergency management team. However the guidelines and the nurses training programs or courses are not available apart from very few health settings and they are not even distributed regularly (Prasad,2013). Most research done focused on assessing the way clients received care in emergency rather than the KAP of nurses in providing this emergency care. Nevertheless, in Rwanda there is no published study that has assessed the knowledge, attitude and practice of nurses of emergency management of RTA victims.

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

The main objective of this study was to assess the nurse's knowledge, attitudes and practices in emergency care of road traffic accident victims at three selected Rwanda hospitals.

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

To determine the knowledge of nurses on emergency care of RTA victims working at RMH, RPH and MDH

To describe the attitudes of nurses on emergency care of RTA victims working at RMH, RPH and MDH

To describe the nurses' emergency care to be delivered to RTA victims working at RMH, RPH and MDH

To establish the relationship between demographic characteristics and KAP of nurses working at RMH, RPH and MDH

## **1.6. Research questions**

What is the knowledge of nurses on emergency care of RTA victims working at RMH, RPH and MDH?

What are the attitudes of nurses on emergency care of RTA victims working at RMH, RPH and MDH?

What are emergency care to be delivered to RTA victims working at RMH, RPH and MDH?

What is the relationship between demographic characteristics and KAP of nurses at A/E working at RMH, RPH and MDH?

## **1.7. Significance of the study**

According to WHO (2014), RTA deaths in Rwanda reached 3.16% of total deaths with mortality rate of RTA related death count for 32.1 per 100000 populations . The nurses are primary people who receive the RTA victims and who provide primary emergency care to these victims. The first 24 hours following the accident are very crucial to help them to regain health with minimization of sequel from RTA. To enhance health and reduce the severity and deaths resulting from RTA, the adequate and timely emergency health care are the primordial elements provided by the trained health care staff. The first 24 hours are very crucial in saving lives of people who experienced the RTA and more so this time reduced up to one hour (called golden hour) even less than 1hour up to 15minutes, so that less complications and less mortality result from RTA (Gopalakrishnan,2012).

In terms of nursing professional, practice, management and policy, the clarification of nurses' KAP in emergency management of RTA victims will be very important as it will help in planning the training interventions aimed to improve provision of effective emergency nursing care and quick response to the victims of RTA in Rwanda. It will help the Minister of Health to elaborate the policy and guideline regarding the emergency management of RTA victims and this will be beneficial to the public at large on minimizing the number of disabilities and mortalities caused by accidents and trauma by informing evidence based emergency care

provision for RTA. It can also be used by health professionals, especially nurses, public health workers and NGO to promote emergency care to provide to RTA victims.

For the community, this study will help Rwandan population to obtain adequate and timely nursing intervention in any possible case of accident and the mortality and complications associated with RTA will be reduced.

In terms of education and research, as it is a scientific study, it will be used to improve the bank of knowledge in emergency care in expressions of research and it will also be used by health institutions/colleges as teaching reference tool. It will also be used by other researchers who will do additional research in related fields.

### **1.8. Organization of the study**

This research report is mainly composed of five chapters which are introduction, literature review, methodology, results & discussions and conclusion & recommendations

## **CHAPTER 2: LITERATURE REVIEW**

### **2.1. Introduction**

Road traffic accident (RTA) is a big problem worldwide and proper management of its victims both at the scene of accident, during transportation to a health setting till the availability of full medical care is one of the answers to alleviate the consequences resulting from RTA. This literature will discuss in details the theoretical literature, the empirical literature and it will identify gaps and critical review regarding RTA emergency care with its associated conceptual framework.

### **2.2. Theoretical Literature**

#### **2.2.1. RTA deaths worldwide**

According to WHO (2015), RTA is expected to be the ninth leading cause of death worldwide in all generations, and are expected to develop into the seventh leading cause of death by 2030. Furthermore, more than 1.2 million people die due to RTA and LMIC are highly affected where mortality rate can be two times more comparing with High Income Countries and LMIC account for around 90% of all RTA related deaths worldwide.

Based on country income, mortality rate related to RTA is 9.2 per 100000 populations in high income country, 18.4 in middle income countries and 24.1 per 100000 in low income countries(LIC) while it is 17.4 per 100000 populations worldwide (WHO,2014).The country income status is determined founded on country Gross National Income(GNI) per capita. High income countries are expected to possess GNI of US\$12,736 or more; Middle income countries are expected to possess GNI of US\$1,046 to US\$12,745 per capita and LIC are counted to possess GNI of US\$1,045 or less per capita (WHO,2015). Rwanda is classified in low income countries because its GNI is US\$1,720 per capita(World Bank,2015) .

#### **2.2.2. RTA in Africa**

In East Africa, RTA are among the summit causes of death from injuries (Onyachi et al.,2011). In Kenya fatal accident from RTA is estimated to be as high as 57.8% between 1962 and 1992, growing from 7.3 to 8.6 per 100,000 populations (Macharia et al.,2009). In Uganda, there is an

augmentation of human and vehicular populations against a limited and non-increasing road and rail network, vehicle of bad quality and lack of respect of road traffic regulation. All these factors contribute to the high rate of victims from RTA on public roads, with over two thousand deaths per year (Onyachi et al.,2011).

Rwanda like other countries in LMIC has been hit by RTA and has a large number of RTA related death and the mortality rate accounts for 32.1 per 100000 populations (WHO,2015).

According to WHO (2015), the countries with high mortality rate related to RTA in ascending way are (1) Libya with 73.4 deaths per 100000 population (2)Thailand with 36.2 deaths per 100000 population (3)Malawi with 35 deaths per 100000 population (4) Liberia with 33.7 deaths per 100000 population (5) Democratic Republic of Congo with 33.2 deaths per 100000 population (6) Tanzania with 32.9 deaths per 100000 population (7) Central African Republic with 32.2 deaths per 100000 population (9) Iran with 32.1 deaths per 100000 population (10) Rwanda with 32.1 deaths per 100000 population and (11) Mozambique with 31.6 deaths per 100000 population.

### **2.2.3. RTA victims triaging**

Triage can be defined as the action of sorting out (Horne et al.,2013).It is the process of selecting the victims in order to know who need firstly the immediate care in order to enhance survival (Willenbring et al.,2016).

There are numerous triaging systems and the majority of them are based on international color triaging system. In this study, the researcher will discuss on some triage systems among others such as color triaging system, MASS (Move, Assess, Sort, and Send) triage and START (Simple Triage and Rapid Treatment) triage. The two last triaging systems (MASS and START) are based on color triaging system as they end up classifying victims into classes using colors (Lerner et al.,2011).

#### **Color code triaging system**

The mostly used triaging system is the one of the color code system (Lerner et al.,2011). Color code given to the accident victims is very crucial as it provide the idea about which client to

give emergency care first among others. This is done after triaging the patients and put them in a certain category based on the seriousness of their conditions in order to provide emergency care beginning with the most suffering client (Lerner et al.,2011).

This triaging action must be done by a trained nurse on triaging process and criteria to follow for each classification. The process of triaging is a continuous circle as the client condition can change any time and put the client in another category necessitating immediate care. In case of one color code for multiple patients, the right way is to prioritize the children, pregnant mother, individuals with disabilities, group of those who have history of violence, older individuals with more than 80 years old and other special categories of patients that would deteriorate rapidly (Lerner et al.,2011).

The color code triaging system is done by classifying and putting the client in one of five categories that are (1) immediate, (2) delayed,(3) minimal, (4)dead and (5) expectant(Lerner et al.,2011). The first groups of immediate victims are coded by the red color and include victims who require immediate medical consideration due to a comprehensible life threatening condition. This class of victims can comprise victims who are unresponsive, or have altered mental status, impairment of respiration pattern, unrestrained hemorrhage, a traumatic limb removal by nearer to the elbow or knee, open Pneumothorax resulting from chest wounds, one-sided absent breath sounds, cyanosis, or rapid weak pulses(Lerner et al.,2011).

The second group of delayed victim are coded by the yellow color characteristically include victims who are in need of definitive therapeutic care, nevertheless these victims should not deteriorate quickly when care is delayed initially. The class of these victims can comprise victims with deep lacerations with controlled bleeding and high-quality of blood circulation away from the centre of the body, non-closed fractures, abdominal wounds with stable vital signs, or thermodynamically stable, head injuries with an intact airway. The third groups of minimal victims are coded by the green color; these patients have unserious, self-limited wounds and can tolerate a comprehensive waiting in treatment without increasing their risk of mortality(Lerner et al.,2011).

The class of victims in minimal category can comprise victims who have minor injuries such as abrasions, contusions, and small lacerations. Their vital signs are stable, and while they

necessitate therapeutic attention, it can be postponed for days if necessary without any adverse effect. The fourth groups of Dead victims are coded by the black color and include those who have no respirations, no pulse after indispensable cardiopulmonary resuscitation maneuvers. The final (fifth) group, less frequently used in color code triaging system is expectant which is coded by white color. Expectant casualties have very small chance and or no chance for survival despite maximum therapy. This last category of expectants is not used in several triage systems (Lerner et al.,2011).

## **START TRIAGE**

START system is used for adult victims and is widely used for mass casualty triage among first responders. It is based on respiratory function, quality of perfusion, and mental status. The victims are classified and coded using color code triaging system and treated starting on the one who is in very life threatening condition. This START system is used for adult victims while jump START use the same criteria but done in children triaging (Cross et al.,2015).

## **MASS TRIAGE**

As described by Lerner et al.(2011) MASS triage system, permit the use of triage classification system at the same time as offering the control of the situation in terms of treatment and client assessment at the accident scene. The MASS system is performed at phase of move by asking the clients who can move to go to a designed area for receiving a help, after that the rescuer request other victims who are not able to move to make a sign or to put the hand up to be visualized and receiving a help. The emergency care providers must start conducting a focused personal assessment and provide emergency care with the victims who are unable to move or to make any sign. Subsequent to initial triage, the retriaging must be done as the client condition can deteriorate and put the client in another category that necessitate the immediate actions.

### **2.2.4 RTA emergency care within the first twenty four hours**

According to my experience in different health setting of Rwanda, the absence of consistent protocols and practical guiding principles, the shortage number of trained health care providers and lack of sufficient equipment make emergency health care practices a challenging issue in Rwanda.

As described by Makama(2010), the category of emergency care needed by road traffic victims changes greatly depending on the severity of their injuries. When there is insignificant injury, victims will frequently not be hospitalized but still need a close observation by a person who has at least a general knowledge on emergency health needs. When there are important injuries, the client requires an emergency health that contain schematically as a sequence of different interconnected care including first actions provided by the people who were available on accident scene such as witnesses.

A RTA victim needs a well-trained health care personnel and a nurse is the first person that can help the client to reach the health setting, and where the client can benefit from the medical emergency care. According to Noori (2013) the death resulting from RTA is grouped into three categories. The first category includes people who die within a small number of seconds or minutes following RTA and this count about ten per cent of all RTA related deaths. The second category includes people who die within the first hour following RTA, which is the golden hour where the majority of death occur and this count around seventy five per cent of RTA related deaths. The third category includes people who die after many hours, days or weeks following RTA.

The emergency care of RTA can be ensured generally by inserting large IV (intravenous) lines and administer 0.9% normal saline or lactated Ringer's solution if not contra indicated, ensuring adequate transport and protection of spinal cord, administer tetanus prophylaxis ,administer painkiller without sedation to allow continuity of assessment of injuries and conscious level monitoring. Draw laboratory blood sample to obtain the blood baseline values is also important. In case of major trauma, the indwelling Foley catheter can be inserted, the insertion of nasal gastric tube can also be necessary to prevent respiratory aspiration, decompress the stomach, and reduce the outflow of gastric contents into the abdominal cavity in case of abdomen injury and to allow the accessibility to gastric contents to test for blood (IFRC,2016, Jain et al.,2015).

According to Robertson (2001) The first 24 hours episode following RTA is a very important period because it is during that time the essential actions are done in order to prevent secondary brain damage after head trauma.

According to Dash (2008) the actions done just after accident starting at accident scene are mainly done for the following purpose (1) direct provision of care of the airway and breathing; (2) timely and correct restoration and maintenance of hemodynamic stability ;( 3) supply the most favorable situation for the brain by correct management of intracranial pressure, (4) timely treatment for coupled injuries and correct and timely transportation of the victims to the most suitable multidisciplinary health setting.

The emergency care for RTA can involve both basic life support (BLS) and advanced life support (ALS) (Anand et al.,2013). BLS can be defined as the first medical care given to the traumatic victim at the field of accident in order to maintain the life at an optimum level of survival till the availability of complete medical care. BLS can be provided to the victim by a trained health care provider including nurses, trained paramedical staff or other trained bystanders such as trained policemen, drivers and trained witnessing people at the accident scene (Anand et al.,2013). The ALS is the further and specialized medical care provided to victims at the hospital setting, by trained health care staff (Anand et al.,2013).

In provision of BLS, first of all the rescuers must ensure that the environment is safe and this safety is paramount for first aid providers, victims and bystanders. When the rescuers judge it good, the victims must be moved from the accident scene to more secured area (IFRC,2016, Lerner et al.,2008). Untrained bystanders must only observe and call for help without touching the victims in order to avoid further injury and complications associated with their poor practice.

In provision of rapid and emergency care following RTA, the providers must do all their best not to cause further injuries, ensure rapid and adequate transport of victims using hard backboard, stabilize the neck with the neck collar and provide first aid as quick as possible but with precautions to avoid harming the victims or causing extra damage caused by rash or extra pressure .They have to inform the health setting where they will refer the victims about the accident extent, the number of victims and the seriousness of the accident so that the health care setting prepares and mobilizes any necessary resources that can be useful in the whole process of treating the patient, for receiving and provide the ALS in a timely manner. The providers must also determine the way they will transfer the clients based on available resources such as ambulance, fly or stretchers (Lerner et al.,2008).

Quick assessment and triage must be assured and adequate first aids must be provided based on client conditions and seriousness of injury. The first aid must focus on airway opening. When there is no suspicion of spinal cord injury they can utilize the technique of head tilt or chin lift to maintain airway open and when there is a certain suspicion of spinal cord injury, the rescuers can utilize the technique of jaw thrust. When needed the secretions can be suctioned and when available, the oropharyngeal tube can be used if the airway cannot be maintained with positioning only. Never forget to protect patient from heat loss (Beuran<sup>1</sup> et al.,2012, IFRC,2016).

The first aid providers must be very careful to prevent and/or manage the tongue and gastrointestinal secretions that can provoke airway obstruction and aspiration respectively. Emergency nurses must also ensure preventive and curative measures for internal bleeding that can be responsible for hypotension and death without evidence of external bleeding. Furthermore, the provider must ensure the appropriate care delivered to the victims, and the adequate care during the transport toward the right health facility, with the right means of transport such as well equipped ambulances, within the right and reasonable time, as safest as possible. (IFRC,2016).

Adequate documentation regarding the emergency care done is very crucial in order to help in keeping continuity of care, to be used for medical and forensic reasons, to be useful for research in related field and to help in seeking trauma assurance and funds. At the accident scene the rescuers' safety and protection from any hazards must be ensured and some protective equipment should be provided such as fire retardant, special clothes reserved for RTA emergency care providers, steel-toe boots, gloves, helmet and eye protection (Beuran<sup>1</sup> et al.,2012, IFRC,2016).

According to Akhtar and Chaudhry (2012) once meet an injured victim, the emergency care providers should quickly assess ABCDE (Airways, Breathing, Circulation, Disability and Exposure) and act accordingly. As described by (IFRC,2016) the rescuers must intervene rapidly in order to save many lives. A mnemonic M/A/R/C/H can help in rapid assessment and provision of care at the accident scene and victims' condition can be sorted and treated based on (1) Massive hemorrhage control (M) (2) Airway with cervical spine control (3) Respiration (Breathing) (R) (4) Circulation (C) (5)Head injury (Disability) (H)

(1) Massive Hemorrhage Control: This means that there is a major bleeding that is rapidly life threatening such as a lacerated femoral artery with blood loss that can reach 1 liter per minute and it must be managed firstly.

In case of massive hemorrhage, the appropriate care can be made by applying some principles which are (a) direct pressure above the area of injury, (b) elevation of the lower part to favor circulation to the brain if there is no suspicion of head injury and no suspicion of increased intracranial pressure, (c) indirect pressure, (d) wound packing, (e) tourniquet application, and if available (f) some Haemostatic drugs can be used (IFRC,2016).

(2) Airway with cervical spine control: Basic airway technique such as a jaw thrust can help in maintaining airway opening and it must be used when there is a suspicion of cervical spine cord injury (IFRC,2016). When there is no suspicion of neck injury, chin lift and head tilt technique should be used to prevent airway blockage and to facilitate air movement in respiratory structures allowing (Tscherne,2013).

(3) Breathing: the oxygen supply is helpful for the victim with breathing impairment as soon as possible. If there is an open wound on the chest, the dressing with three sided dressing must be applied in order to prevent the entry of air in the pleura that can lead to the progress of a tension pneumothorax. When tension pneumothorax is developed and it is serious enough to cause respiratory problem, should be treated by chest decompression (IFRC,2016).

(4) Circulation: After an injury and severe blood loss, most of the time, the intravenous line is difficult to insert due to vessel collapse secondary to either external or internal bleeding. It is better to prevent this problem by inserting IV line timely and administer fluid maintenance such as normal saline or Ringer's lactate and transferring the victim timely for further treatment (IFRC,2016).

(5) Head Injury (Disability): Each and every victim with trauma should be considered to have a spinal cord injury managed with precautions till the diagnosis self-assuredly excluded spinal cord injury. Therefore, the complete spinal cord immobilization with hard backboard, blocks and neck collar can be used to enhance immobilization. The management of victims with head injured, agitated or unresponsive patient is somehow a challenging issue and the quick management of hypoxia, treatment of hypotension, airway protection and rapid transport to a

neurosurgical center are principal actions that can save the victim and reduce the risk of complications (IFRC,2016).

In case of limb injury the proper management of wound by sterile dressing, limb realignment is very necessary and splints should be applied to enhance immobilization and promote the healing(IFRC,2016) .

To ensure the appropriate care for traumatic victims of RTA there are some requirements needed which include infrastructure, good authorities to arrange and to mitigate the management of RTA victims and establishment of guidelines. In addition, materials that can help in management of clients including blood pressure machine, kits for suturing, etc. are also important. Finally and very important, is the availability of people who are skilled enough to manage RTA.(Beshah and Hill,2010)

On the accident scene some measures should be respected in order to save lives. These include airway opening and ensuring that the oxygen is well distributed in different organ as needed in order to prevent further damage, hold up impaired breathing until the victim become able to breathe sufficiently by herself/himself, know spinal cord injury and adequate care such as immobilization in order to reduce the physical disabilities resulting from traumatized nerves (WHA,2007).

According to Ingole et al.(2016), the tetanus transmission is first and foremost through contaminated wounds, post traumatic ones included.

As argued by WHO (2013), emergency management of wounds in post traumatic events, tetanus immunization should be administrated .TT (Tetanus toxoid) vaccination for everyone who had not received full vaccination in the past five years or to whom her/his history of tetanus vaccination is unknown and he/she should receive a second dose within four to eight weeks from the first dose. ” Because tetanus risk is high in disaster areas, and because the immunization status of most persons will be unknown, it will be worthwhile to provide doses of TT-containing vaccine, even if only one dose can be assured. Tetanus immunoglobulins may be required for managing those with deep wounds”.

## **2.3. Empirical Literature**

### **2.3.1. Different studies done on emergency care RTA victims**

The RTA can result in mass casualty and nurses are the first health care professionals to provide emergency support and perform effective triage to save lives and they have to ensure the continuum of an emergency health care. The timely and effective emergency health care provided to RTA victims predicts the possibility and value of survival. The earlier and more efficiently the care provided, the better are the chances of surviving and good recuperation with less complications (Europeancommission,2013) and this has been supported by the study done by Sánchez-Mangas et al.(2010) that argued that minimizing the moment between accident time and start of emergency care delivery within the 15 to 25 minutes reduces deaths by 1/3. In addition, the first hour following road accident is called ‘golden hour ‘because many lives can either be saved or lost in that time and disabilities can be reduced if timely health care is provided(Fogue et al.,2012, Gopalakrishnan,2012, Martinez et al.,2010).

The observational study done on the time used in the emergency department and mortality rates in severely wounded victims admitted by Serviá et al.(2012) found that fifty per cent of RTA related deaths occur in the first fifteen minutes following injury due to the brain injury and cardiovascular injury. An additional thirty five percent of death happens within one to two hours following accident due to head injury and chest injury. Furthermore fifty percent of death occurs in thirty days following RTA resulting from sepsis and organ failure.

A cross-sectional study based on ecological data on road traffic mortality done in Iran by Bidgoli et al.(2011), highlighted that when there is a lack of strong health infrastructure and underprivileged access to health setting as well as lack of pre-hospital trauma services, there is increased number of death and disabilities resulting from RTA. In addition, the greater part of people who die in LMIC take place in the pre-hospital area and the accessibility to an adequate pre-hospital trauma care may prevent death and enhance lives in RTA victims.

Across-sectional cohort study in Nigeria by Olugbenga-Bello et al.(2012) on first aid of trauma victim to assess knowledge and its application among drivers showed that in response to the wound care and haemostasis, the respondents counting for 44.5% thought they could use a

tourniquet to stop continuing harsh bleeding and 51.5% thought that they may put on a compressive wound dressing .Regarding fracture care, the majority counting for 88.5% thought that they could use splints for clear fractures and 12.7% of respondent didn't know what to do. On the issue of transport of comatose victims, 58.5 of respondents thought that this comatose state is the most important sign for transporting the victim to the health setting while 8.7% thought that the traumatic wounds is the most important sign and only 5.2 respondents thought that fractures are the most indication to transport the client to the health setting (Olugbenga-Bello et al.,2012) .

In Rwanda like in other countries nurses are greatly involved in emergency care delivery of RTA and they should be sufficiently equipped in emergency care provision for RTA victims including proper assessment and triage in both pre-hospital and hospital settings and the appropriate emergency care to deliver to traumatic patients based on affected body area.

The study done on knowledge and attitude towards dental trauma first aid for nurses of emergency department in Saudi Arabia by Pani et al.(2015) showed that nurses had the positive attitude toward the management of dental Trauma first aid.

A cross sectional study done in South India by Uthkarsh et al.(2016) on assessment and availability of trauma care Services in a District Hospital showed that the physical infrastructure were available but there were no selected emergency trauma team and lack of special services for managing polytrauma. Furthermore there were inadequate resources to manage head, abdomen, chest and spine injuries, and therefore they referred the majority of polytrauma victims to other special hospitals.

According to Schmitt et al.(2013), head injury , spinal cord injury and internal soft tissue injury are the major and very severe injuries consequential of RTA and the adequate and timely management of these conditions help in minimization of further damage and rapid revival. In addition, any hindrance to timely management for RTA victims and inappropriate emergency health care delivery to these victims can lead to severe complications and death(McEntire,2014). Quick assessment and rapid triage for traumatic victims is very important and to ensure adequate and correct actions, a prerequisite training for health care provider who is responsible for managing traumatic victims is required.

Across sectional observational study done in India by Mahmoudi et al.(2013) showed that the lack of training among nurses can lead to inappropriate care provision and insufficient quality of care. Furthermore, another cross sectional observational study done by Shah and Jarwani (2014) showed that accessible nurses were not trained formally in management of trauma cases and there were no available protocols in service for the management of trauma care.

Seriously ill people with harsh injuries or with any severe medical conditions are frequently not treated timely and adequately in case of lack of skilled nurses and physicians in emergency care team to put into practice a synchronized emergency care response from side to side rapid assessment and simultaneous interventions (Calvello et al.,2013). In place of getting direct purposeful health care according to the priority by emergency trained nursing staff, victims may stay many hours waiting for a treatment by a health care personnel and this can result in aggravation of the situation and even death (Bell et al.,2014).

The study done by Paravar et al.(2013) in Iran on prehospital care of RTA, showed that the victims who received IV fluid at the accident field were 25.7 % and the GCS Scores were less than 13/15 for 21.5%clients. The hard backboards were used to transport the patients and neck collar were used to protect the neck for 39% of clients to ensure spinal cord protection. The airway maintenance was assured via endotracheal intubation to 31 victims from the accident field and during transport to health setting. Cardiopulmonary resuscitation was done for only 0.2% in prehospital area. The total death rate was 4.9%.

A study done by Arreola-Risa et al.(2007) argued that a training protocol intended to fortify the performance of an obtainable basic emergency medical services, in which the local administration made effort to train nurses including the ones experienced and those who are recently hired resulted in reduced mortality rate for all trauma victims managed at emergency services from 6.3% to 2.5%.

When there is unclear definition of the scope of practice for emergency nurses in a certain health care delivery, and lack of training in relation to care needed for emergency cases, there is also frustration among nurses in case they are called to give health care and take for granted duties that fall outside the scope of nursing practice (Carter et al.,2012, Rominski et al.,2011, Wolf et al.,2012).

A study done in Ghana on needs assessment of nurses' skills and educational needs of accident and emergency by Rominski et al.(2011) showed a discrepancy in a team-based approach to care for emergencies and a deficiency in self-confidence in the clinical skills and clinical knowledge in terms of emergency management based on established protocols. This has been supported by Carpenter et al.(2014) who did a study on optimal older adult emergency care and concluded that there was considerable deficit of knowledge of emergency nursing care provision.

#### **2.4. Critical Review and Research Gap identification**

In LMIC the number of motor vehicle accidents is growing, with increasing number of population, poor enforcement of road use laws, insufficiency of health infrastructure, and underprivileged access to health care settings, limited number of trained health professionals and all these factors contribute greatly in increasing number of deaths from RTA(Chalya et al.,2013).

Numerous studies done showed a big difference in deaths resulting from RTA where the high rate of death is found in LMIC including sub-Saharan Africa (Anand et al.,2013, Mwakapasa,2011, Paravar et al.,2013, TESFALEM,2010).

In a study done by TESFALEM(2010) on car accidents showed that, about 10% of global road deaths between the year 1999 and year 2000 happened in sub-Saharan Africa where only 4% of global vehicles were registered and other RTA not registered. On the contrary, in the developed world, with 60% of all globally registered vehicles, only 14% of road deaths occurred. This explains that the majority of RTA is not reported in Africa.

The studies done in LMIC including east Africa showed that the majority of RTA victims who necessitate the prehospital emergency care in the period of golden hour to be saved, die without receiving any care and other victims are transported by untrained people such as motorcyclists, drivers and relatives (Chalya et al.,2013, Kingu,2013, Paravar et al.,2013).

Nurses engage in creation of important action in emergency risk reduction, mitigation, and response. They represent the most important number among other health professionals in countries and have responsibility to manage all clinical cases including critical case management and they work closely with the underprivileged and defenseless people affected by

emergencies from RTA. They may be well recognized and trusted in their community. However, nurses are often left out of emergency, preparedness and response planning and training (Loke and Fung,2014).

The proper management of RTA victims needs a protocol based disciplined team approach. Therefore all health care providers who engage in the management of traumatic patients need to be trained and it is also crucial to institute trauma organization in the country and have health care provider trained to offer competent health care to trauma victims (Prasad,2013). Established protocol in emergency trauma in pre-hospital and hospital area, skilled, well trained nurses, and strong infrastructure as well as strong administration will improve emergency care in case of RTA.

The study done by Afzali (2015) on determination of tetanus Antibody Levels in Trauma Patients found out the lack of significant difference in immunization status between the traumatic patients who had a history of tetanus vaccination and traumatic patients who had not history of tetanus vaccination previous to the physical trauma.

## **2.5. Conceptual framework**

Conceptual framework is a systematic structured organisation of thought; ideas, interactive statements presented either graphically or in a description form which give a centre for inquiry (Rocco and Plakhotnik,2009)

Different researchers recommended to use the Health Belief Model in studies that assess knowledge, attitude and practice (Jha et al.,2013, Naghashpour et al.,2014).The health believe model explain the health actions via three interrelated beliefs: “individual perceptions, modifying factors, and the likelihood of action” Taylor, et. al. (2007). The individual knows well that there is sufficient things that can put his/her life in danger (perceived susceptibility and severity) , he/she understands that he or she may be defenseless on that danger or an undesirable health outcome (Perceived threat or seriousness) and he/she undertake behaviors changes to compensate any costs of doing so (Perceived benefits and barriers) (Taylor et al., 2007). In the present study, the health believe model can be deducted and give a guideline to

follow in designing a concept framework as this model tends to explore health behaviors like health prevention and promotion.

In fact, the knowledge of nurse's knowledge, attitude and practice in emergency care of RTA victims was used to elaborate different preventive and promotion actions in terms of emergency management of RTA victims.

In this current study, individual nurses reflect independent variables such as nursing professional qualification, A&E nurses training and social demographic characteristics will be applied in demographic characteristics of the study participants and might influence nurses' knowledge, attitudes and practices on emergency care of RTA (dependent variables). To provide the adequate emergency care for RTA victims, the nurses are circuitously prejudiced by A/E service resources, infrastructure, staff motivation, hospital policy and Hospital guideline on emergency care of RTA (confounding variables).

This conceptual framework applies to this study and associations among the different variable are summarized in Figure 1.1

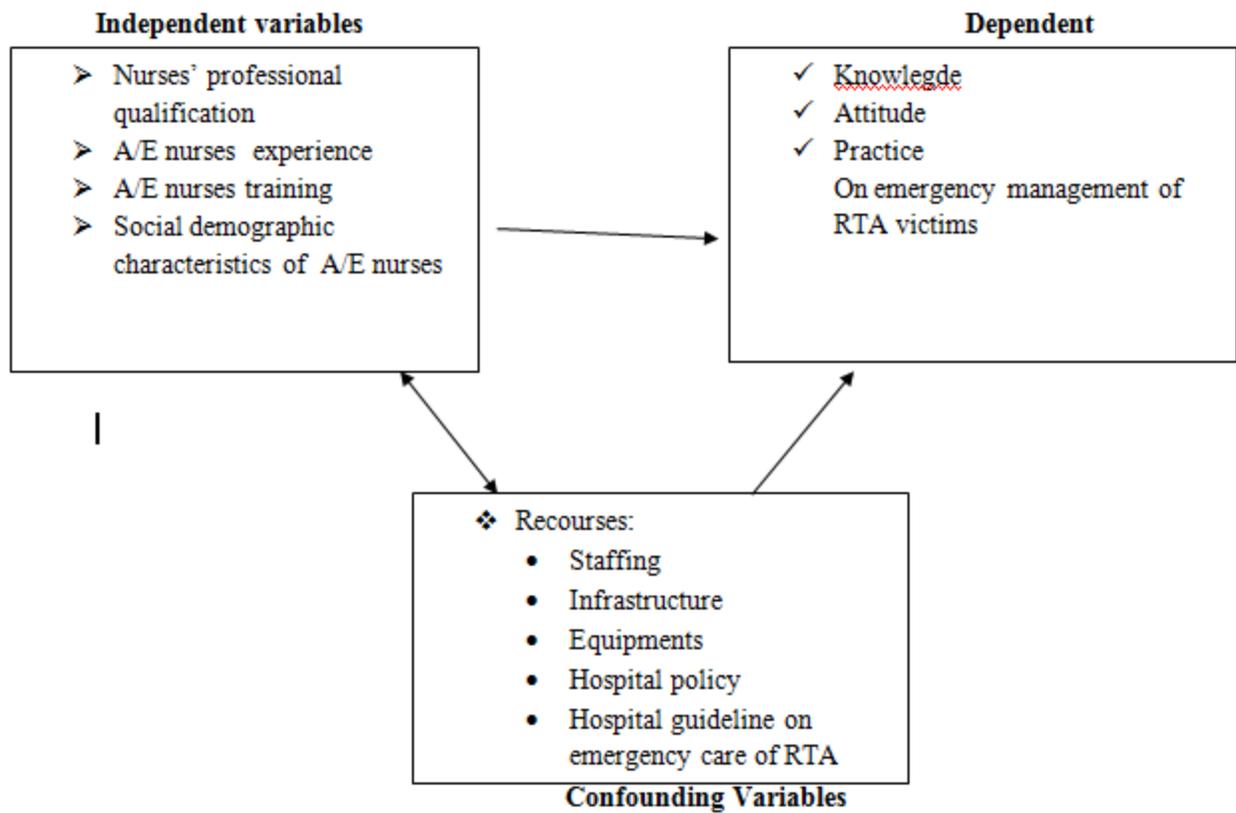


Figure 1: KAP concept framework

**Adopted from:** Rutto et al.,2012 and Literature review of the present study

## **CHAPTER 3: RESEARCH METHODOLOGY**

### **3.1. Introduction**

The main focus of this study was to assess the nurses' knowledge, attitude and practice in emergency care of RTA victims at three selected Rwanda hospitals. This chapter will discuss in details the methodology that will be used in this study and it comprised of study design, research approach, research setting, population, sampling, sampling strategy, sample size, data collection (data collection instruments, tool reliability and validity and data collection procedure), data analysis, ethical considerations, data management, data dissemination including limitations and challenges

### **3.2. Research design**

The study design can be defined as a detailed organization of research that help the researcher to carry out the study (Woodward,2013). The study design that was adopted in this study is a cross-sectional study design. Cross-sectional study design is a descriptive study where variables of interest in a sample of subjects are done one time without repetitive and the relationships among them are determined, (Hopkins,2008, Pearce,2012).

### **3.3. Research approach**

A quantitative approach was adopted in this study. Quantitative approach determines the relationship between an independent variable and dependent or in a population (Hopkins,2008).

### **3.4. Research setting**

The present research study was conducted in three hospitals chosen purposefully which are (1)Masaka district hospital (MDH), (2) Rwamagana provincial hospital (RPH) and one referral hospital which is (3) Rwanda Military Hospital (RMH).

Masaka hospital is located in Masaka sector, Kicukiro district, in Kigali city. It is located between, Muyumbu sector in Rwamagana district, Kanombe sector in Kicukiro district and Rusororo sector in Gasabo district. It supervises ten health centers in its catchment area and

receives patients referred by those ten health centers. The population of its catchment area is 39595. Accident and emergency service has 10 beds of hospitalization and 15 nurses.

Rwamagana provincial hospital is located in Eastern province, Rwamagana district. It is located near the asphalted road of Kigali-Kayonza. Its capacity of hosting is 130 beds. RPH has catchment area of 341303 population. The accident and Emergency department has a hosting capacity of 12 beds and 15 nurses.

RMH is located in Kigali city, Kicukiro district. This hospital also has a mandate of treating patients and teaching students in different fields of health professional. RMH serves both military clients and civilian clients where the average number of admissions is 88% of civilian clients and 12% military patients (RMH statistics office, 2015). The population of RMH is from the whole country and has a hosting capacity of 250 beds. The emergency and accident department has hosting capacity of 30 beds and 26 nurses.

### **3.5 Population**

The study population included nurses of both sexes working in accident and emergency department at three selected Rwanda hospitals which are RMH, RPH and MDH. The population included 24 nurses working at RMH, 14 nurses working at RPH and 13 nurses working at MDH. The total population was 51 nurses.

### **3.6. Sampling**

A sampling is the procedure of elaborating a sample in the population and sample is the element in the population that is used to make inference on general population and this sample must have the same characteristics of the population being studied (Hopkins,2008).

When the population size is small, the research can use the entire population (also called census) as sample size in order to reduce errors and to maximize the generalization of results. A census is smart for small populations below 200. Practically the whole population was used to reach a desirable level of precision. That is why the research used the entire population as sample size (Israel,1992).

### **3.6.1. Sampling strategy**

Practically the entire population was used to reach a desirable level of precision. As researcher collected data for a long period of time (one month) to allow getting all of nurses, the availability of participants was increased.

#### **3.6.1.1. Inclusion criteria**

The inclusion criteria were as follows:

- a) All staff nurses who work at in E&A of both RPH, MDH and RMH
- b) Were willing to participate voluntarily

#### **3.6.1.2. Exclusion criteria**

The exclusion criteria were as follows:

- a) All staff nurses who did not work at E&A of RPH and RMH
- b) Were not willing to participate voluntarily

### **3.6.2. Sample size**

The entire population of 51 nurses working at A/E department from three selected Rwanda hospitals was used as sample size.

## **3.7 Data Collection**

### **3.7.1. Data Collection Instruments**

Regarding the validity of the tool that was used, several experts in trauma and injury reviewed the questions for validity. The tool also was tested through a trial run (pilot study) among 10 nurses of other hospitals with the same characteristics but not participating in the main study. Regarding the reliability of the tool, the questions was tested and retested to ensure reliability. Content validity also was demonstrated through comparison of the objectives and the items in the questionnaire as seen in table 3.1 below.



**Table 1: Content validity**

<b>Objective</b>	<b>Concept in the Framework</b>	<b>Relevant questions addressing objectives</b>
<b>1.</b> To determine the knowledge of nurses on emergency care of RTA victims	Dependent variable (Knowledge)	Questions 7-11 plus Appendice II: Six brief Emergency Equipment Knowledge Test
<b>2.</b> To describe the attitudes of nurses on emergency care of RTA victims	Dependent variable (Attitude)	Questions 12-18
<b>3.</b> To describe the nurses' emergency care practices to be delivered to RTA victims	Dependent variable (Practice)	Questions 19-26
<b>4.</b> To establish the relationship between demographic characteristics and KAP of nurses at A/E	Both independent (demographic characteristics of nurses) and dependent variables (KAP)	Question 1-26 plus Appendice II: Six brief Emergency Equipment Knowledge Test

The data was collected using a self-administered questionnaire. Closed-ended questions were used as a tool of data collection. The questionnaire was written in English and it was consisting of four sections: Section A included demographic data; Section B included questions to assess knowledge of nurses on emergency care of RTA victims, Section C contained questions about attitude of nurses on emergency care of RTA victims and section D included questions to assess practice of nurses on emergency care of RTA victims.

### **3.7.2. Data collection procedure**

After getting an approval letter from the Dean of Faculty of UR/SMHS and the approval from authorities of RMH, RPH and MDH, the researcher introduced herself to the participants and

gave full explanations about the study, the importance of their participation, the procedures to be followed and the purpose of the study also were shared. The researcher explained more about the importance of research and how to proceed before giving them the questionnaires. She explained to participants that they had rights to participate voluntarily and right to withdraw at any stage of the study without punishment. She even told them that if they have any concerns with the process, they can contact the research office of the university, the address was provided. The research also provided an information document and the participants remained with it for further reading to be informed and therefore she gave an informed consent. To mitigate the risk of interrupting the participant's time and their routine of activity, the researcher distributed the questionnaire on the opportunity of breaking time and she requested the participants to respond questionnaire and this took about 30 to 60 minutes for participants to respond to questions.

After detailed explanations regarding study process and having obtained the participants signed consent forms, the questionnaires was distributed to them, to respond voluntarily. Participants was allowed enough time to complete the questionnaires, generally being distributed during breaking time to avoid disrupting ward routine and collected the same day by the researcher.

### **3.8. Data analysis**

Data was presented using tables and graphs and they were double entered and validated before final analysis. The SPSS version 21 software was used for analyzing the data, statistical tests such as chi square to measure association & multinomial logistic regression test were used because we have more than two outcomes and the statistical significance of 0.05 was used.

### **3.9. Ethical considerations**

Before conducting the study, the researcher requested an ethical clearance form from UR/SMHS administration. The researcher needed to ensure the participants that the participation in the study was voluntary and got consent from them. No place for names appeared on the questionnaires to ensure anonymity and encouraged respondents to give full and correct information. The participants was ensured that the information they gave during this study was confidential and was used for the purposes of this study alone and a signed consent form (see appendice 3) was used to allow the researcher to conduct the study. Participants were advised that they might withdraw or withhold at any stage of the study without any consequences or penalty. The study potential risk was that the researcher took participant's free time to answer questionnaire but this avoided disrupting the ward routine by giving them time to fill them in. Detailed information regarding the title of the study, purpose, process, participant rights, potential risks and how they were mitigated were provided to participants so that they read these at leisure and asked questions whenever there were areas they needed clarity on (See appendice1: introduction of questionnaire). The participants were ensured that the feedback from the research will be communicated to them at the end of the study.

### **3.10. Data management**

The tool that was used for data collection will remain in the possession of the researcher. The soft copy will be stored on two different hard disk to reduce the risk of losing data in case of incident of one hard disk. Hard copies will be stored in a prepared bag by researcher .Both hard copies and soft copies will be destroyed after 5years according to UR policy of recording keeping.

### **3.11. Data Dissemination**

The copy of this thesis will be disseminated to the UR/SMHS and the findings of this study will be published to nursing journal to be used by different national and international individuals in health conferences or workshops. The researcher will also share the copy of this thesis with the participating institutions.

### **3.12. Limitations and challenges**

This study was limited by shortage of time. The study was conducted in RMH, RPH & MDH and the results would not be representative of all Rwanda hospitals. Another major limitation is the absence of similar studies done in the country and very limited studies done in other countries.

## **CHAPTER 4: PRESENTATION OF RESULTS**

### **4.1 Introduction**

This chapter addresses the results generated from data reported from the questionnaire and later transferred in tables and figures for easy analysis by the researcher. It is divided into 5 sections which are sociodemographic description, section on knowledge assessment, attitude assessment, practice assessment and relationship between demographic characteristics and KAP of nurses at the A/E service. Presentation of results in tables, graphs and statistical tests performed are also in this chapter.

### **4.2 Sociodemographic characteristics of participants (N=51)**

Fifty four questionnaires were administered in separate five periods Fifty one were completed, returned and analyzed. This amounts to a 94.4% return rate.

Table one describes demographic characteristics of participants. Those who are between 26 and 32 are presented in great proportion 18 (35.3%), Male are 26 (51%) and female are 25(49%), those who have completed advanced diploma are presented in great proportion with 42(82.4%), those who are married are 35 (68.4%), single are 16 (31.4%), those with working experience of less than one year are 29 (56.9%) and those with more than one year are 22 (43.1%). Participants who get training of emergency care of trauma victims before are 35(68.6%) and 16 (31.4%) did not get it. Those who have been trained on triaging of traumatic patient are 38 (74.5%) while 13(25.5%) have not been trained.

**Table 2: Sociodemographic characteristics (N=51)**

<b>Variables</b>	<b>Frequencies</b>	<b>Percentage (%)</b>
<b>Age in years (N=51)</b>		
Between 18 -25	10	19.6
Between 26 -32	15	29.4
Between 33 -40	18	35.3
More than 40	8	15.7
<b>Gender(N=51)</b>		
Male	26	51.0
Female	25	49.0
<b>Education status (N=51)</b>		
A2	2	3.9
A1	42	62.4
A0	6	11.8
Master's degree	1	2.0
<b>Marital status (N=51)</b>		
Single	16	31.4
Married	35	68.6
<b>Working experience in emergency and trauma unity: In years (N=51)</b>		
less than one year	29	56.9
more than one year	22	43.1
<b>Training (N=51)</b>		
Trained on emergency management of trauma victims before		
Yes		
No	35	68.6
Trained on triaging of traumatic patient		
Yes	16	31.4
No	38	74.5
	13	25.5

### 4.3. Knowledge of nurses on emergency care of RTA victims

This section presents the knowledge of participants on emergency care on identification of spinal cord injury and reaction to it, including knowing if the victim is severely injured and the knowledge on six equipments used in emergency care.

#### 4.3.1 Knowledge on suspicion of spinal injury for RTA victim (N=51)

Participants were asked when to suspect a spinal injury for a victim of RTA. A large proportion (66.7%) responded wrongly that they suspect a spinal injury for RTA victims with multiple traumas on trunk, and small proportion responded correctly that they suspect spinal injury for every victim of RTA.

**Table 3: Knowledge on when to suspect spinal injury for RTA Victims (N=51)**

	Frequency	Percent	Valid Percent	Cumulative Percent
Patient with extremities bleeding	2	3.9	3.9	3.9
RTA with multiple traumas of trunk	34	66.7	66.7	70.6
Every victim of RTA	15	29.4	29.4	100.0
Total	51	100.0	100.0	

#### 4.3.2 Knowledge on how to know if the victim is severely injured (N=51)

Among respondents the majority (76.5%) reported correctly that when the victim is not awake, cannot follow command and has a change in heartbeat these are the ways to know if the victim is severely injured.

**Table 4: How to know if the victim is severely injured?(N=51)**

	Frequency	Percent	Valid Percent	Cumulative Percent
The victim is complaining the pain	4	7.8	7.8	7.8
The victim has complexity of problem in breathing	8	15.7	15.7	23.5
He/She is not awake, cannot follow command ,has change in heart beat	39	76.5	76.5	100.0
Total	51	100.0	100.0	

**4.3.3 Knowledge on how to know if the victim is breathing (N=51)**

Among respondents 44(86.27%)reported correctly to check if the chest is moving up and down to know if the victim is breathing, the minority 3 (5.9%) said to check if the neck big blood vessel is beating.

**Table 5: How to know if the victim is breathing? (N=51)**

	Frequency	Percent	Valid Percent	Cumulative Percent
Check on movement up and down	44	86.3	86.3	86.3
Palpate on check if neck big blood vessels is beating	3	5.9	5.9	92.2
Check for abdominal movement	4	7.8	7.8	100.0
Total	51	100.0	100.0	

**4.3.4 Knowledge on how to know if the victim has circulatory shock (N=51)**

The majority [46(90.2%)] reported correctly that rapid heart beating or rapid pulse will let them know if the victim has circulatory shock, and minority [5(9.8%)] said that difficulty in breathing with wheezing will help to know if the victim has circulatory shock.

**Table 6: How to know if the victim has circulatory chock? (N=51)**

	Frequency	Percent	Valid Percent	Cumulative Percent
Rapid heart beating or rapid pulse	46	90.2	90.2	90.2
Difficult in breathing with wheezing	5	9.80	9.80	100.00
Total	51	100.00	100.00	

**4.3.5 Knowledge on how to quickly assess the injured victim of RTA (N=51)**

The table below demonstrates the participant's responses according to their knowledge on how to quickly assess the injured victim of RTA. ABCDE (Airways, breathing, Circulation, disability and exposure) was reported correctly by the majority [45(88.2%)] as what to assess immediately throughout quick assessment of the injured victim of RTA.

**Table 7: Throughout quick assessment of injured victims of RTA, what to assess immediately?(N=51)**

	Frequency	Percentage	Valid percentage	Cumulative percentage
ABCD (Air ways, Breathing, Circulation, Disability and Exposure)	45	88.2	88.2	88.2
Bleeding area	4	7.8	7.8	96.0
The respiratory pattern	2	3.9	3.9	100.0
Total	51	100.0	100.0	

### 3.4.6. Knowledge of some equipment used in A&E service

#### 1. To name the equipment hard board (N=51)

Among the respondents, the majority [27(52.94%)] named correctly the equipment hard board, 19(37.25%) were not able to name it and 5(9.8%) named wrongly the equipment hand band.

**Table 8: To name hard board (N=51)**

	Frequency	Percent	Valid Percent	Cumulative Percent
Hand band	5	9.8	9.8	9.8
Hard board	27	52.9	52.9	62.7
Unable to name	19	37.3	37.3	100.0
Total	51	100.0	100.0	

#### 1.1 What is it (Hard board) used for?(N=51)

Among them 42(82%) reported correctly that the equipment (hard board) is used for back injury, those who did not know it were 6(11%).

**Table 9: What is it (hard board) used for? (N=51)**

	Frequency	Percent	Valid Percent	Cumulative Percent
Vomiting	3	5.9	5.9	5.9
Back injury support	42	82.4	82.4	88.2
I don't know	6	11.8	11.8	100.0
Total	51	100.0	100.0	

**2. To name the equipment number (Cervical collar)(N=51)**

Among respondents 44 (86.3%) named correctly cervical collar and 7 (13.7%) was not able to name it.

**Table 10: To name cervical collar (N=51)**

Variables	Frequency	Percent	Valid Percent	Cumulative Percent
Cervical collar	44	86.3	86.3	86.3
Unable to name	7	13.7	13.7	100.0
Total	51	100.0	100.0	

**1.2 What is it (cervical color) used for? (N=51)**

Among respondents, the big majority 50(98.0%) said that it (cervical collar) is used for neck injury, while 1(2%) reported that the equipment is used for neck weakness.

**Table 11: What is it (cervical collar) used for? (N=51)**

	Frequency	Percent	Valid Percent	Cumulative Percent
neck weakness	1	2.0	2.0	2.0
neck injury support	50	98.0	98.0	100.0
Total	51	100.0	100.0	

## 2. To name the equipment ( Oxygen cylinder) (N=51)

Among respondents, the big majority 47(92.2%) named it correctly that it is oxygen cylinder and minority 4 (7.8) were unable to name it.

**Table 12: To name oxygen Cylinder (N=51)**

Variables	Frequency	Percent	Valid Percent	Cumulative Percent
Oxygen cylinder	47	92.2	92.2	92.2
Unable to name	4	7.8	7.8	100.0
Total	51	100.0	100.0	

Among respondents 47(92.2%) reported correctly that the equipment is an oxygen cylinder while 4 (7.8%) were not able to name the equipment.

### 1.3 What is it(Oxygen cylinder) used for (N=51)

The total of respondents reported correctly that it is used to assist breathing by giving oxygen.

**Table 13: The usage of Oxygen Cylinder (N=51)**

Variables	Frequency	Percent	Valid Percent	Cumulative Percent
assist breathing by giving oxygen	51	100.0	100.0	100.0

**4. To name the equipment number four (a bag valve mask) (N=51)**

Among respondents 48(94.2%) reported that the equipment is a bag valve mask while 3(5.9%) were unable to name it.

**Table 14: To name bag valve mask (N=51)**

Variables	Frequency	Percent	Valid Percent	Cumulative Percent
Bag-valve-mask	48	94.1	94.1	94.1
Unable to name	3	5.9	5.9	100.0
Total	51	100.0	100.0	

**1.4 What is it(Bag-valve-mask) used for (N=51)**

Among them 47(92.2%) said that it is used to assist breathing while 4 (7.8%) said that it is used for toothache.

**Table 15: The usage of bag valve mask (N=51)**

Variables	Frequency	Percent	Valid Percent	Cumulative Percent
assist breathing	47	92.2	92.2	92.2
Toothache	4	7.8	7.8	100.0
Total	51	100.0	100.0	

**5. To name the equipment (oropharyngeal cannula) (N=51)**

Among respondents 36(70.6%) reported correctly that equipment is an oropharyngeal cannula and 15(29.4%) were not able to name the equipment

**Table 16: To name oral pharyngeal cannula (N=51)**

Variables	Frequency	Percent	Valid Percent	Cumulative Percent
Oropharyngeal cannula	36	70.6	70.6	70.6
Unable to name	15	29.4	29.4	100.0
Total	51	100.0	100.0	

**1.5 What is it used for (oropharyngeal cannula)? (N=51)**

Among respondents 44 (86.3%) said that it is used to avoid tongue to block respiratory airways, 2(3.9%) said toothache while 5(9.8%) did not know.

**Table 17: The usage of Oropharyngeal cannula (N=51)**

	Frequency	Percent	Valid Percent	Cumulative Percent
Avoid tongue to block respiratory ways	44	86.3	86.3	86.3
Toothache	2	3.9	3.9	90.2
I don't know	5	9.8	9.8	100.0
Total	51	100.0	100.0	

**6. To name the equipment (Back slap covered by a crepe bandage)  
(N=51)**

Among respondents 11(21.6%) were not able to name the equipment and the majority reported that it is a back slab, 37(72.5%) and a crepe bandage was reported by 3(5.9%) respondents.

**Table 18: To name backslap covered by crepe bandage (N=51)**

Variables	Frequency	Percent	Valid Percent	Cumulative Percent
back slab	37	72.5	72.5	72.5
crepe bandage	3	5.9	5.9	78.4
Unable to name	11	21.6	21.6	100.0
Total	51	100.0	100.0	

## 2.6 The usage of back slap covered by crepe bandage (N=51)

Among respondents 49(96.1%) said that it is used to for arm injury 1(2%) said toothache while 1(2%) did not know its usage.

**Table 19: What is it used for( Back slap covered by crepe bandage)  
(N=51)**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid arm injury	49	96.1	96.1	96.1
arm weakness	1	2.0	2.0	98.0
I don't know	1	2.0	2.0	100.0
Total	51	100.0	100.0	

### 4.3.7 Knowledge level of participants (N=51)

The knowledge scale of BASAK (2014) was used. The participants responses regarding knowledge assessment were marked out of hundred and those who obtained more than 90% were considered having very high level of knowledge. Those with 80 to 89.99% were having high level of knowledge; those with 70 to 79.99% were having moderate level of knowledge, those with 60.00 to 69.99 % were having low level of knowledge and those with less than 60 % were having very low of knowledge.

The big proportion of participants had high level of knowledge [20(39.2%)] and very high level of knowledge [16(31.3%)] and small proportion had moderate level of knowledge [12(23.5%)], low level of knowledge [2(3.9%)] and very low level of knowledge [1(2%)].

**Table 20: Knowledge level of participants (N=51)**

<b>Level of knowledge</b>	<b>Reference score</b>	<b>Frequency</b>	<b>Percentage</b>
Very high	(>90.00%)	16	31.3
High	(80.00-89.99%)	20	39.3
Moderate	(70.00-79.99%)	12	23.5
Low	(60.00-69.99%)	2	3.9
Very low	(<60%)	1	2

**4.4 Attitude assessment regarding RTA victims (N=51)**

The table below describes attitude of nurses in case of RTA. The results showed that 43(84.3%) strongly agreed that it is necessary to provide first aid immediately for road traffic accident victim at the scene. Among respondents 32(62.7%) strongly agreed that they are willing to provide emergency care to RTA victim, 26 (51%) strongly disagree to fearing blood as they can be infected by blood borne diseases, 31 (60.8%) strongly disagree to not willing to provide emergency care to RTA because they don't know how to do it as they cannot provide sufficiently trained care, 31(60.8%) strongly disagree to not willing to provide emergency care to RTA because they could apply wrong treatment and cause harm, 15 (29.4%) agree that community members are the first line responders to assist in life saving, 24 (47.1%) strongly agree that in case of an accident, they think the community role is to communicate the accident, never to touch the victim.

From the table below, positive attitude is 73.657 and negative attitude is 26.342 (summation of agree and strongly agree against disagree & strongly disagree of correct statement against incorrect statement).

**Table 21: Attitude of nurses (N=51)**

<b>Variables</b>	<b>Strongly Agree</b>	<b>Agree</b>	<b>Disagree</b>	<b>Strongly Disagree</b>
I believe that it is necessary to provide first aid immediately for road traffic accident victim at the scene:	43(84.3%)	3(5.9%)	5(9.8%)	0(0.0)
I am willing to provide emergency care for RTA victim:	32(62.7)	2(3.9)	15(29.4)	2(3.9)
I not am willing to provide emergency care for RTA because I fear blood as I can be infected by blood borne diseases:	8(15.7%)	5(9.5%)	12(23.5)	26(51%)
I am not willing to provide emergency care to RTA because I don't know how to provide emergency care to RTA as I am not sufficiently trained:	1(2.0)	12 (23.5)	7 (13.7)	31(60.8)
I am not willing to provide emergency care to RTA because I could apply wrong treatment and cause harm:	1(2.0)	6(11.8)	13(25.5)	31(60.8)
In case of an accident, I think community are the one of the first line responders to assist in the life saving:	11(21.6)	15(29.4)	14 (27.5)	11(21.6)
In case of an accident, I think the community role is to communicate the accident, never touch the victim:	24(47.1)	14(27.5)	8(15.7)	5(9.8)

#### 4.5 Nurses' emergency care practices to be delivered to RTA victims (N=51)

This section presents the practice of participants on different aspects of emergency care of RTA victims.

##### 4.5.1 Having been involved in emergency care to RTA victims (N=51)

Respondents were asked if they have been involved in the emergency care of RTA victims at the scene or at hospital, 45(88.2%) reported that they had involved in emergency care while 6(11.8%) had not.

**Table 22: Have you ever involved in emergency care of RTA victims? (N=51)**

	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	45	88.2	88.2	88.2
No	6	11.8	11.8	100.0
Total	51	100.0	100.0	

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**4.5.2 What to do first in case of mass casualty with difficult breathing and haemorrhage (N=51)**

Among respondents, the small majority [28 (54.9%)] reported correctly that when they are called to provide emergency care at the scene of the RTA with mass casualty and they are informed that there are victims who have difficulty breathing and hemorrhage, quick checks of surrounding for safety is what they are going to do first while those who reported to rush the victim to hospital for quick assistance were 16 (31.4%) and the minority [7(13.7%)] reported to secure the area.

**Table 23: What to do when called to provide care at the scene for victims who have difficulty breathing and hemorrhage? (N=51)**

	Frequency	Percent	Valid Percent	Cumulative Percent
Quick checks of surrounding for safety	28	54.9	54.9	54.9
Secure the area	7	13.7	13.7	68.6
Rush the victim to hospital for quick assistance	16	31.4	31.4	100.0
Total	51	100.0	100.0	

**4.5.3 During triaging you will start providing emergency care to: (N=51)**

The big proportion of respondents [24(47.1%)] reported correctly that during triaging they will start providing emergency care to victims who cannot move nor raise up hands nor speak, while 18(35.3%) reported that they would start with victims who can move for seeking emergency medical care and 9(17.6%) to those who cannot move but can raise up the hand or shout (speak).

**Table 24: During triaging, you will start to provide emergency care to whom? (N=51)**

	Frequency	Percent	Valid Percent	Cumulative Percent
Victims who can move for seeking emergency medical care	18	35.3	35.3	35.3
Victims who cannot move but can rise up hand or shout (speak)	9	17.6	17.6	52.9
Victims who cannot move nor raise up hands nor speak	24	47.1	47.1	100.0
Total	51	100.0	100.0	

**4.5.4 What to do when attending the unconscious victim, with no neck injury (N=51).**

On attending the unconscious victim, with no neck injury, allowing the air entry by chin lift and head tilt is what was stated correctly by the majority[32(62.7%)] while remove victim's clothes to allow free air [7(33.3%)] and quickly rush to the hospital was reported by 2(3.9%) of the participants.

**Table 25: What to do when attending unconscious victims without neck injury? (N=51)**

	Frequency	Percent	Valid Percent	Cumulative Percent
Allow the air entry by chin lift and head tilt	32	62.7	62.7	62.7
Remove victim cloth to allow free air	17	33.3	33.3	96.1
Quick rush to the hospital	2	3.9	3.9	100.0
Total	51	100.0	100.0	

**4.5.5 How to check if the victims heart is beating or not (N=51).**

Among respondents, the majority [44(86.3%)] reported correctly that they would palpate to feel if big blood vessels are beating at the neck, to check if the victim’s heart is beating or not while the minority [7(13.7%)] reported that they would check the chest for up and down movement.

**Table 26: How to check if the victim heart is beating or not? (N=51)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	To palpate to feel big blood vessels beating at the neck	44	86.3	86.3	86.3
	Check on chest movement up and down	7	13.7	13.7	100.0
	Total	51	100.0	100.0	

**4.5.6 The victim is having big cuts on his leg with severe bleeding, what are you going to do? (N=51)**

When the victim is having big cuts on his leg with severe bleeding the majority [48(94.1%)] of respondents reported correctly that they would apply the bandage or linen at the site, while quickly rush the victim to the hospital was reported by 2(3.9%) and [1(2.0%)] reported that the victim can tell them which part to hold.

**Table 27: The victim is having big cuts on his legs with severe bleeding, what are you going to do? (N=51)**

		Frequency	Percent	Valid Percent	Cumulative Percent
	To apply bandage or linen at the site	48	94.1	94.1	94.1
	Quick rush of victim to the hospital	2	3.9	3.9	98.0
	Victim can tell you which part to hold	1	2.0	2.0	100.0
	Total	51	100.0	100.0	

**4.5.7 During the accident you find the victim with the back and neck injury, how can you handle this victim at the scene? (N=51)**

When respondents were asked how they would handle victims at the scene with back and neck injury the majority [49(96.1%)] reported to roll victim on hard board and apply neck collar while the minority [1(2.0%)]reported that they would lift the victims to the car using more than two people and 1 (2.0%) reported to quick rush the victims to the hospital

**Table 28: You find the victim with back and neck injury, How can you handle him at the scene?(N=51)**

	Frequency	Percent	Valid Percent	Cumulative Percent
To roll victim on hard board and apply neck collar	49	96.1	96.1	96.1
To lift the victim to the car using more than two people	1	2.0	2.0	98.0
Quick rush of the victim to hospital	1	2.0	2.0	100.0
Total	51	100.0	100.0	

**4.5.8 How are you going to move victim to the hospital? (N=51)**

When respondents asked how to move the victim to the hospital the majority [49(96.1%)] reported correctly using the ambulance while the minority [2(3.9%)] reported using public transport.

**Table 29: How to shift the RTA victims to hospital? (N=51)**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Ambulance	49	96.1	96.1	96.1
Public transport	2	3.9	3.9	100.0
Total	51	100.0	100.0	

**4.5.9 During transport and within the first 24hours, which IV fluids are you going to give? (N=51)**

During transport and within the first 24 hours, the majority [34(66.7%)] reported correctly to administer IV fluid like Normal Saline 0.9% with big IV line to correct hypotension while the minority [17(33.3%)] reported to administer IV fluids like glucose 5% with big IV line to correct both hypoglycemia and hypotension.

**Table 30: During transport and within 24hours, which fluids are you going to administer? (N=51)**

	Frequency	Percent	Valid Percent	Cumulative Percent
IV fluids like Normal Saline 0.9% with big IV line to correct hypotension	34	66.7	66.7	66.7
IV fluids with normal saline 0.9% to manage hypotension and glucose 5% to manage hypoglycemia	17	33.3	33.3	100.0
Total	51	100.0	100.0	

**4.5.10 which are other further emergency treatment to be given within 24 hours (N=51)**

Respondents were asked other further emergency treatment that they were going to give within 24 hours. The majority [43(84.3%)] reported correctly that they would stabilize the bleeding, give antitetanus vaccine and serum and administer antibiotics to cover the client and take the blood sample, while stabilize bleeding and give antibiotics to cover the client was reported by 5(9.8%) and [3(5.9%)] reported that they would stabilize the bleeding and give antitetanus vaccine and serum.

**Table 31: Which are further emergency treatments to give within the first 24hours (N=51)**

	Frequency	Percent	Valid Percent	Cumulative Percent
Stabilize the bleeding ,Give antiterenous vaccine & serum	3	5.9	5.9	5.9
Stabilize bleeding and give antibiotics to cover the client	5	9.8	9.8	15.7
Stabilize the bleeding give antitetanous vaccine serum antibiotics to cover the client and take the blood sample	43	84.3	84.3	100.0
Total	51	100.0	100.0	

#### 4.5.11 Practice level of participants (N=51)

The practice scale of Basak (2014) has been used. The participants responses regarding practice assessment were marked out of hundred and those who obtained more than 90% were considered having very high level of practice. Those with 80 to 89.99% were having high level of practice; those with 70 to 79.99% were having moderate level of practice, those with 60.00 to 69.99 % were having low level of practice and those with less than 60 % were having very low of practice.

**Table 32: Practice level of practice (N=51)**

Level of practice	Reference score	frequency	Percentage
Very high	(>90.00%)	21	41.1
High	(80.00-89.99%)	14	27.4
Moderate	(70.00-79.99%)	9	17.6
Low	(70.00-79.99%)	6	11.7
Very low	(<60%)	1	2

#### **4.6 Relationship between demographic characteristics and KAP of nurses at A/E**

The relationship between demographic characteristics and KAP was assessed. Variables that showed significance association with KAP were recruited to multinomial regression test to identify their independent effects to KAP.

##### **4.6.1 Association between sociodemographic information and level of knowledge (N=51)**

The association between demographic information and level of knowledge was assessed and the results showed no association between demographic information and level of knowledge towards emergency management ( $P>0.05$ )

**Table 33: Association between demographic information and level of knowledge ( N=51)**

<b>Age</b> <b>(Chi<sup>2</sup>=9.156,P=0.690)</b>	<b>Level of knowledge</b>				
	Very high	High	Moderate	Low	Very low
	4	3	2	1	0
Between 18-25 years	4	6	4	1	0
Between 26-32 years	5	8	5	0	0
Between 33-40 years	3	3	1	0	1
Above 40 years					
<b>Gender</b> <b>(Chi<sup>2</sup>=1.790,P=0.690)</b>					
Male	7	10	7	1	1
Female	9	10	7	1	1
<b>Education level</b> <b>(Chi<sup>2</sup>=15.180,P=0.417)</b>					
Secondary level	0	1	1	0	0
Advanced diploma	14	16	10	2	0
Bachelor's degree	1	3	1	0	1
Master's degree	1	0	0	0	0
<b>Marital status</b> <b>(Chi<sup>2</sup>=1.464,P=0.953)</b>					
Single	6	6	4	0	0
married	10	14	8	2	1
<b>Working experience in trauma and emergency unit</b> <b>(Chi<sup>2</sup>=4.307,P=0.336)</b>					
One year	12	10	6	1	0
Two years	4	10	6	1	1
<b>Trained on emergency management of trauma victims before</b> <b>(Chi<sup>2</sup>=3.117,P=0.572)</b>					
Yes	12	11	9	2	1
No	4	9	3	0	0
<b>trained on triaging system of traumatic patient</b> <b>(Chi<sup>2</sup>=1.337,P=0.936)</b>					
Yes	12	15	8	2	1
No	4	5	4	0	0

#### 4.6.2 Association between demographic information and attitude of respondents towards emergency care (N=51)

The association between demographic information and attitude was assessed and the results showed no association between demographic information and attitude towards emergency management ( $P>0.05$ )

**Table 34: Association between demographic information and attitude of respondents towards emergency care (N=51)**

Age ( $\text{Chi}^2=0.372, P=1.000$ )	Attitude of participant	
	positive attitude	Negative attitude
Between 18-25 years	8	2
Between 26-32 years	11	4
Between 33-40 years	13	5
Above 40 years	6	2
<b>Gender</b> ( $\text{Chi}^2=2.852, P=0.091$ )		
Male	22	4
Female	16	9
<b>Education level</b> ( $\text{Chi}^2=3.318, P=0.356$ )		
Secondary level	1	1
Advanced diploma	30	12
Bachelor's degree	6	0
Master's degree	1	0
<b>Marital status</b> ( $\text{Chi}^2=0.558, P=0.455$ )		
Single	13	3
married	25	10
<b>Working experience in trauma and emergency unit</b> ( $\text{Chi}^2=0.156, P=0.693$ )		
One year	21	8
Two years	17	5

<b>Trained on emergency management of trauma victims before</b> (Chi <sup>2</sup> =1.771,P=0.183)		
Yes	28	7
No	10	6
<b>trained on triaging system of traumatic patient</b> (Chi <sup>2</sup> =1.546,P=0.214)		
Yes	30	8
No	8	5

#### 4.6.3 Association between demographic information and level of practice (N=51)

When assessing the association between demographic information and level of practice, being trained on emergency management of trauma victims before was associated with level of practice (Chi<sup>2</sup>=12.632, P=0.006)

**Table 35: Association between demographic information and level of practice (N=51)**

<b>Age</b> (Chi <sup>2</sup> =9.156,P=0.690)	<b>Level of practice</b>				
	Very high	High	Moderate	Low	Very low
Between 18-25 years	5	3	0	2	0
Between 26-32 years	4	7	2	2	0
Between 33-40 years	10	4	3	1	0
Above 40 years	2	0	4	1	1
<b>Gender</b> (Chi <sup>2</sup> =17.232,P=0.071)					
Male	10	7	6	2	1
Female	11	7	3	4	0
<b>Education level</b> (Chi <sup>2</sup> =2.637,P=0.676)					
Secondary level	0	0	1	0	1
Advanced diploma	17	12	7	6	0
Bachelor's degree	1	3	1	0	1
Master's degree	1	0	0	0	0
<b>Marital status</b> (Chi <sup>2</sup> =1.406, P=0.927)					
Single	8	4	2	2	0
married	13	10	7	4	1
<b>Working experience in trauma and emergency unit</b> (Chi <sup>2</sup> =4.307, P=0.336)					
One year	15	7	3	4	0
Two years	6	7	6	2	1
<b>Trained on emergency management of trauma victims before</b> (Chi <sup>2</sup> =12.632,P=0.006)					
Yes					
No	9	12	9	4	1
<b>trained on triaging system of traumatic patient</b> (Chi <sup>2</sup> =2.536,P=0.687)					
Yes	12	2	0	2	0
No	14	12	6	5	1
	7	2	3	1	0

**4.6.4 Effect of being trained before, on level of practice (N=51)**

Respondents who reported being trained and reported having very high level of practice had sixteen less than very low practice. Respondents who reported being trained and reported high

level of practice had fifteen less than very low practice. Respondents who reported being trained and reported moderate level of practice had sixteen less than very low practice. Respondents who reported being trained and reported having low level of practice had fifteen less than very low practice.

**Table 36: Effect of being trained before and level of practice (N=51)**

Level of practice <sup>a</sup>		B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp(B)	
								Lower Bound	Upper Bound
Very high	Intercept	19.383	1.531	160.355	1	.000			
	[ trained before =1.00]	-16.744	1.189	198.227	1	.000	5.350E-008	5.201E-009	5.503E-007
	[ trained before =2.00]	0 <sup>b</sup>	.	.	0	.	.	.	.
High	Intercept	18.130	1.643	121.739	1	.000			
	[ trained before =1.00]	-15.645	1.335	137.252	1	.000	1.605E-007	1.172E-008	2.199E-006
	[ trained before =2.00]	0 <sup>b</sup>	.	.	0	.	.	.	.
Moderate	Intercept	18.535	1.592	135.616	1	.000			
	[ trained before =1.00]	-16.744	1.304	164.911	1	.000	5.350E-008	4.154E-009	6.889E-007
	[ trained before =2.00]	0 <sup>b</sup>	.	.	0	.	.	.	.
Low	Intercept	17.437	1.095	253.368	1	.000			
	[ trained before =1.00]	-15.827	.000	.	1	.	1.337E-007	1.337E-007	1.337E-007
	[ trained before =2.00]	0 <sup>b</sup>	.	.	0	.	.	.	.

a. The reference category is: Very low.

b. This parameter is set to zero because it is redundant.

In summary, the above chapter showed that the knowledge and practice of nurses is relatively good and their attitude is relatively positive but they still had many gaps in terms of knowledge, attitude and practice of emergency care of RTA.

## **CHAP 5: DISCUSSION**

### **5.1 Introduction**

This chapter will discuss the obtained results based on the findings of other researchers and literature of present study. The aim of this study was the assessment of nurse's knowledge, attitudes and practices in emergency care of road traffic accident victims at three selected Rwanda hospitals. There are no similar studies done on the assessment of nurse's knowledge, attitudes and practices in emergency care of road traffic accident victims in Rwanda.

### **5.2 Sociodemographic characteristics of participants**

This study showed that both male and female work in accident and emergency services with the small majority being males (50.98%) than females (49.02%). A large proportion (35.3%) of the participants was between 26 and 32 years and the minority age was between 48 and 55 years old, indicating that the younger nurses are in the majority in this population group. The present study seems to give different results from other studies, the majority of which report a majority of females in nursing and more so older nurses. The study done in Kenya by Odero et al. (2012) showed that the majority of nurses who worked in A&E department were female (60.3%). The majority of them (70.6%) had ranged age of 30 to 39 years and (22.1%) of them had 40 to 49 years. Another study done by Esmaeilpour et al. (2011) in Iran showed that the majority (89.1%) of nurses who worked in emergency department were female. The present study is supported by the study done in Turkey by Tufekci et al. (2013) which showed that the majority of nurses (73%) were young aged between 19 and 30 years. The majority of them are married (68.63%) while a larger percentage (31.37%) is unmarried. Another study done in Indonesia by El Enein et al. (2012) showed that the majority of nurses (71.4%) were female and the majority (79.3%) were in the ages ranging between 22 – 40 years

This study showed that the majority (82.4%) of respondents had completed advanced diploma with only 2% that completed masters' level. This is consistent with the study done by (Rominski et al., 2011) where the majority (70.3%) of nurses in A&E department had diploma, while only 2.7% had a master's degree. Considering the education system in the Rwandan context, the majority of universities provide advanced diploma in order to overcome the shortage of nurses in different health settings with shortage of highly qualified lecturers to train high level nurse (Mukamana, 2015).

The present study showed that the majority (56.9%) of participants have working experience in A&E service of less than one year and the minority (43.1%) have more than one year. This is supported by the study done Rominski et al. (2011) where the majority (54.1%) of the nurses working in A&E had less than a year working experience. In this present study, this was highlighting a fresh turnover in hospitals for the purpose of bringing young people in A&E. Furthermore A&E deals with life threatening conditions and needs quick action, even running to save the patient and the young people perform well these actions as they are still strong and fit well in this position. They can even stand more in up position; they can lift up very weight patient and perform various actions quickly comparing with adults people who may be less strong and less rapid to save patients.

Participants who had training on emergency care of trauma victims were in the majority (68.6%) though not large majority and quite a large percentage (31.4%) had not trained. Even those who had been trained on triaging of traumatic patients at 74.5% were not a big majority while 25.5% who had not trained on this and this is in a significant percentage for the safety of patients with life threatening conditions. This may result in poor practice in case of emergency care of RTA victims with its associated complications. This is consistent with the study done in Tanzania by Aloyce et al. (2014) where 47% of nurses who worked in A&E service were not trained. Another study done by Shah and Jarwani (2014) showed that accessible nurses were not trained formally in management of trauma cases and there were no available protocols in service for the management of trauma care.

### **5.3 Knowledge**

Regarding the knowledge of suspicion of spinal injury for a victim of RTA, a large proportion responded with a wrong answer of RTA with multiple trauma on trunk (66.7%), and only 15 (29.4%) gave the right response as suspicion of spinal injury for every victim of RTA. This is suggested by WHO (2013) that RTA is a well-known, first cause of spinal injury worldwide and this last should be suspected for all victims of RTA till ruled out after advanced assessments.

Regarding knowing the RTA victim who is severely injured, 76.47% respondents indicated correctly that when a victim is not awake, cannot follow command and has a change in heartbeat, as the ways to know if the victim is severely injured. According to Lerner et al.

(2011), in the triaging system, these people should be coded by the red color and are in the category that includes victims who require immediate medical consideration due to a comprehensible life threatening condition. This class of victims can comprise victims who are unresponsive, or have altered mental status, impairment of respiratory pattern, unrestrained hemorrhage, a traumatic limb removal nearer to the elbow or knee, open Pneumothorax resulting from chest wounds, one-sided absent breath sounds, cyanosis, or rapid weak pulses(Lerner et al.,2011).

Regarding the knowledge if the victim is breathing or not, a large majority (86.27%) responded with the right answer which is to check if the chest rises up and down. According to Courtney et al. (2008), one of the methods to assess the breathing pattern is to check if the chest rises up and down.

Regarding the knowledge on circulatory shock, a large majority (90.2%) reported that rapid heart beating or rapid pulse will let one know if the victim has circulatory shock. This had been supported by Aoki and Yamamoto (2016), who stipulated that tachycardia is one of the signs that signal circulatory shock as this one acts as a compensatory mechanism.

Regarding the knowledge on how to quickly assess the injured victim of RTA, ABCDE (Airways, Breathing, Circulation, Disability and Exposure) was reported by the majority (88.2%) as what to assess immediately throughout quick assessment of the injured victim of RTA. This is in accordance with Akhtar and Chaudhry (2012) who stipulated that once they meet an injured victim, the emergency care providers should quickly assess ABCDE and act accordingly.

### **5.3.1 Knowledge of equipments used in A&E with their usage**

The respondents were given a picture of a hard board for spinal support and asked to name it. A small majority (52.94%) named it correctly. For its usage a large majority (82%) reported correctly that the equipment is used to support back injury, 11% did not know what it is used for and 7% reported wrongly that it is used for vomiting. It is concerning that such a big percentage (adding those who did not know (11%) and those who gave a wrong answer (7%)) did not know such an important equipment to save the spine from worse injury. The researchers taught that as the majority (56.9%) of them had less than 12 months of experience in A&E department, this

can contribute to less knowledge in terms of materials used in A&E department. It would seem though that some of the respondents gave the correct use but could not name the equipment. The respondents were given a picture of a cervical collar and quite a big majority (86.3%) named it correctly while 13.7% were not able to name it. For its usage a large majority (98.0%) reported correctly that it is used for neck injury, while (2%) reported that the equipment is used for neck weakness. It would also seem though that some of the respondents gave the correct use but could not name the equipment.

The respondents were also given a picture of an oxygen cylinder; a large majority (92.2%) was able to name it while 7.8% were not able to name the equipment. For its usage, the totality of respondents reported correctly that it is used to assist breathing by giving oxygen. Again there were some who knew the use but could not name the equipment.

Respondents were asked to name the bag valve mask. A big majority (94.2%) named it correctly while 5.9% were unable to name it. For its usage most of them (92.2%) said correctly that it is used to assist breathing while 7.8% said that it is used for toothache. In this instance a small percentage of respondents knew the name of the equipment but did not know its use in addition to those who gave a wrong usage.

The respondents were asked to name an oropharyngeal cannula, among them a moderate majority of 70.6% named it correctly while quite a big percentage (29.4%) was not able to name the equipment in the diagram. For its usage a large majority (86.3%) answered correctly that it is used to avoid the tongue blocking the respiratory airways and a small percentage (3.9%) said it is used for toothache while 9.8% did not know. It is also clear that some respondents could not name the equipment but knew its use though the incorrect and did not know still make quite a sizeable number.

The respondents were given a picture of a back slab supported by a crepe bandage and they were asked to name that equipment. Among respondents the majority reported that it is a back slab (72.5%), crepe bandage as reported by 5.9% and the researcher considered both answers (back slab and crepe bandage) as correct while quite a considerable percentage (21.6%) were not able to name the equipment. For its usage, a large proportion (96.1%) among respondents reported correctly that it is used for arm injury, 2.0% reported wrongly that it is used for arm weakness while 2% did not know what it is used for.

Based on knowledge scale of Basak et al. (2014) in the present study, the knowledge of nurses working at A&E service in management of RTA victims is relatively high (39.2%) see table 4.6 but still there is quite a big number in moderate (23.5%), low (3.9) and very low (2%) level of knowledge that require intervention in terms of training. This is consistent with the study done by Rajakumari (2015) which showed that the majority of the nurses had high level of knowledge during the emergency provision of first aid and in contrary with the study done in Iran by Haghgh et al.(2017)which found that a small majority (51.4%) of nurses had low level of knowledge in patient triaging and a big minority (44.3%) had a moderate level of knowledge.

#### **5.4 Attitude**

Regarding questions asked to assess attitude of nurses at A&E department on emergency care of RTA a large majority (84.3%) strongly agreed that it is necessary to provide first aid immediately for RTA victims at the scene which is a positive attitude for nurses. This has been supported by Gopalakrishnan (2012) who stipulated that when adequate emergency care is provided at the accident scene, the victims are likely to survive with fewer complications associated with their accidents. A small majority of respondents (62.7%), strongly agreed that they were willing to provide emergency care to RTA victims, which is a positive attitude, 51% strongly disagreed for fear of blood potentially infecting them by blood borne diseases, which is positive attitude, 60% strongly disagreed with not willing to provide emergency care to RTA because they don't know how to do as they are not sufficiently trained which is a positive attitude, 60.8% strongly disagreed to not willing to provide emergency care to RTA because they could apply wrong treatment and cause harm which is a positive attitude, 15 (29.4%) agreed that community members are one of the first line responders to assist in the life saving, which is a negative attitude, 47.1% strongly agreed that in case of an accident, they think the community role is to communicate the accident, but never to touch the victim, which is a positive attitude. Generally the majority of nurses (73.657) had positive attitude towards emergency management of RTA victims. However, the respondents with positive attitude do not make a large majority indicating that negative attitude exists in a considerable amount (26.3%).

### **5.5 Nurses' emergency care practices to be delivered to RTA victims**

Respondents were asked if they had been involved in the emergency care of RTA victims at the scene of accident or at hospital, a large majority (88.2%) reported that they did.

Among respondents a small majority (54.9%) reported that when they are called to provide emergency care at the accident scene of RTA with mass casualty and they are informed that there are victims who have difficulty breathing and hemorrhage quick checks of surrounding for safety is what they are going to do first. This is the first action that must be taken by rescuers because they must ensure that the environment is safe in order to stay safe while providing emergency care.

Among respondents 47.06% reported that during triaging they start providing emergency care to victims who cannot move nor raise hands nor speak. This is a good practice as these victims are in immediate need for care category and coded red as they are severely injured. According to Lerner et al. (2011), this group of people should receive immediate health support before being referred to the nearest health setting to receive advanced life support.

On attending the unconscious victims, with no neck injury, a majority of respondents (62.7%), stipulated that they should be allowing the air entry by chin lift and head tilt which is the correct action. According to Tscherne (2013), this should be done in order to prevent airway blockage and to facilitate air movement in respiratory structures.

Among respondents, a large majority (86.3%) reported that for unconscious victims they would palpate to feel if the big blood vessels are beating at the neck to check if the victim's heart is beating or not. The study done by Baduni et al. (2014) found out that "18.27% of responders knew the correct location to check for pulse (either carotid)"

When the victim is having big cuts on his leg with severe bleeding the large majority (94.1%) of respondents reported that they could apply the bandage or linen at the site. This is the correct action to be taken and it is supported by IFRC (2016) that stipulate that the bandage application on the bleeding limb help in decreasing the severity of bleeding and associated complications of heavy hemorrhage.

When respondents were asked how they can handle victims with back and neck injury at the scene, a large majority (96.1%) reported that they put the victim onto the hard board and apply neck collar. This is the correct practice as it is supported by IFRC (2016) that recommend the application of hard board and neck collar to minimize further injuries of neurological tissues.

This technique should be done by health providers who have prior training and sufficiently skilled in order to avoid further harm that can be associated with mismanagement.

When respondents were asked how to shift the victim to the hospital, a large majority (96.0%) reported using ambulance which is the correct means of transport of RTA victims as it has all materials needed for secure transportation of injured people such as hard board, oxygen delivery equipment, fluids and drugs necessary for resuscitation such as normal saline 0.9%, oxygen, etc., while the minority (4%) reported using public transport. The public transport for RTA victims can be associated with secondary injuries and further complications as it does not have all materials necessary for safe transportation for injured people comparing with ambulance which are well equipped in terms of adequate materials for resuscitation and well trained health professionals (Subhas and Appleby,2011).

During transport and within the first 24 hours, the majority (66.7%) reported to administer IV fluid like Normal Saline 0.9% with big IV line to correct hypotension which is the correct action and the minority (33.3%) reported to administer IV fluids like glucose 5% with big IV line to correct both hypoglycemia and hypotension which is incorrect action as glucose 5% cannot correct hypotension. According to Brandel (2015) in case of accident, the blood and body fluid are lost due to injuries, leading to hypotension, blood component concentration and vital organs damage occur if appropriate actions are not taken in order to replace the blood and fluid loss. "Isotonic fluids such as NS or RL provide the greatest volume expansion and Dextrose is used in the prehospital environment for medication infusions of dopamine or amiodarone" (Guy,2013).

Respondents were asked other further emergency treatment they are going to give within 24 hours. A large majority (84.3%) said to stabilize the bleeding, give antitetanus vaccine and serum and administration of antibiotics to cover the client and take the blood sample. This is the correct action in the first 24 hours as bleeding must be stabilized, antitetanus vaccine and serum as the RTA victim carries a high risk of tetanus contamination, antibiotic with broad spectrum activities should be advocated to be prescribed and administered to the victim as the risk of infection is also high and blood sample should be taken and analyzed in laboratory in order to obtain victim hematological baseline (IFRC,2016). As argued by WHO (2013) emergency management of wounds in post-traumatic events, both tetanus immunization and tetanus immunoglobulins should be administrated independently on their vaccination history as many

of them, their tetanus vaccination history can be unknown. Furthermore Ingole et al. (2016) argued that considering tetanus vaccination history among traumatic patients can be a confusing factor in proper management of traumatic victims.

### **5.6 Relationship between demographic characteristics and KAP**

The relationship between demographic characteristics and KAP of nurses was assessed. When assessing the association between demographic information and level of practice, being trained on emergency management of trauma victims before was associated with level of practice ( $\text{Chi}^2=12.632$ ,  $P=0.006$ ). This is in contrast with the study done by Kassa et al. (2014) in Ethiopia who found that “Institution, level of education and training had significant association with attitude of nurses. There were no statistically significant relationships between age, gender, work experience, and duration of training with nurses’ attitude”

Respondents who reported being trained and reported having very high level of practice had sixteen less than very low practice. Respondents who reported being trained and reported high level of practice had fifteen less than very low practice. Respondents who reported being trained and reported moderate level of practice had sixteen less than very low practice. Respondents who reported being trained and reported having low level of practice had fifteen less than very low practice. This means that training done before; leads to more correct practices to manage RTA victims and the trained nurse had very low probability of doing poor practice in emergency care of RTA victims. These findings had been supported by Arreola-Risa et al.(2007) who stipulated that the training practice have the proposition of strengthening the level of performance of health professionals working at A&E service and before starting work at A&E service the newly employed should receive prior training and the ones experienced should receive refresher courses in terms of A&E activities including management of trauma patients. These authors further revealed that the training program contributed in decreased mortality from 6.3 to 2.5 % for all traumatic patients in A&E. Another study done in India by Mahmoudi et al. (2013) showed that the lack of training among nurses can lead to inappropriate care provision and insufficient quality of care. Therefore all health care providers who engage in the management of traumatic patients need to be trained and it is also crucial to institute trauma organization in the country and have health care providers trained to offer competent health care to trauma victims (Prasad,2013).

The knowledge, attitude and practice of nurses working in A&E can be influenced positively by the training. The training maintains good practice in management of RTA victims.

## **CHAPTER 6: CONCLUSION and RECOMMENDATIONS**

### **6.1 Introduction**

This chapter is addressing the conclusions drawn from the obtained results and recommendations to different areas of practice in order to improve the emergency nursing care of RTA victims.

### **6.2 Conclusions**

The purpose of this study was to assess the nurse's knowledge, attitude and practice in emergency care of road traffic accident victims. The specific objectives were to determine the knowledge of nurses on emergency care of RTA victims, to describe the attitudes of nurses on emergency care of RTA victims, to describe the nurses' emergency care practices to be delivered to RTA victims and to establish the relationship between demographic characteristics and KAP of nurses at Accident and Emergency departments. The cross sectional study design was used and a sample of 51 nurses was used.

This study revealed that, in general, the knowledge of nurses working at Accident and Emergency service in the management of RTA victims is relatively high. They had positive attitude towards emergency management of RTA victims .The practice of nurses in emergency management of RTA victims is generally very high .It also showed that the more the experience, the better the practice in management of RTA victims. Furthermore, the training enhances good practice in management of RTA victims.

### **6.3 Recommendations**

The recommendations will be presented according to management and policy development, practice, education and future research.

#### **In terms of management and policy development:**

- It is hoped that the study findings will inform policy, guidelines and protocols to be used in the running of the Accident and Emergency Department, specifically in relation to the management of RTA victims.

- Guidelines and protocols should be made easily accessible and staff encouraged familiarizing themselves with them.
- Review meetings and audits to evaluate performance in the management of RTA should be conducted regularly to learn from mistakes and reinforce the good practice.

**In terms of practice:**

- The newly employed in Accident and Emergency service should receive prior training in emergency care of RTA victims and the experienced employees should receive refresher courses regularly.
- Training programs should be planned and implemented regularly to nurses working in Accident and emergency department.
- Training manuals, guidelines and protocols used in emergency management of RTA should be available in all health settings especially in A&E services.
- Nurses in charge of Accident and Emergency services should utilize the results of the present study to request to policy makers for organizing regular continuous professional developments in terms of training of nurses in emergency management of RTA victims so that the quality care provided to RTA victims is improved and mortality and morbidity related to RTA are reduced.

**In terms of education:**

- Schools of medicine and health sciences should use the findings of this study in order to know where to emphasize in preservice training so that the future nursing/health professionals would enter health service being already prepared and it will facilitate the future health activities.
- The findings of this study should be used to design a module regarding the gaps of nurses working at Accident and Emergency service.

**In terms of research:**

- The researchers focused only on three selected Rwanda hospitals due to limited time, resources, funds and personnel therefore further studies should be done in this field using a larger sample size.
- The future studies should use mixed methods for data collection including observation to produce more reliable results.

This study revealed that the knowledge and practice of nurses is generally good and their attitude is generally positive in emergency management of RTA victims but still there are considerable proportion of nurses who had poor knowledge and practice and negative attitude towards emergency management of RTA victims. It also revealed that training and experience contribute greatly to good practice in terms of emergency management of RTA victims.

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## **APPENDICES**

### **APPENDICE 1: ENGLISH QUESTIONNAIRE ADRESSED TO NURSES**

My name is Claudine NSHUTIYUKURI; I am a student nurse in Masters Program, track of Critical Care and Trauma at University of Rwanda/School of Medicine and Health Sciences. In order to accomplish my studies, a final thesis has to be written. My thesis title is ‘Assessment of nurses’ Knowledge, Attitude and Practices in emergency care of Road traffic accident victims at three selected Rwanda hospitals.

#### **Instruction:**

1. This questionnaire is addressed to you individually. Choose and circle the answer that seems best for you from the alternatives that are under each question and for those that you give direct answer, write the answer in the space provided.
2. The questionnaire is anonymous; don’t put your name anywhere on this questionnaire.
3. Note that your participation in this study is voluntary. You can withhold or withdraw at any stage without any penalty or punishment.
4. This tool that is going to be used for data collection will remain the property of the researcher and it will be destroyed after 5years and the information you give during this study will be confidential and will be used for study purposes of this study alone
5. This questionnaire is made of 4 parts with 32 numbered questions: part 1: socio demographic characteristics, Part 2: Knowledge on RTA emergency care Part 3: Attitude on RTA emergency care and Part 4: Practice on RTA emergency care.
6. Your contribution is valued greatly

## SECTION A: SOCIO DEMOGRAPHIC CHARACTERISTICS

1. Age: .....
2. Gender
  - a. Male
  - b. Female
3. Educational status
  - a. A2
  - b. A1
  - c. A0
  - d. Masters
  - e. PhD
  - f. Other specify...
4. Marital status
  - a. single
  - b. married
  - c. widowed
  - d. divorced
5. Working experience in emergency and trauma unity: In months ....
6. training

	Yes	No
a. Have you ever been trained on emergency management of trauma victims before?		
b. Have You ever been trained on triaging system of traumatic patient ?		

## SECTION B: KNOWLEDGE ASSESSMENT REGARDING RTA CASUALTY

7. We have to suspect a spinal injury for a victim of RTA who has the following:
  - a) Patient with extremities bleeding
  - b) RTA with multiple traumas of trunk
  - c) Every victim of RTA
8. How can you know if the victim is severely injured?
  - a) The victim is complaining the pain

- b) The victim has complexity of problems in breathing
- c) The victim is not awake, cannot follow command and he/she has a change in heart beat

9. How can you know if the victim is breathing?

- a) Check on chest movement up and down
- b) Palpate or check if neck big blood vessel is beating
- c) Check for abdominal movement

10. How can you know if the victim has circulatory shock?

- a) Rapid heart beating or rapid pulse
- b) Difficult breathing with wheezing
- c) Warm and pink skin

	<b>4. Strongly Agree</b>	<b>3. Agree</b>	<b>2. Disagree</b>	<b>1. Strongly disagree</b>
11. I believe that it is necessary to provide first aid immediately for road traffic accident victim at scene				
12. I am willing to provide emergency care for RTA victim				
13. I am not willing to provide emergency care to RTA because I fear blood as I can be infected by blood borne diseases.				
14. I am not willing to provide emergency care to RTA because I don't know how to provide emergency care to RTA as I am not sufficiently trained				
15. I am not willing to provide emergency care to RTA because I could apply wrong treatment and cause harm				

16. In case of an accident, I think community are the one of the first line responders to assist in the life saving				
17. In case of an accident, I think the community role is to communicate the accident, never touch the victim				

18. Throughout quick assessment of the injured victim of RTA, what to assess immediately

- a) ABCDE(Airways, Breathing, Circulation, disabilities and Exposure)
- b) Bleeding area
- c) The Respiratory pattern

**SECTION C: ATTITUDE ASSESSMENT REGARDING RTA VICTIMS**

**SECTION D: PRACTICE ASSESSMENT REGARDING RTA EMERGENCY CARE**

	Yes	No
19. Have you ever been involved in the emergency care of RTA victims at the scene or at hospital ?		

**A case study:** You are called to provide emergency care at accident scene of RTA with mass casualty and you are informed that there are victims who have difficulty breathing and hemorrhage.

20. What are you going to do first?(Circle correct response)

- a) Quick checks of surrounding for safety
- b) Secure the area
- c) Rush the victim to hospital for quick assistance

21. During triaging you will start providing emergency care to:

- a) Victims who can move for seeking emergency medical care
- b) Victims who cannot move but can rise up hand or shout(speak)
- c) Victims who cannot move nor raise up hands nor speak

22. On attending the unconscious victim, with no neck injury, what are you going to do?

- a) Allow air entry by chin lift and head tilt
  - b) Remove victim cloth to allow free air
  - c) Quick rush to the hospital
23. How to check if the victim's heart is beating or not
- a) To palpate to feel big blood vessels beating at the neck
  - b) Check on chest movement up and down
  - c) Check on bleeding status
24. The victim is having big cuts on his leg with severe bleeding, what are you going to do?
- a) To apply bandage or linen at the site
  - b) Quick rush of victim to the hospital
  - c) Victim can tell you which part to hold
25. During the accident you find the victim with the back and neck injury, how can you handle this victim at the scene?
- a) To roll victim on hard board and apply neck collar
  - b) To lift the victim to the car using more than two people.
  - c) Quick rush of the victim to hospital
26. How are you going to shift the victim to the hospital?
- a) Ambulance
  - b) Public transport
  - c) Others (Specify) .....
27. During transport and within the first 24hours, which IV fluids are you going to give :
- a) IV fluids like Normal Saline 0.9% with big IV line to correct hypotension
  - b) IV fluids like glucose 5% with big IV line to correct both hypoglycemia and hypotension
  - c) IV fluids with normal saline 0.9% to manage hypotension and glucose 5% to manage hypoglycemia
28. Which are other further emergency treatment are going to give within 24 hours?
- a) Stabilize the bleeding, give antitetanus vaccine & serum
  - b) Stabilize bleeding and give antibiotics to cover the client

- c) Stabilize the bleeding, give antitetanus vaccine & serum and administration of antibiotics to cover the client and take the blood sample

## Appendice 2: Six brief emergency equipment knowledge test



(Rominski et al.,2011)

1. What is the name of this equipment?

---

A. What is it used for? (choose one)

- a) check blood pressure
- b) arm pain
- c) vomiting
- d) back injury support
- e) I don't know



(Rominski et al.,2011)

2. What is the name of this equipment?

---

B. What is it used for? (choose one)

- a) bleeding
- b) toothache
- c) neck weakness
- d) neck injury support
- e) I don't know



(Rominski et al.,2011)

3. What is the name of this equipment?

---

A. What is it used for? (choose one)

a) bleeding

b) vomiting

c) swollen leg

d) assist breathing by giving oxygen

e) I don't know



(Rominski et al.,2011)

4. What is the name of this equipment?

---

A. What is it used for? (choose one)

- a) vomiting
- b) seizure
- c) assist breathing
- d) toothache
- e) I don't know



(Rominski et al.,2011)

5. What is the name of this equipment?

---

B. What is it used for? (choose one)

- a. vomiting
- b. Avoid tongue to block respiratory ways
- c. bleeding
- d. toothache
- e. I don't know



(Rominski et al.,2011)

6. What is the name of this equipment?

---

A. What is it used for? (choose one)

- a) check blood pressure
- b) arm injury
- c) swollen arm
- d) arm weakness
- e) I don't know

**A**

## **Appendice 2: RESPONDENTS' INFORMED CONSENT FORM FOR RESEARCH STUDY**

**Dear Nurses,**

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

My name is Claudine Nshutiyukuri and I am a student in Masters of Science in Nursing at the University of Rwanda (UR). I am conducting a research study titled “**Assessment of nurses’ knowledge, attitude and practice in emergency care of road traffic accidents victims at three selected Rwanda hospitals**”. The aim of the present study is the assessment of nurse’s knowledge, attitudes and practices in emergency care of road traffic accident victims at Rwanda Military hospital, Rwamagana provincial hospital and Masaka district hospital.

Before agreeing to participate in this research study, it is essential that you read and understand the following explanation of the study.

#### **Explanation of Procedures**

This research study is designed to assess of nurses’ knowledge, attitude and practice in emergency care of road traffic accidents victims. Participation in the study involves completing a questionnaire, which will take approximately 30 minutes. The questionnaire is in English

#### **Risks and Discomforts**

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

#### **Benefits**

There are no direct benefits from your participation in the study. However, it is hoped that the findings will inform the hospital policy maker for fostering, improving and sustaining emergency care of road traffic accidents victims in nursing practice that will result in improvement of quality care.

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

Participation in this study is voluntary; if you choose not to participate your right to do this will be respected. You are free to withdraw consent and discontinue participation in this study at any time without prejudice.

### **Anonymity**

Information gathered during this study will be anonymous. You are not required to put your name or addresses on the questionnaire. And there is no one who will have access to the information on the questionnaire except the researcher and her supervisor. The results of this research will be submit for examination, and may be published. No names or any other identifying information will be included in any published documents.

### **Opportunity to ask questions**

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 [nshutiukuric@gmail.com](mailto:nshutiukuric@gmail.com) or phone me at +250788661755 or contact my supervisor Dr GISHOMA Darius at [gisho3@yahoo.fr](mailto:gisho3@yahoo.fr). 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: Assessment of nurses' knowledge, attitude and practice in emergency care of road traffic accidents victims at three selected Rwanda hospitals.

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