ASSESSMENT OF THE EFFECTIVENESS OF INTERVENTIONS USED IN PREVENTING ROAD TRAFFIC ACCIDENTS IN TANZANIA: A CASE STUDY OF KIGOMA UJIJI

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A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SOCIAL WORK (MSW)

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OF THE OPEN UNIVERSITY OF TANZANIA

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CERTIFICATION

The undersigned certifies that she has read and hereby recommends for acceptance by The Open University of Tanzania, a dissertation entitled **"Assessment of the Effectiveness of Interventions used in preventing Road Traffic Accidents in Tanzania: A case study of Kigoma Ujiji",** in partial fulfillment of the requirement for the degree of Master of Social Work of the Open University of Tanzania.

……..

Dr. Mariana Makuu

(Supervisor)

…….

Date

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DECLARATION

I, **Stella Boniface**, declare that, the work presented in this dissertation is original. It has never been presented to any other University or Institution for the same purpose. Where other people's works have been used, references have been provided. It is in this regard that I declare this work as originally done by the researcher. It is hereby presented in partial fulfillment of the requirements for the award of Masters Degree in Social Work (MSW) of the Open University of Tanzania.

…….

Signature

……..

Date

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Lastly, my sincere also goes to all respondents who participated in the study for their valuable works and assistance.

DEDICATION

This Research is dedicated to the Almighty God, my late mother Sarah Herman Mavura and my beloved Son Akram Kaswel who laid the foundation of my education.

ABSTRACT

This study assessed the effectiveness of interventions used in preventing road traffic accidents in Tanzania using a case of Kigoma Ujiji Municipal. The study identified the interventions used in reducing traffic accidents; analyzed the strengths of the interventions employed in reducing traffic accidents, and ascertained the weakness of interventions employed in reducing traffic accidents in Kigoma Ujiji. The study used a survey research design where a sample of 97 respondents was obtained. Quantitative data were analysed descriptively through the use of SPSS software while qualitative data were analysed through content analysis. The findings revealed that the interventions used in reducing road traffic accidents included; improving traffic signals, penalties, and vehicle inspection; improving road conditions, type and design engineering; enforcing traffic laws and regulations; prevent under aged driving and unlicensed drivers; and enhancing training and education to road users. On the other hand, the strengths of interventions employed by the police force in Kigoma Ujiji resulted in influencing road safety as a political agenda; influencing and enhancing behaviour change among road users, and professionalism in driving. The shortcomings of the intervention found were ineffective traffic management, corruption, the wrong use of vehicle inspection equipment, poor road marking, a lack of political will addressing road safety and security issues, and insufficient driver licensing. To improve road safety in Kigoma Ujiji, frequent vehicle inspections, and driver education are required. Moreover, regular training is needed within the school systems.

Keywords: - Effectiveness of interventions, road traffic accidents, Kigoma Ujiji.

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LIST OF ABBREVIATIONS & ACRONYMS

DALYs	Disability Adjusted Life Years
DNC	Driver non-Compliance
LMICs	Low and Middle Income Countries
NIT	National Institute of Transport
RTAs	Road Traffic Accidents
SARF	Social Amplification of Risk Framework
SPSS	Statistical Package for Social Science
UK	United Kingdom
USA	United States of America
WHO	World Health Organisation

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CHAPTER ONE

BACKGROUND INFORMATION

1.1 Introduction

This chapter presents information regarding the background to the research problem. It also provides information on the statement of the problem, general and specific objectives of the study. It further presents research questions designed from specific research objectives. Additionally, the significance of the study is presented along with scope of the study.

1.2 Background to the Problem

Road traffic injuries are the eighth leading cause of death globally with an impact similar to that caused by many communicable diseases, such as malaria; for young people aged 15–29, they represent the leading cause of death (WHO, 2013). Approximately 1.24 million people die every year on the roads worldwide, and another 20 to 50 million suffer from nonfatal injuries as a result of road traffic crashes. In high-income countries, such as USA, UK and China, most of those people killed or injured in road traffic crashes are drivers and passengers of four-wheeled vehicles. In Europe, annually, road crashes result in almost 120 000 fatalities and 2.4 million injuries and road traffic injuries are the leading cause of death among adolescents and young adults (Deshpande, 2014).

It is estimated that the number of deaths from road accidents in Asia is about 700,000 per year, accounting for more than half of the world's road fatalities even though Asia accounted for only 43 per cent of the global vehicle population in 2007. In low-

income and middle-income countries, however, vulnerable road users – pedestrians, cyclists and motorcyclists and users of public transportation vehicles – are a higher proportion of road users, and consequently they represent a larger proportion of those injured or killed on the roads (Juma, 2018).

Africa is currently experiencing the highest per capita rate of road fatalities in the world. The World Health Organisation (WHO, 2018) estimates the rate of road traffic deaths at 24.1 per 100,000 people in Africa. By comparison, this rate is 18.5 in Asia and 10.3 in Europe. The problem is set to worsen. According to projections by WHO, road fatalities in sub-Saharan Africa will increase by 112%, from approximately 243,000 in 2015 to 514,000 in 2030 (WHO, 2019). Road traffic accidents have enormous health consequences all around the world and the public health burden attributable to these accidents is increasing (Stratton *et al.*, 2016).

Moreover, in most developing countries in the world such as African countries (Tanzania in particular) where the burden is the greatest, there is little or no viable interventions for the prevention and control of the consequences of such accidents. Policy makers and safety professionals in every country find it very difficult to institute changes which result in a dramatic decrease in fatalities due to injuries in accidents (Juma, 2018). This is mainly because experience shows that individuals do not follow all the instructions given to them to promote safety. Attempts to educate people regarding safety are also not very effective and wide variations are found between people's knowledge and their actual behaviour (Runyoro et al., 2014).

Road traffic accidents (RTAs) are a growing but neglected global health crisis, requiring effective prevention to promote sustainable safety (Museru, 2002; Stratton *et al.*, 2016). RTIs are the eighth leading cause of death, accounting for 75.5 million disability-adjusted life years (DALYs) globally in 2010 (Stratton *et al.,* 2016). Globally, 1.24 million people succumb to road traffic accidents (RTA) every year, 92% of which have been reported from low and middle-income countries and almost 60% of the victims are from 15-44 years age group (WHO, 2013). Realizing the public health concern, the current decade 2011-2020 has been declared as the Decade of Action for road safety, with a goal of first stabilizing and then decreasing the anticipated magnitude of RTA associated mortality by augmenting the global efforts at national and international level (Juma, 2018).

In low- and middle-income countries (LMICs) road traffic accident is a major global public health problem (Gilyoma and Chalya, 2014). Rapid motorisation in low and middle-income countries (LMICs) along with the poor safety quality of road traffic systems and the lack of institutional capacity to manage outcomes contribute to a growing crisis (Massami, 2014). Deshpande (2014) claimed that the Commission for Global Road Safety believes that the urgent priority is to halt this appalling and avoidable rise in road accidents and then begin to achieve year on year reductions. It is believed that the world could prevent 5 million deaths and 50 million serious injuries by 2020 by dramatically scaling up investment in road safety, at global, regional and national levels (Deshpande, 2014).

Who (2013) has reported a notable increase of road traffic accidents in LMICs that is attributed to the economic situation in terms of their government's lack of resources to invest in traffic safety; cultural beliefs regarding the fatalism and injuries; lack of research and low literacy rates precluding road users risk perception, risk attitude, risk willingness and risk taking behaviour associated with traffic accidents. Other attributes include political instability, occasionally predominated by non-democratic governments, that leads to poor allocation of resources on road safety; competing public health problems particularly with the emergence of diseases such as HIV/AIDS; distinctive traffic mixes comprising a substantial number of vulnerable road users and the rapid rate of motorization that has occurred without a concomitant investment in road safety strategies and land use planning.

Risk culture and risk tolerance behaviour exhibit largely the use of modern means of road transportation in Tanzania. Safety culture related to vehicle control is not a practice in Tanzania (Moshiro, 2012). According to police report (2012) mechanisms set to receive accidents reports are based on Insurance Act of 1977 and Criminal law of 1973. No treatment to any kind of injury in any hospital before filling out a police form PF3 to determine the source or cause of the injury as stated in Criminal law of 1973. These two mechanisms contribute to about 90% of the legal reported road accidents in the country. The high rate of road traffic accidents in the country has become a great challenge and the government efforts through police force to overcome the problem has shown less positive effect (Gilyoma and Chalya, 2014).

Madiro et al, (2013) reported that the challenges for road traffic accidents need to be analyzed within a multiple dimension such as the rapid increase in urbanization, poor traffic management and corruption. According to Madiro et al (2013) these factors are some of the forgotten dimension in the study about road safety and traffic accidents. They concluded that improving traffic signals, penalty and vehicle inspection, road conditions, and type and design or engineering, and vehicle engineering have an impact. Although, Tanzania government emphasizes on enforcement of traffic law and regulations through big penalties and demotions of traffic officers; studies show that road accidents are caused by human factors, state of road and vehicle factors in most cases (Turki, 2014; Akhtar, 2012). The failure to have compressive short and long-term plans to address those three factors could be one of the causes of the persistence of the problem (Juma, 2018).

It is reported by Giloma and Chalya (2014) that urban road traffic and driving culture in Tanzania is partly characterized by low level of safety behaviour, arrogant attitude, under-aged driving and unlicensed drivers. Such drivers are reported to be more reckless, non-cautious and inconsiderate to other road users. Yet, according to WHO (2013) road traffic deaths and serious injuries are to a great extent, preventable, since the risk of incurring an injury in a crash is largely predicable and many counter measures are proven to be effective and existing. It is from that background that this study aimed at assessing the interventions used to prevent road traffic accidents in Kigoma region.

1.3 Statement of the Problem

Although all age groups are at risk, young people are particularly affected by RTAs. Half of all global road traffic deaths occur among the vulnerable road users (pedestrians, bicyclists, motorcyclists and their passengers) (WHO, 2015). There are economic costs associated with RTAs at individual and national levels. Costs are associated with provision of care and rehabilitation, and with the loss of an economic work force through disability or premature death (Nguyen et al., 2013). Manyara (2013) reported that in Kenya over 3000 people die through road accidents every year, most of them between the ages of 15 and 44 years where its costs to economy from these accidents is in excess of US$ 50 million exclusive of the actual loss of life. In Tanzania, the statistics by the Traffic Division of the Tanzania Police Force shows that there were 3,969 deaths from road accidents countrywide in 2012. In 2013 the death was 4,002 and death in 2014 was 3,760. In that regard, the total number of road accidents in 2012 was 23,578 and 23,842 in 2013. However, there was a relatively dramatic drop, to 14,360 accidents, in 2014 (Business Times, 2014). In 2015 the road traffic accidents were 15,790, in 2016 there were 16,008 accidents and in 2017 there were 15897 accidents (Tanzania Traffic Police Report, 2018).

However, 80% to 90% of the road traffic fatalities are attributed to driver non-compliance (DNC) to road safety regulations (Juma, 2018). DNC is an output of bad driver behaviours such as excessive speed, drunk/drug driving, failure to wear a seat belt, etc. that are responsible for the road fatalities (Lukyamuzi & Friday, 2014). Studies in Tanzania have shown that DNC to road safety regulations can be attributed to social norms, poor road infrastructure, absence of road communication

technologies in the country and human error that has been the major cause of road accidents due to their behaviour and attitude (Mawanga &, Ntayi, 2010; Friday, 2012 & Friday *et al*., 2012). In addressing the challenge relating to the RTAs, different efforts were made in Tanzania including traffic legislation, law enforcement, training and education, vehicle safety and inspection, road traffic management and post collision assistance. Although there are a lot of literatures on the TRAs based on the causes, effects to all human life, interventions addressing the problem, little information on the effectiveness of these interventions used to prevent road accidents in Tanzania particularly in Kigoma Ujiji is not fully researched to alleviate the challenges. Yet, the huge economic burden exerted by TRAs and major interventions to prevent TRAs in Kigoma Ujiji have not been descriptively analyzed and modeled. Therefore, this study aimed at filling the above gap by assessing the effectiveness of the interventions used to prevent road accidents in Tanzania particularly in Kigoma region.

1.4 Research Objectives

1.4.1 General Objective

To assess the effectiveness of interventions used to prevent road traffic accidents in Tanzania with reference to Kigoma Ujiji.

1.4.2 Specific Objectives

This study addressed the following specific objectives;

i) To identify the interventions used by the Police Force in reducing road traffic accidents in Kigoma Ujiji;

ii) To examine the strengths of the interventions employed in reducing road traffic accidents in Kigoma Ujiji.

iii) To assess the weaknesses of the interventions employed in reducing road traffic accidents in Kigoma Ujiji.

1.5 Research Questions

This study was guided by following research questions:

i) What are the interventions used by the Police Force in reducing road traffic accidents in Kigoma Ujiji?

ii) What are the strengths of the interventions employed in reducing road traffic accidents in Kigoma Ujiji?

iii) What are weaknesses of the interventions employed in reducing road traffic accidents in Kigoma Ujiji?

1.6 Significance of the Study

1.6.1 Contribution to Knowledge Provision

This study might contribute as a knowledge base among people living in Kigoma region in particular Kigoma Ujiji for the reduction of road accidents as many causes have overtime been attributed to human and mechanical errors that cause accidents in Kigoma region.

1.6.2 Contribution to Policy makers

This study is important to policy makers who would use it to design strategies that will effectively reduce the numerous deaths caused by road traffic accidents to the barest minimum in the region.

1.6.3 Contribution in Practice

The study helps and ensures that police force are facilitated with gears necessary to combat the accidents with adequate resources channeled to the right direction in addressing the major causes of road traffic accidents (RTAs).

1.7 Scope of the Study

The study was limited to road traffic accidents in Kigoma Ujiji. It focused on identifying the interventions used by the police force in reducing road traffic accidents; analyzed the strengths of the interventions employed in reducing road traffic accidents and ascertained the weaknesses of the interventions employed in reducing road traffic accidents in Kigoma Ujiji.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents the definitions of key concepts, the theoretical review, empirical review, research gap and conceptual framework.

2.2 Definition of Key Concepts

- **Road Traffic Accident (RTAs)**

In this study road traffic accident means any fatal incidence that may render dislocation of people's parts of the body or death. These refer to collisions between vehicles; vehicles and pedestrians; vehicles and animals; or between vehicles and fixed obstacle (Moshiro, 2012). According to Global Status on Road Safety Report (2013), road traffic accident, occurs when a vehicle collides with another vehicle, pedestrian, animal, road debris or other stationary obstruction, such as a tree or utility pole. Moreover, a number of factors contribute to the risk of collision, including vehicle design, speed of operation, road design, road environment, driver skill and/or impairment, and driver behaviour (Madiro et al., 2013).

- **Intervention**

In this study, intervention means a way used to curb road accidents. This is a natural or established process by which something takes place or is brought about. Here approaches are adopted in order to create a safety culture that would involve proactive rather than reactive approaches to safety data driven with procedures for collecting and analysing data to be used as a basis for managing risk (Friday *et al*., 2012).

- **Effectiveness**

In this study effectiveness means capability or assets, tied to the attainment of an end towards prevention of road traffic accidents in Kigoma region, achievement of an objective or creation of an effect. Moreover, according to Wikipedia encyclopedia effectiveness is the capability of producing a desired result or the ability to produce desired output. When something is deemed effective, it means it has an intended or expected outcome, or produces a deep, vivid impression.

2.3 Theoretical Review

This study utilized social amplification of risk framework (SARF) theory that combines research in psychology, sociology, anthropology and communications theory (Moen, 2008). SARF attempts to explain that individuals or institutions can amplify perception through communication chain, for either receiving public attention or attenuated, receiving less public attention (Moen, 2008). The main thesis of SARF states that risk events interact with individual psychological, social and other cultural factors in ways that either increase or decrease public perceptions of risk (Nordfjærn et al., 2011). Nordfjærn et al., (2011) argued that one of the contributions to theoretical understanding of risk perception as a cognitive entity was articulated by social cognition theories. The theories argue that, risk perception is relevant for behavioural intensions and decision-making.

The concept of social amplification of risk is based on the thesis that events pertaining to road traffic accidents and hazards interact with psychological, social, institutional, and cultural processes in ways that can heighten or attenuate individual and social perceptions of risk and shape risk behaviour (Nordfjærn et al., 2011).

Moreover, the health belief model by Rosenstock (1974) is one of the social cognitive theories, which suggest that, protective behaviours are more likely to take place when individuals perceive themselves to be vulnerable of the risk source. In addition, cues to actions such as psychological distress, psychosocial problems, education, exposure, campaigns, demographic characteristics, culture, motivations and perceived control are considered moderators in the model (Rosenstock et al. 1994; Nordfjærn et al., 2011). An implication to the road traffic accidents is that, when people perceive themselves to be vulnerable of road traffic accidents at a place, they also become more motivated to reduce the probability and consequences of such accidents by for instance influencing political agenda as well as a demand for risk mitigation by the public.

Another social cognitive theory developed by Weinstein (1988) proposed three step process for precaution adaptation before a preventive behaviour; detection of the risk source; interpretation of the potential effect of the risk source upon humans and realisation of their vulnerability to the risk source. After these three steps, behavioural change or adjustment may occur because of perceived consequence of the hazard. In addition, the social learning theory by Rotter (1954) cited also in Nordfjærn et al. (2011) suggests that, protective behaviours are partially determined by individual's estimates of the probability that a particular behaviour will lead to specific outcomes. It is rather associated with expectances of desirable outcomes by protective behaviour. According to Nordfjærn et al. (2011), the stronger the expectancy is of producing a desirable outcome the higher is the likelihood of a

specific behaviour suitable to produce desirable outcome. The implication of this approach to the traffic accidents or road safety is that, people will engage into enforcement mechanisms (such as system of traffic rules, controls, safety policy and safety practices) when such enforcement mechanism is perceived to be more likely to produce favourable results of safety in the traffic system

The concept of social amplification of risk provides a framework significant for the analysis of risk experience, and constitutes a dynamic framework that facilitates the systematic interpretation of empirical data and attempts to integrate the existing perspectives on risk (Nordfjærn et al., 2011). This theory can be applied in Tanzanian context from the fact that as stated by Turki (2014) vehicle inspections in Tanzania are undertaken aimlessly without proper operational planning to make sure that all vehicles and motorcycles are thoroughly checked. The inspection method does not guarantee the roadworthiness of the vehicles and traffic police only uses their eyes to inspect those vehicles without any specialized vehicle inspection equipment. Statistics show that most of the vehicles undergone vehicle inspection through machines at national institute of transport (NIT) despite its outside condition look good found with defections while undergone machines vehicles inspection. Yet, driver's training and licensing in the country process resulted in unqualified drivers. Above over 75% of the causes of the accident in the country are the human factor (Gilyoma and Chalya, 2014)**.** Moreover, roads are poorly maintained, marked and designed causing unnecessary accidents. The drivers' license provision fails to consider an important aspect such as age, driving experience and candidate attitudes (Juma, 2018). So, by using social amplification of risk framework mechanisms may

be put and implemented for the purpose of rescuing people from road traffic accidents in Kigoma region.

A number of criticisms have been raised of the amplification metaphor itself. First, that it might be taken to imply that there exists a baseline or true risk readily attached to risk events, which is then distorted in some way by the social processes of amplification. It is quite clear that the proponents of the framework do not wish to imply that such a single true baseline always and un-problematically exists, particularly in many of the heavily politicized trans-scientific settings (Funtowicz & Ravetz, 1992) where amplification is most likely to occur. Their conceptualization of the amplification process in terms of transformation of signs, symbols and images is compatible with the view that all knowledge about risk entails some elements of social construction (Rosa, 2003). Here, the observation that experts and public sometimes disagree about risks is compatible with the claim that different groups might filter and make salient different aspects of an event. Nevertheless, as Nordfjærn et al., (2011) note, risk perceptions can have real consequences, and these may be direct, as are usually treated in technical risk analyses, or may result indirectly from the secondary processing of risk information (such things as stigmatization, social conflict, and loss of confidence in products or markets).

2.4 Empirical Review

2.4.1 Interventions used by police force in reducing road traffic accidents

Nordfjærn et al., (2011) in their cross-cultural comparison study of road traffic risk perception, attitudes towards traffic safety and driver behaviour study in Tanzania,

Uganda, Ghana, Russia, India and Norway found the differences in driver attitude and driver behaviours. They found that the risk constructs and driver attitudes explained the variation in risky driver behaviour in these countries where, Tanzanians reported the highest willingness to take risks both in traffic and in other contexts in general. Moreover, the study could not examine the interventions employed in reducing road traffic accidents.

A study by Aderamo (2012) on road traffic accident injuries and productivity that focused on reducing the incidence of road traffic crashes and improving road safety found that there was a clear relationship between road traffic accident injuries and productivity. He noted that the increase in road traffics crashes affect the labour sector. Finally, he recommended the need to improve road safety in the country implying that road traffic accidents contribute to poverty by causing deaths, injuries, disabilities, grief, and loss of productivity and material damages. Moreover, the study could not examine the interventions used by police force in reducing road traffic accidents.

Moshiro (2012) in his study revealed that the road traffic accidents cause problems in Tanzania. He was interested to identify risk factors associated with injuries among children below 18 years attending health facilities in Dar es Salaam. The study showed that road crashes is serious problem as a total of 492 children suffered injuries during the period of study. Falls represented the highest number of injured children (32.1%) followed by burns, RTI and cuts (25.8%, 13.6% and 10.4% respectively). The assumption of this study was that children are only part of the population composition. Though they are important in the family but their role is

minimal for the family to function properly so does the nation. Hence, this calls for a more comprehensive analysis of road traffic accidents in order to come up with knowledge in its totality across all age for the purpose of informing the academic theories, policy makers and government to take informed measures in dealing with road traffic accidents. Moreover, the study could not identify the weakness of the intervention employed in reducing road traffic accidents.

2.4.2 Strengths of interventions employed in reducing road traffic accidents

A report by International Transport Forum (2013) revealed that, in 2011, there was a 1.1% decrease in the number of fatalities in Argentina; however, the number of injury crashes increased by 11%. On the other hand, according to provisional data, there were 4,923 road fatalities in 2012, a 2.3%decrease in comparison with 2011. It was noted in the report that motorization was growing very fast in Argentina. The car fleet rose by 860 347 units in 2011, i.e. a 6% increase in new vehicles compared to 2010. The motorcycle fleet grew by 541 017 units, i.e. by 15% compared to 2010. The motorcycle fleet was growing twice as fast as the car fleet. In recent years there have been significant changes in relation to road crashes in Argentina. The data revealed a downward trend in total road fatalities between 2008 and 2011as there was a 12.5% decrease in total road deaths and an 11.8% decrease in the number of people killed at the scene of the crash. Between 2008 and 2011, the mortality rate, expressed in terms of deaths per 100 000 inhabitants, decreased by 15% and the fatality rate, expressed in terms of the number of fatalities per 100 000 registered vehicles, decreased by 29%. Moreover, this report could not identify strengths of interventions employed in reducing road traffic accidents in the area.

Massami and Myamba (2014) applied Multifactor Based Fuzzy Evaluation to determine the weight of influential factors based on real data over a period of time (weight by fuzzy approach), in comparison with expert's views and routine police evaluation of traffic accidents (weight by non-fuzzy approach) in Tanzania. The results indicated that; human element (error) is the major risk factor contributing to the cause of traffic accidents in Tanzania. Likewise, Massami (2014) used the risk factors (i.e. causes) of RTA in Tanzania Mainland established by the Ministry of home affairs-Traffic Police Department. According to the official statistics over the past two decades the major causes of road traffic accidents were reckless driving (i.e. inappropriate speed), defective motor vehicles, careless pedestrians, excessive speed, careless motor cyclists, careless pedal cyclists, intoxication. Moreover, the studies could not ascertain the weaknesses of the interventions employed in reducing road traffic accidents.

2.4.3 Weakness of interventions employed in reducing road traffic accidents

The WHO report (2013) presented an overview situation of the road traffic system in Tanzania, based on international health/safety standards set to assess/combat the problem of road accidents. The evaluation indicated that there was no institutional framework for the lead agency in the country. No national road safety strategy and no targets set for reducing fatality rates in the country. This was contrary to neighbouring countries such as Kenya and Uganda that has a well-established lead agency for the national road safety activities and their agencies were directly funded by the national budget. Moreover, the report could not assess the interventions used in reducing the road traffic accidents. Kircher and Anderson (2012) in their study

investigated truck drivers' opinions on road safety in Tanzania. In their survey, drivers reported driving trucks without average breaks, driving 24hrs without rest, and around 40% of the trucks driven by those drivers had completely no seatbelts. When the drivers were asked to mention the most three common crash causes, driver related causes were named frequently. Drivers were found to be reckless, intoxicated, inattentive or drowsy. Moreover, the study could not analyse the strengths of the interventions employed in reducing road traffic accidents.

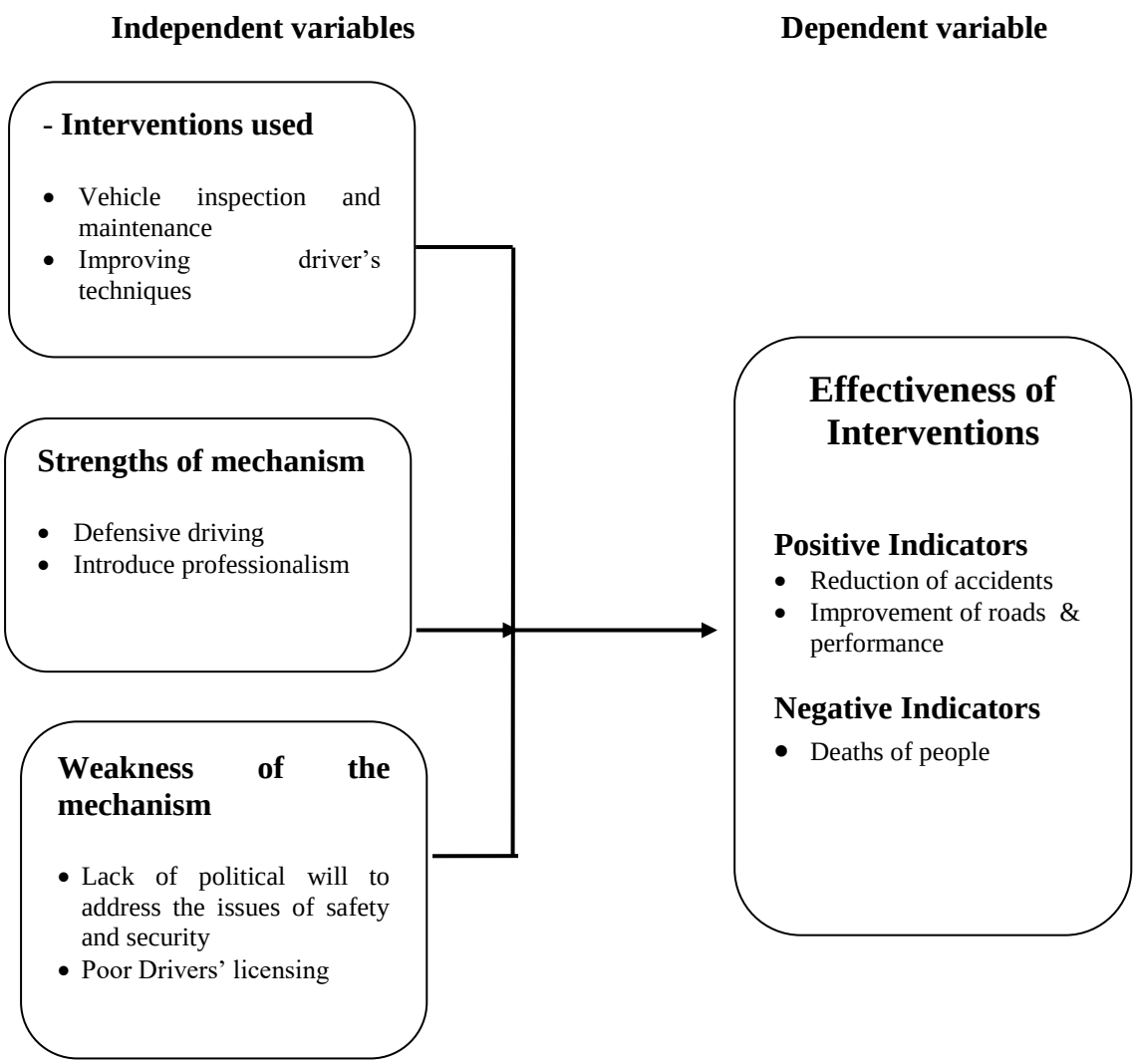
2.5 Research Gap

A critical literature review made for this study has identified several gaps that need to be addressed which this study will accomplish. There is an inadequate study that has researched the effectiveness of interventions used to prevent road traffic accidents in Tanzania. At the same time few studies reported that interventional measures are ignored by stakeholders thus resulting into prolonged accidents. Others concentrated in finding the causes and the challenges road traffic accidents put on peoples' lives. Road traffic accidents (RTAs) have emerged as an important public health issue which needs to be tackled by a multi-disciplinary approach. The trend in RTA injuries and death is becoming alarming in countries like Tanzania. The number of fatal and disabling road accident happening is increasing day by day and is a real public health challenge for all the concerned agencies to prevent it. The interventions to implement the rules and regulations available to prevent road accidents are often ineffective and half-hearted. Therefore, this study assesses the effectiveness of interventions used to prevent road traffic accidents in order to extend knowledge thereby curbing the challenge.

2.6 Conceptual Framework

Road accident is a critical problem faced by most countries around the world. Literature showed that human factors contribute the most with 80% of the road accidents in various countries. Traffic violation behaviour is one of the human factors leading to the road accident causation. A conceptual framework is a model of presentation that shows the relationship between variables graphically or diagrammatically (Creswell, 2012). In the figure below, there is one dependent variable that is the effectiveness of interventions, and three independent variables namely; the interventions used, their strengths and weaknesses.

Figure 2.1: Conceptual Framework



It is assumed that when interventions such as vehicle inspection, maintenance and driver's techniques are improved, accidents are reduced. Moreover, when police force insists on defensive driving while enhancing professionalism in driving; road safety is maintained. Additionally, in order to effectively reduce road traffic accidents political will needs to be addressed while making sure that there are no poor driver's licensing.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

In this chapter presents the research approach, research design, study area, population and sample size, sampling techniques, research instruments, validity and reliability issues, data analysis and ethical considerations.

3.2 Research Approach

The study utilized the both qualitative and quantitative approaches. In achieving the specific objectives of this study, both quantitative and qualitative approaches were used to get the in-depth information (Creswell, 2014). The reason for using this mixed approach is that it enables the researcher to organize data and findings concurrently to understand the research problem. The mixed approach has been selected to compliment data collection methods, analysis, and discussion of the findings and recommendations. Moreover, mixed methods are especially useful in understanding contradictions between quantitative results and qualitative findings. They reflect participants' point of view.

Mixed methods give a voice to study participants and ensure that study findings are grounded in participants' experiences and foster scholarly interaction. Completeness purpose in mixed methods research provides a holistic view of the phenomenon that cannot be achieved by one approach (Cresswell, 2012). Developmental purpose is associated more with a sequential mixed methods approach than a concurrent approach (Teddlie et al., 2009)

3.3 Research Design

This study used case study design. A case study design is often used to narrow down a very broad field of research into one or a few easily researchable can be applied (Yin, 2003). A case study design is a research strategy and an inquiry that investigates a phenomenon within its real-life context. It has been defined as an empirical inquiry that examines a contemporary phenomenon within the context of its real life. However, some people have disagreed with this research method arguing that the study of a small number of cases does not offer enough ground to establish reliability or generality of findings. Others have argued that a case study is only used when applied as an exploratory tool, yet most researchers continue using it successfully in carefully planned studies that concern real-life situations, problems, and issues.

A case study is an appropriate research design in gaining concrete, contextual, in-depth knowledge about a specific real-world subject. It allows researchers to explore key characteristics, meanings and implications of the case. Moreover, case study design allows in-depth, multi-faceted explorations of complex issues in their real-life settings (Cresswell, 2012). As noted from Yin, (2003) a case study is an empirical enquiry that investigates a contemporary phenomenon within its real life context especially when the boundaries between phenomenon and context are not clearly evident. Case studies are based on an in-depth investigation of a single individual, group or event to explore the causes of underlying principles. Case studies are often done in the subject's real-world context, which gives researchers a good view of what they are really like. Documents, questionnaires and interviews can all be sources of information for a case study (Cresswell, 2007).

3.4 Study Area

The study was conducted in Kigoma Region at Kigoma Ujiji Municipality that is the regional administrative capital. It focused on traffic police, drivers and LATRA as an agency.

3.5 Population and Sample Size

3.5.1 Population

The population in this study was drawn from Traffic Police, Drivers and LATRA in Kigoma Ujiji.

3.5. 3 Sample Size

The sample size included LATRA regional manager in-charge, traffic police and drivers from an approximate population of 3,240 participants.

Thus, the sample size of 97 respondents [25 from traffic police, 1 Officer in-charge LATRA and 71 drivers] will be drawn using a model proposed by Yamane, (1967) which shows the following relationship.

$n = N/ (1+Ne^2)$

Where
N = population size
n = sample size
e = confidence interval (10 percent)

Thus, $n= 3,240/1+ 3,240*(0.1)^2$

$n = 97$

The following table shows the distribution.

Table 3.1: Sample Distribution

Category	Sample size
Traffic police	25
Drivers	71
LATRA	1
Total	**97**

3.6 Sampling Techniques

Purposive and simple random sampling procedure were used. Purposive sampling is a non-probability sampling method and it occurs when elements selected for the sample are chosen by the judgment of the researcher (Yin, 2003). Researchers use purposive sampling when they want to access a particular subset of people, as all participants of a study are selected because they fit a particular profile. Purposive sampling (also known as judgment, selective or subjective sampling) is a sampling technique in which researcher relies on his or her own judgment when choosing members of population to participate in the study (Kombo and Tromp, 2006).

Researchers often believe that they can obtain a representative sample by using a sound judgment, which results in saving time and money as it is the most cost-effective and time-effective sampling methods available, the only appropriate method available if there are only limited number of primary data sources who can contribute to the study and it effective in exploring anthropological situations where the discovery of meaning can benefit from an intuitive approach (Cresswell, 2007). Therefore, purposive sampling was used to select LATRA regional manager in-charge and traffic police. These are knowledgeable with regard to phenomenon under investigation (Yin, 2003). Kombo and Tromp (2006) assert that, purposive sampling technique is used when choosing the individuals or objects that are the only ones to give the rich data about certain facts.

On the other hand, simple random sampling was a method used. Simple random sampling was used to select drivers in Kigoma region as follows. Their names were obtained from TRA or Regional Police Traffic office. The names were given codes to be used in a random selection technique where each driver was given a chance to pick a piece of paper that contained a number for participation in the interview due to their availability. The advantages of a simple random sample include its ease of use and its accurate representation of the larger population (Yin, 2003).

Because individuals who make up the subset of the larger group are chosen at random, each individual in the large population set has the same probability of being selected. This creates, in most cases, a balanced subset that carries the greatest potential for representing the larger group as a whole (Cresswell, 2007). As its name implies, producing a simple random sample is much less complicated than other methods, such as stratified random sampling. As mentioned, individuals in the subset are selected randomly and there are no additional steps. Major advantages include its simplicity and lack of bias. Among the disadvantages are difficulties gaining access to a list of a larger population, time, costs, and that bias can still occur under certain circumstances (Kombo and Tromp, 2006).

3.7 Research Instruments

The instruments used included; interview to drivers where in-depth interview were undertaken and questionnaires to LATRA regional in-charge and traffic police.

i) In-depth Interview

This is a type of qualitative research tool involving an unstructured personal interview with a single respondent, conducted by a highly skilled interviewer. The purpose of in-depth interviews is to understand the underlying motivations, beliefs, attitudes, and feelings of respondents on a particular subject. Attributes that are important for the interviewer to have for this option include: a) open-minded where judgment or criticism can act as barriers to communication, so it is important to maintain openness during the interview process. If interviewees perceive that they are being judged or evaluated, then they are less likely to openly share their opinions; b) flexible and responsive where human interactions are complex and people's responses to questions are rarely predictable, so good interviewers can think on their feet, respond to challenges, and make sure that the core purpose is being served; c) patient where respondents are allowed to speak freely and open up at a pace that is personally comfortable; d) observant where good interviewers are observant, picking up subtle cues such as facial expressions, body language, and tone of voice and; e) good listener where a good listener is one who listens actively (Yin, 2003).

ii) Questionnaires

Questionnaires provide a relatively cheap, quick and efficient way of obtaining large amounts of information from a large sample of people. Often a questionnaire uses both open and closed questions to collect data. This is beneficial as it means both quantitative and qualitative data can be obtained. This is useful for large populations when interviews would be impractical (Yin, 2003). Moreover, questionnaires were administered to LATRA regional manager in charge and traffic officers to complete.

Participants were free to express their understandings, opinions, perceptions, experiences and feelings in relation to the study objectives. However, a problem with questionnaires is that respondents may lie due to social desirability (Cresswell, 2007).

3.8 Validity and Reliability Issues

Validity and reliability are important aspects for improving the quality of research process and results.

Bhattacherjee (2012) views validity as the degree of a measure that represents adequately the construct it is expected to measure. Trustworthiness from qualitative data was achieved in order to acquire credibility as a qualitative research is as similar to internal validity in quantitative research. The researcher assured trustworthiness through attaining credibility by using triangulation to show the research study's findings to be credible. Yet, the researcher assured transferability by demonstrating how the research study's findings are applicable to other contexts. Furthermore, the researcher assured conformability as the findings were based on participants' responses and not any potential bias or personal motivations of the researcher. This involved making sure that researcher bias does not skew the interpretation of what the research participants say to fit a certain narrative. Finally, to assure dependability the researcher provided room for replication.

Similarly, in this study, validity was assured through member checking of transcripts, triangulation of data collection methods (Interviews and questionnaire) and the use of

mixed approaches. Moreover, the researcher intended to collect data from different sources including documentary review. A careful selection of the sample from the target population and consideration of ethical issues by the researcher ensured validity.

However, reliability of the study refers to the extent to which the research instrument or procedures are consistently bringing the same information given the variation of time and respondent (Cooper and Schlindler, 2008). To achieve reliability of this study, the researcher tested the research instruments to similar respondents or setting and modify them accordingly. Therefore, through triangulation of research methods, member checking, piloting, consideration of multiple data sources and research ethics, the researcher ensured the quality of the data and findings that responds to the research problem.

3.9 Data Analysis

The collected data from the field were prepared through coding and editing of the data. This involved checking of data collection forms for legibility and consistency as well as discarding the incomplete responses which had missing data. This method assisted in coding both words and phrases depending on respondents' responses. This allowed open ended questions to be analyzed systematically while data being entered into a user friendly and retrievable database. Statistical Package for Social Sciences (SPSS) was used to code, analyse and summarize quantitative data. For quantitative data, descriptive statistics was applied.

Qualitative data from in-depth interviews were analyzed using content analysis focusing observer's impression. Content analysis involved recording the verbal discussions with respondents followed by breaking the recorded information into meaningful smallest units of information, subjects and tendencies and presented as a text. However, coding which is an interpretive technique that seeks to both organize the data and provide a means to introduce the interpretations of it into thematic analysis served on interpreting the meaning of the context.

3.10 Ethical Considerations Issues

- **Clearance**

Before leaving for data collection in the field, the researcher obtained the permission from the authorities such as permission from the University and the government institutions where the study was conducted.

- **Consent**

The permission allowed participants to sign the consent to participate in data collection process. Also, participants' freedom to participate was observed to involve or withdraw from the interview session. Verbal consent was taken from participants as participants were requested for their informed consent to affirm their willingness to participate in the study. Participation in the study was voluntary and one was free to refuse to answer particular questions. There was no right or wrong answers to the questions that was asked. Participants were told that they are free to withdraw from the interview at any time without the need to justify their decisions.

- **Prevention from Harm or Risk**

In this study, no attempt was made to harm participants deliberately and those who

could experience any form of harm be it through victimization, emotional or otherwise, were informed in advance of their rights to withdraw from participating in the study.

- **Privacy and Confidentiality**

In this study the data storage, tapes and transcripts were not labelled in the way that would compromise anonymity and confidentiality of the data provided by the participants. Also, privacy and confidentiality were maintained throughout the study period by excluding personal identifiers during data collection. The researcher ensured that all the information obtained was kept in strict confidence and only for the purposes of the study.

CHAPTER FOUR

RESULTS AND DISCUSSION OF FINDINGS

4.1 Introduction

This chapter presents the results and discusses the findings. It focuses on presenting the demographic information and findings as per objectives by identifying the interventions used by the Police Force in reducing road traffic accidents, examining the strengths of the interventions employed in reducing road traffic accidents and assessing the weaknesses of the interventions employed in reducing road traffic accidents in Kigoma Ujiji. To start with, the chapter commences with the demographic information.

4.2 Demographic Information

The demographic information included; gender, age, length in service and employment status as hereunder.

Table 4.1: Demographic Information

Category	Frequency	Percentage %
Gender		
Male	61	62.8
Female	36	37.2
Age (in years)		
< 20	04	4.2
21-30	45	46.4
31-40	28	28.8
41-50	12	12.4
51 and above	08	8.2
Employment Status		
Civil servant	26	26.8
Driver	71	73.2
Length in service (in Years)		
1-2	19	19.6
3-4	10	10.3
5-7	12	12.4
8 and above	56	57.7

Source: Research data, 2021

4.2.1 Gender

The results in Table 4.1 show that based on gender, the respondents consisted of 62.8% males and 37.2% females. Males dominated the study from the fact that, most of them were drivers. Moreover, females were few due to less involvement in driving aspects but showed that they were the most drivers who drove with care, thus causing little accidents compared to their counterparts.

4.2.2 Age

The results in Table 4.1 with regards to ages show that 4.2% of respondents were with less than 20 years. Respondents who were between 21 to 30 years were 46.4%, those who were between 31 to 40 years were 28.8%, those who were between 41 to 50 years were 12.4% and those between 51 and above were 8.2%. The results show that respondents aged between 21 and 30 years occupied a great percentage from the fact that this is the age that participates more in driving in order to fulfill and perform family related roles while being susceptible to accidents. Yet, a few who were aged below 20 years were found to learn and avoid accidents.

4.2.3 Employment Status

The results in Table 4.1 show that 26.8% of respondents were civil servants that included traffic police and LATRA regional manager in-charge. However, 73.2% of respondents were drivers.

4.2.4 Length in Service

The results in Table 4.1 show that 19.6% of respondents had a working experience of 1 to 2 years, 10.3% had a working experience of 3 to 4 years, 12.4% had a working

experience of 5 to 7 years while 57.7% had a working experience of 8 years and above. Those who had more than 5 years (especially drivers) were able to adhere to road safety laws and regulations than those with little experience something that enabled them avoid reckless driving.

4.3 Interventions used by the Police Force in reducing Road Traffic Accidents

The first objective of the study was to identify the interventions used by police force in reducing road traffic accidents in Kigoma Ujiji. Respondents' views were sought from administering the questionnaires and interviews. To obtain data on this aspect, the researcher asked respondents to express their views on the matter by indicating if they agreed or disagreed with the statements presented while providing additional views if any. The results were obtained and summarized in Table 4.2 as shown hereunder.

Table 4.2: Interventions Used

Statements	% strongly agree	% agree	% uncertain	% disagree	% strongly disagree
Improving traffic signals, penalties and vehicle inspection	75	15	0	10	0
Improving road conditions, type and design engineering	80	10	10	0	0
Enforcement of traffic laws and regulations	0	85	0	15	0
Prevention of under aged driving and unlicensed drivers	0	70	30	0	0
Enhancing training and education to road users	70	0	0	30	0
Enhancing vehicle safety and maintenance	60	10	0	30	0
Scaling up of investment on road safety nationally	60	0	30	10	0
Facilitating the use of risk culture and timeline behaviour in driving	85	0	0	15	0

Source: Research data, 2021

The results in Table 4.2 show that 75% of respondents strongly agreed while 15% of respondents agreed that improving traffic signals, penalties and vehicle inspection were among the intervention used by police. This implies that traffic signals enable drivers to adhere to rules if put in proper places and drivers are able to increase or decrease speed where necessary without enforcement. Also, upon violation of rules and regulations, drivers are liable to penalties as per rules to enable them attain proper adherence of rules. Moreover, there have been complaints on the intensity of penalties administered something that result into corrupt practices among stakeholders. Likewise, vehicle inspection has been an intervention to enable quality and safety driving although its enforcement has been accompanied with recklessness and lack of advanced equipment to test the vehicles. The statements above are in line with Lukyamuzi and Friday (2014) who reported that with drivers who drive while drunkard need to be penalized and their vehicles need to be inspected regularly for the safety of travellers. Moreover, 10% of respondents were in disagreement that improving traffic signals, penalties and vehicle inspection are not the only interventions relevant to prevent road traffic accidents. What is required is to change the people's attitudes and mentalities on how they can value the life of people who use the roads. One of the key informants was of the following view;

> *We need to change people's mind set on how to respect the rights of road users. When each user respects the other, road crushes may be eliminated or being reduced to the minimum.*

On the other hand, the results in Table 4.2 reveal that 80% of respondents strongly agreed and 10% of respondents agreed that improving road conditions, type and

design engineering were the interventions employed by police to prevent road traffic accidents. This implies that when road conditions are improved, the type and design engineering are done in an appropriate manner; the possibility to avoid accidents is higher. The statement above concurs with Gilyoma and Chalya (2014) who stated that the availability of good roads without drivers who respect the road users' rules is doomed to nothingness. Also, type and design engineering may be appropriate, but with reckless driving, accidents are unavoidable. Additionally, 10% of respondents were uncertain with regard to the intervention that deals with improving road conditions, type and design engineering from the fact that; there are places with improved road conditions with good design but they have become the place for accidents. It stated that vehicle conditions and irregular inspection have been the causative agents for such accidents.

Similarly, the results in Table 4.2 show that 85% of respondents agreed that enforcement of traffic laws and regulations is among the interventions employed to reduce road accidents in Kigoma Ujiji. This implies that when police are adequately enforcing the laws without corrupt attitudes, accidents are minimized. Likewise, 15% of respondents disagreed that enforcement of laws and regulations are not the only interventions to minimize road accidents, as the risks lies on the road users to ignore laws and regulations for their own benefits. One of the informants was of the following view;

> *We see police enforcing laws, but the hidden agenda is that when enforcing laws, some unethical police officers get bribed and necessitate accidents especially when vehicles are not in good conditions.*

Furthermore, the results in Table 4.2 show that 70% of respondents agreed that prevention of under aged driving and unlicensed drivers has been among the interventions to prevent road accidents. It was found that among licensed drivers, under aged drivers have been increasing. This has been necessitated by corrupt practices among unethical traffic police and TRA officers who collaborate in providing licenses to under aged people. One of the key informants was of the following view;

> *I came across two under aged drivers who in one way or the other did not undergo driver's training. They took advantage of having cars in their families, drove in the absence of their parents and utilized their family's influence to get licences in a forged manner. Their driving resulted into accidents something that was solved through corrupt practices altogether.*

Moreover, 30% of respondents were uncertain with regard to using prevention of under aged driving and unlicensed drivers from the fact that accidents have been increasing with the increase in provision of driving licenses to drivers. It was found that what is asserted as preventing accidents seems to lack commitment among enforcers of law.

Nonetheless, the results in Table 4.2 show that 70% of respondents strongly agreed that enhancing training and education to road users has been interventions to

eliminate accidents. This implies that enhancing knowledge among users of road has been a strategy towards road safety management. The above statements concur with Stratton *et al.,* (2016) who reported that road traffic accidents (RTAs) are a growing but neglected global health crisis, requiring effective prevention to promote sustainable safety. In addressing the challenge relating to the RTAs, different efforts are made in various countries including Tanzania such as enforcing traffic legislation, law enforcement, training and education, vehicle safety and inspection, road traffic management and post collision assistance. Moreover, 30% of respondents disagreed that enhancing training and education to road users has to go beyond attaining road safety because many in many developing countries many roads lack adequate traffic signs a situation that is said to increase the risks to road accidents. This is in agreement with Haulle and Kisiri (2017) who reported that in some areas traffic signs present direct wrongly or rather present false information when compared to what actually exists in practice.

Additionally, the results in Table 4.2 show that 60% of respondents strongly agreed while 10% of respondents agreed that enhancing vehicle safety and maintenance have been interventions to prevent accidents in Kigoma Ujiji. It was found that traffic police have regularly inspecting vehicles before commencing the safari something that reduced accidents. Yet, 30% of respondents disagreed that enhancing vehicle safety and maintenance has been done in ad hoc manner in Kigoma Ujiji something that does not bring about continuation and adherence of road safety. This contradicts the social amplification risk factor theory that seeks to aid people at risk to have a perception of the risk and take measures toward the risk. Therefore, with

Nordfjærn et al., (2011) one of the contributions to the theoretical understanding of risk perception as a cognitive entity articulated by social cognition theories such as SARF is that the risk perception is relevant for behavioural change intensions and decision-making to aid people in risk avoid the risk.

Furthermore, the results in Table 4.2 show that 60% of respondents strongly agreed that scaling up of investment on road safety nationally has been an intervention toward road traffic accidents. This implies that, with national investment on rad safety entrusted o many stakeholders, safety measures may be addressed and adhered to among road users. Yet, 30% of respondents were uncertain on the matter while 10% of respondents disagreed that scaling up investment on road safety seems to be done with less emphasize something that produces little outcomes.

Finally, the results in Table show that 85% of respondents strongly agreed that facilitating the use of risk culture and timeline behaviour in driving have been interventions towards preventing road traffic accidents. This implies that people in the community should be taught of how to adhere to safe driving as their culture and enable road users comply to this culture. Yet, 15% of respondents disagreed that there has been little emphasis on driving culture change to enable people attain safe driving. The statement above concurs with Aderamo (2012) who recommended the need to improve road safety in the country implying that road traffic accidents contribute to poverty by causing deaths, injuries, disabilities, grief and loss of productivity and material damages.

Generally, the interventions used by police force in reducing road traffic accidents in Kigoma Ujiji include ; improving traffic signals, penalties and vehicle inspection something that was done regularly to maintain road safety to road users; improving road conditions, type and design engineering to enable road users avoid accidents; enforcing traffic laws and regulations to capture and warn those who violate laws; prevent under aged driving and unlicensed drivers to enable only those eligible to access licenses; enhancing training and education to road users; enhancing vehicle safety and maintenance to enable owners of vehicles adhere to laws; facilitating the use of risk culture and timeline behaviour in driving while scaling up investment on road safety nationally towards reckless accidents.

4.4 Strengths of the interventions employed in reducing Road Traffic Accidents

The second objective of the study was to examine the strengths of interventions employed in reducing road traffic accidents in Kigoma Ujiji. Respondents' views were sought from administering the questionnaires and interviews. To obtain data on this aspect, the researcher asked respondents to express their views on the matter by indicating if they agreed or disagreed with the statements presented while providing additional views if any. The results were obtained and summarized in Table 4.3 as shown hereunder.

Table 4 3: Strengths of Interventions employed

Statements	% strongly agree	% agree	% uncertain	% disagree	% strongly disagree
Influencing road safety as a political agenda	90	0	0	10	0
Influencing and demanding risk mitigation from the public	70	20	0	10	0
Influencing behaviour change among road users due to perceived consequence of the hazard	80	20	0	0	0
Enhancing defensive driving	75	0	0	0	25
Enhancing professionalism in driving	0	60	0	40	0

Source: Research data, 2021

The results in Table 4.3 show that 90% of respondents strongly agreed that influencing road safety as a political agenda was among the strengths of intervention that was employed to prevent road traffic accidents in Kigoma Ujiji. This implies that with increasing road accidents, to put it as a political agent would minimize the accidents. This is in agreement with Nguyen et al., (2013) who reported that road accidents costs are associated with provision of care and rehabilitation, and with the loss of an economic work force through disability or premature death. Also, the report from Business Times (2014) asserts that in 2013 the death in road accidents in Tanzania was 4,002 and death in 2014 was 3,760. In that regard, the total number of road accidents in 2012 was 23,578 and 23,842 in 2013. However, there was a relatively dramatic drop, to 14,360 accidents, in 2014. Thus, being put as a political agenda, some changes have been revealed. Yet, 10% of respondents disagreed that road safety agenda has not played a great role as much need to be done.

On the other hand, the results in Table 4.3 show that 70% of respondents strongly agreed while 20% of respondents agreed that the other strength of the intervention was influencing and demanding risk mitigations from the public. This implies that demanding risk mitigations from the public was a collaborative effort to enable the public participation towards eliminating the accidents. Moreover, some improvements and awareness on the part of community has been attained. Yet, 10% of respondents were in disagreement that the influence and demanding risk mitigations from the public did little on the matter something that needs a lot to be done for the purpose of enhancing safety. One of the key informants was of the following view;

> *Although, the government through police force have put forward efforts to enable the public participate in enabling risk mitigations to be used in their communities, some improvements have been done but a great need on enhancing mitigations among people is important.*

Furthermore, the results in Table 4.3 reveal that 80% of respondents strongly agreed while 20% of respondents agreed that influencing behaviour change among road users due to perceived consequences of the hazard was among the strengths of the interventions employed. This implies that when road users are enriched with knowledge on road safety would save as key players towards accident minimization. The statement concurs with Deshpande (2014) who stated that knowledge provision in terms of training road users while enhancing novice drivers to better anticipate and perceive hazards as part of rigorous driver licensing regimes is paramount and results

into road traffic accidents' reduction. One of the key informants was of the following view"

> *The improvement of skills and knowledge among members of the public who use roads may provide first aid when first on the scene at a crash. Training has been vital in enabling people acquire knowledge and practice such knowledge to serve others.*

Additionally, the results in Table 4.3 indicate that 75% of respondents strongly agreed that enhancing defensive driving was among the strengths of intervention employed in Kigoma Ujiji. This implies that with comprehensive and on-going public education campaigns that are linked in content and timing with enforcement and penalty regimes resulted into defensive driving among stakeholders, something that aided users avoid accidents unnecessarily. Yet, 25% of respondents strongly disagreed that enhancing defensive driving would not result into effective road accident reduction as people tend to adhere to laws and regulations that are administered with fairness. One of the key informants reported that;

> *Statistics show that 78.84% of road accidents are caused by human behaviour specifically poor adherence to traffic rules and regulations. So, to reduce such incidences, defensive driving has been important towards enforcement of laws while changing people's behaviour in driving issues*

Finally, the results in Table 4.3 show that 60% of respondents agreed that enhancing professionalism in driving was among the strengths employed. This implies that drivers need to be treated as a profession that has to adhere to ethical norms and directives something that could not be taken for granted by everyone. Yet, 40% of

respondents disagreed that professionalism in driving seems to be neglected something that necessitate reckless driving thus, accidents. One of the key informants was of the following view;

> *To enable professional driving in Tanzania, regular training programs are needed within the school system that teaches driving skills to all road users collaboratively. Moreover, fines may be the best if unavoidable and not subject to corruption while enhancing demerit points i.e. points-based licensing systems to carter for the right people.*

Generally, the strengths of interventions employed by police force in Kigoma Ujiji have been obvious as interventions proved to work to a greater part. These strengths resulted into influencing road safety as a political agenda; influencing and demanding risk mitigation from the public; influencing behaviour change among road users due to perceived consequence of the hazard; enhancing defensive driving and professionalism in driving. Moreover, regular trainings are needed within the school system that teaches driving skills to all road users collaboratively.

4.5 Weaknesses of the interventions employed in reducing Road Traffic Accidents

The third objective of the study was to explore the weaknesses of interventions employed in reducing road traffic accidents in Kigoma Ujiji. Respondents' views were sought from administering the questionnaires and interviews. To obtain data on this aspect, the researcher asked respondents to express their views on the matter by indicating if they agreed or disagreed with the statements presented while providing

additional views if any. The results were obtained and summarized in Table 4.4 as shown hereunder.

Table 4.4: Weaknesses of Interventions employed

Statements	% strongly agree	% agree	% uncertain	% disagree	% strongly disagree
Poor traffic management and corruption	90	10	0	0	0
Undertaking vehicle inspection aimlessly without proper operational planning	70	0	0	30	0
Nonuse of equipment to inspect vehicles	60	20	0	20	0
Poor roads' marking	85	0	0	15	0
Lack of political will to address issues of road safety and security	80	0	0	20	0
Poor driver's licensing	75	25	0	0	0

Source: Research data, 2021

The results in Table 4.4 show that 90% of respondents strongly agreed while 10% of respondents agreed that the weaknesses of interventions employed are accompanied by poor traffic management and corruption. This implies that, with unethical officers some interventions have not been fully implemented due to such practices. The statements above concur with Juma (2018) who affirmed that in most developing countries in the world such as African countries (Tanzania in particular) corruption burden is the greatest, causing little or no viable interventions that are vividly attainable for the prevention and control of the consequences of road accidents. Policy makers and safety professionals in every country have found it very difficult to institute sustainable changes which result in a dramatic decrease in fatalities due to injuries in accidents.

On the other hand, the results in Table 4.4 show that 70% of respondents agreed that among the other weakness is undertaking vehicle inspection aimlessly without proper operational planning. Yet, 30% of respondents disagreed that vehicle inspection has not been aimlessly undertaken in many places as it has been following proper operational planning by traffic police officers. This can be evidenced by one of the key informants that;

> *We conduct vehicle inspection as per our plan to enable road users travel safely. However, with difficulties, those found violating the laws are penalized or taken into court. This kind of operation has made owners of vehicle to regularly repair their vehicles and enable safe driving*

Moreover, the results in Table 4.4 show that 60%of respondents strongly agreed while 20% agreed that non-use of equipment to inspect vehicles has been a weakness on the interventions used by police force in Kigoma Ujiji. This implies that the officers in charge do not adhere to measures needed to inspect vehicles. The statement above is in agreement with Massami (2014) who reported that rapid motorisation in low and middle-income countries (LMICs) along with the poor safety quality of road traffic systems and the lack of institutional capacity to manage outcomes contribute to a growing crisis One of the key informants was of the following view;

> *It is observed that some traffic police officers inspect vehicles by using their bodies such as kicking the tyre by the leg, listening the way gears are*

> *changed or sometimes calling drivers out of the car and confirm the inspection. Such inspection result in corrupt practices without tackling the problems.*

The above statement is in agreement with Turki (2014) who stated that while vehicle inspections in Tanzania are undertaken aimlessly without proper operational planning to make sure that all vehicles and motorcycles are thoroughly checked; the inspection method does not guarantee the roadworthiness of the vehicles and traffic police only use their eyes to inspect those vehicles without any specialized vehicle inspection equipment.

Additionally, the results in Table 4.4 show that 85% of respondents strongly agreed that the weakness from the interventions employed include poor roads' marking. This implies that roads need to be marked to enable drivers drive in a safe way. It comes to the institution responsible for administering the process to non-accountable something that necessitates accidents. The statement above concurs with Turki (2014) who reported that although, Tanzania government emphasizes on enforcement of traffic law and regulations through big penalties and demotions of traffic officers; studies show that road accidents are caused by unmarked roads, human factors, state of road and vehicle factors in most cases. The failure to have compressive short and long-term plans to address the factors could be one of the causes of the persistence of the problem. One of the key informants was of the following view.

> *We drive in roads that have poor or diminished marks. These marks lead to either confuse drivers or become un-followed by drivers something that cause accidents. Therefore, un-marked road brings about unnecessary accidents.*

However, the results show that 15% of respondents disagreed that poor roads marking is not the highest cause of accidents. Driver's reckless driving has been a greater contributor for accidents. Nonetheless, the results in Table 4.4 show that 80% of respondents strongly agreed that lack of political will to address issues of road safety and security has been a weakness for the proposed interventions. It was found that, some politicians do not believe that accidents are caused by vehicle or human errors but caused by witchcraft related matters. From such beliefs, the emphasis gets lowered among road users. Yet, 20% of respondents disagreed that political will has been enhanced to carter for all road users from the fact that all accidents cause economic and social hazards to all involved.

Finally, the results in Table 4.4 show that 75% of respondents strongly agreed while 25% of respondents agreed that the other weakness of the intervention is the availability of poor drivers' licensing. It was found that some people obtain licenses without being trained while others being under aged. The statement above concurs with Giloma and Chalya (2014) who stated that urban road traffic and driving culture in Tanzania is partly characterized by low level of safety behaviour, arrogant attitude, under-aged driving and unlicensed drivers. Such drivers are reported to be more reckless, non-cautious and inconsiderate to other road users. Therefore, this kind of licensing results into road accidents that could be avoided if training was given to prospective drivers. The statement above concurs with Runyoro et al.,

(2014) who asserted that attempts to educate people regarding safety are also not very effective and wide variations are found between people's knowledge and their actual behaviour.

Generally, the weaknesses of intervention found in Kigoma Ujiji have been attributed to poor traffic management and corruption; undertaking vehicle inspection aimlessly without proper operational planning in most cases; nonuse of equipment to inspect vehicles; poor roads' marking; lack of political will to address issues of road safety and security; and poor driver's licensing. Such weaknesses have resulted into road vehicle crushes that cause injuries and deaths among road users.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the conclusion and recommendations arising from the study findings. It finally presents the areas for further research.

5.2 Conclusion

Road traffic accidents (RTAs) are a growing but neglected global health crisis, requiring effective prevention to promote sustainable safety It was found that the interventions used by police force in reducing road traffic accidents in Kigoma Ujiji included; improving traffic signals, penalties and vehicle inspection something that was done regularly to maintain road safety to road users; improving road conditions, type and design engineering to enable road users avoid accidents; enforcing traffic laws and regulations to capture and warn those who violate laws; prevent under aged driving and unlicensed drivers to enable only those eligible to access licenses; enhancing training and education to road users; enhancing vehicle safety and maintenance to enable owners of vehicles adhere to laws; facilitating the use of risk culture and timeline behaviour in driving while scaling up investment on road safety nationally towards reckless accidents.

On the other hand, the strengths of interventions employed by police force in Kigoma Ujiji have been obvious as interventions proved to work to a greater part. These strengths resulted into influencing road safety as a political agenda; influencing and demanding risk mitigation from the public; influencing behaviour

change among road users due to perceived consequence of the hazard; enhancing defensive driving and professionalism in driving. Moreover, regular trainings are needed within the school system that teaches driving skills to all road users collaboratively.

Similarly, the weaknesses of intervention found in Kigoma Ujiji have been attributed to poor traffic management and corruption; undertaking vehicle inspection aimlessly without proper operational planning in most cases; nonuse of equipment to inspect vehicles; poor roads' marking; lack of political will to address issues of road safety and security; and poor driver's licensing. Such weaknesses have resulted into road vehicle crushes that cause injuries and deaths among road users.

5.3 Recommendations

The following are the recommendations arising from the study as follows;

i) There is a need to conduct regular vehicle inspection and training of drivers towards enhancing road safety in Kigoma Ujiji

ii) There is a need to have long term road safety mechanisms for the purpose of saving people's lives

iii) There has been a non-use of advanced technology and equipments towards road safety enhancement. Therefore, their availability and use among traffic police would reduce road traffic injuries and deaths

5.4 Areas for Future Research

Areas for future research be done on; “Assessing the sustainability of interventions used in mitigating road accidents in other regions in Tanzania”

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APPENDICES

Appendix 1: Questionnaires

Dear Prospective Respondent;

This questionnaire is designed to solicit information from you. The purpose of this research is for the academic award of Master degree of Social Work from the Open University of Tanzania. Kindly fill in the required information as per the researcher's requirement.

Gender: Male ( ), Female ( )

Age: under 20 ( ), 21 to 30 ( ), 31 to 40 ( ), 41 to 50 ( ), over 50 ( )

Length of services with the organization (In years) ----------,

Employment status: Civil servant (Police traffic/Latra officer) ( ), Driver ( )

1. Interventions used by the Police Force in reducing road traffic accidents in Kigoma Ujiji

i) Please indicate your agreement or disagreement regarding the interventions used as follows; Strongly Disagree, Disagree, Uncertain, Agree and Strongly Agree

Statement	**Choice**				
	Strongly disagree	**Disagree**	**Uncertain**	**Agree**	**Strongly agree**
Improving traffic signals, penalties and vehicle inspection					
Improving road conditions, type and design engineering					
Enforcement of traffic laws and regulations					
Prevention of under aged driving and unlicensed					

drivers					
Enhancing training and education to road users					
Enhancing vehicle safety and maintenance					
Enhancing road traffic management					
Scaling up of investment on road safety nationally					
Use of risk culture and timeline behaviour in driving					

2. Strengths of the interventions employed in reducing road traffic accidents in Kigoma Ujiji

i) Please indicate your agreement or disagreement regarding the strengths as follows; Strongly Disagree, Disagree, Uncertain, Agree and Strongly Agree

Statement	**Choice**				
	Strongly disagree	**Disagree**	**Uncertain**	**Agree**	**Strongly agree**
Influencing road safety as a political agenda					
Demanding risk mitigation by the public					
Behaviour change among road users due to perceived consequence of the hazard					
Enhancing defensive driving					
Enhancing professionalism in driving					

3. Weaknesses of the interventions employed in reducing road traffic accidents in Kigoma Ujiji

i) Please indicate your agreement or disagreement regarding the weakness as follows; Strongly Disagree, Disagree, Uncertain, Agree and Strongly Agree

Statement	**Choice**				
	Strongly disagree	**Disagree**	**Uncertain**	**Agree**	**Strongly agree**
Poor traffic management and corruption					
Undertaking vehicle inspection aimlessly without proper operational planning					
Nonuse of equipment to inspect vehicles					
Poor roads' marking					
Lack of resources to carry out traffic safety					
Lack of political will to address issues of safety and security					
Poor driver's licensing					

Appendix 2: Interview Guide

Dear Prospective Respondent

This questionnaire is designed to solicit information from you. The purpose of this research is for the academic award of Master of Social work from the Open University of Tanzania. Kindly fill in the required information as per the researcher's requirement.

Gender: Male ( ), Female ( )

Age: under 20 ( ), 21 to 30 ( ), 31 to 40 ( ), 41 to 50 ( ), over 50 ( )

Length of services with the organization (In years) ----------,

Employment status: Civil servant (Police traffic/Latra officer) ( ), Driver ( )

i) What are the interventions used by the Police Force in reducing road traffic accidents in Kigoma Ujiji?

ii) What are the strengths of the interventions employed in reducing road traffic accidents in Kigoma Ujiji?

iii) What are weaknesses of the interventions employed in reducing road traffic accidents in Kigoma Ujiji?