EXAMINING FACTORS CONTRIBUTING TO ROAD TRAFFIC ACCIDENTS IN DAR ES SALAAM REGION, TANZANIA: A CASE OF TEMEKE DISTRICT

PHARLES E. NGELEJA

A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF THE MASTER OF BUSINESS ADMINISTRATION IN TRANSPORT AND LOGISTICS MANAGEMENT

2015

CERTIFICATION

The undersigned certifies that he has read and hereby recommends for the acceptance by the Open University of Tanzania a dissertation titled" ***Examining Factors Contributing to Road Traffic Accidents in Dar es Salaam City: A Case of Temeke District***" in partial fulfillment of the requirements for the degree of Master of Business Administration in Transport and Logistics Management of the Open University of Tanzania.

……..

Dr. Gwahula Raphael

(Supervisor)

……..…….

Date

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DECLARATION

I, Pharles E, Ngeleja,do hereby declare that this dissertation is my own work and that; it has not been presented and will not be presented to any other University for a similar or any other degree award.

…….

Signature

…….

Date

DEDICATION

To my Family especially my wife Elizabeth John Ngeleja and children, for their love, care and support.

ACKNOWLEDGEMENT

I am greatly indebted toDr. Gwahula Raphael my supervisor, for the intelligent guidance and mentorship he rendered to me during the preparation of this dissertation. I equally extend my sincere thanks to my course instructors. I also appreciate the support of my fellow postgraduate mates for sharing various materials

I also thank my respondents for giving me relevant information.My special thanks also go to my family especially my wife Elizabeth John Ngeleja and my children Pharles (Makula), Lydia and Baraka for the courage and support during the whole period of my studies. Isay thank you all.

ABSTRACT

The main purpose of this study was to examine the factors contributing to road traffic accidents in Dar es Salaam. The study wanted to address the puzzle, why despite of all efforts that have been implemented to prevent road traffic accidents in Tanzania, the incidence of accident are increasing; by employing both qualitative and quantitative methodology the research gap/puzzle was addressed. This was done by raising three key research questions; *first*, what are the major types of road traffic accidents in Temeke District? *Second*, what are the major causes of road traffic accidents in Temeke District? And *third*, what are the impacts of road traffic accidents to various road users? The study found that there are five types of road traffic accidents happening in Temeke District, these are between people versus vehicles, vehicles versus motorcycle, vehicle to vehicle, public vehicle versus individual vehicle and public vehicle versus public vehicle. However, the study noted that the dominant one is the accidents involves vehicles versus motorcycles. The following were noted to be the major causes to those types of accidents. The causes are categorized in several groups such as human, technical, mechanical and political factors. However, human factors was noted to be dominant factors influence's the occurrence of road traffic accidents i.e. alcoholism, carelessness, drugs, and over speed. Furthermore, the study noted the following impacts death, injuries, disabilities and psychological problem as well as poverty and the loss of property. Finally, the study recommends that, road safety measure needs to be taught as a subject in primary school. This is because large number of people ends with that level of education, strict enforcement of road laws, and road traffic injuries should be considered as a public health issue.

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LIST OF ABBREVIATIONS

WHO	World Health Organization
UN	United Nation
USD	United State Dolla
RTA	Road Traffic Accident
UCH	University College Hospital
RTI	Road Traffic Injuries
SUMATRA	Surface and Marine Transport Authority
SPSS	Statistical Package for Social Scientist
NRSC	National Road Safety Council
NHTSA	National Highway Traffic Safety Administration
UK	United Kingdom

CHAPTER ONE

GENERAL INTRODUCTION

1.1 Background to the Problem

Road traffic accident is a global phenomenon. Its consequences are crosscutting and affect both the individual, families and the country in general. It reduces country man power or population that could contributes to social and economic development (Rassool, 2007). Whenever, road accidents happen they do not only cause death, but leave other persons with disabilities the situation that limit them from participating in economic activities and disempowering the income of the families whom take responsibility of taking social and economic care for the injured persons in terms of resources use and management such as income and time.

The magnitudes of this problem are alarming demanding a serious response and strategies from government, stakeholders and other road users. It is estimated that road traffic accidents cause over 1.24 million death and probably more than 25 million severe injuries per year in the world (WHO, 2013).

According to World Health Organization globally, road traffic injuries are already among the three major causes of death for the age of 5 to 44 years. It is cautioned that, over the next 15 years, unless immediate action is taken, it is anticipated that the number of people dying annually in road traffic accidents may rise to 2.4 million. Therefore, Tanzania being one of the countries affected by road traffic accident, this study aim at making analysis of road traffic accident in the Dar es Salaam city with a view to establish relevant issues in order to improve our knowledge in the area.

1.2 Background of the Problem

Evidence from literature suggest that, the first road crash was allegedly written by a cyclist on 30 May 1896 in New York city, shadowed few months later by the first fatality, a pedestrian in London (Gibson 1975; Joseph 1980). It is suggested that, though the meticulous number will never be known, the frequency of fatalities was conventionally assessed to have reached an aggregate total of 25 million by 1997 (WHO 2004).

It is after those historical events that the road traffic crashes have sustained to this day to exact their peal. Despite the extent and severity of the accident is different, it has a global scope in nature. Road Traffic Accident is the prominent cause of death by injury in the world. According to UN report (2011), more than 1.2 million people die in the worlddue to road accident every year. It is noted that, about 65% of the total deaths in road crashes in the world include pedestrians, 35% of these are children (UN 2011).

Tanzania like many other countries cannot escape the impacts of roads traffic accidents. Komba, (2006) revealed that since independence 1961 road traffic accidents in Tanzania have been increasing. Simultaneous there has been an increasing in the import of vehicle. Nonetheless, motor related accidents occur in Dar es Salaam and concentrate in major up country highway such as Morogoro road along Kibaha District much more than many other urban centers due to high traffic volumes. Historical evidence suggest that, in 1980’s, the Government started to take some measures to control this problem. The existing regulations were enforced, including annual road safety campaigns (Komba, 2006). Some of these measures are

such as preventing busses from travelling at night, introducing vehicles speed limiters that installed in the engine of public busses. Actually, this measure went together with regulating the town minibuses such as daladala which have a speed limit of 50km/hr (Komba, 2006), though majority of daladala drivers violates this, they drive at a speed of above the required speed limit.

Despite of those measures taken to minimize the problem under study, it is reported that in 2005 the problem of road traffic accidents was increasing. This was in the records of the National road safety council of Tanzania (2005). Hence, in 1994 alone a total number of road accidents that had occurred were 10,674 while in 2004 it had increased to 17.039 accidents, an increase of 60%. According to TNRSC (1999), Krug, (2002) noted that Tanzania is losing 25 billion shillings every year as property loss, treatment expenses and road damage as a result of road traffic accidents. It is also estimated that the loss experienced by Tanzania is twenty times greater than that of England and twenty five times compared to that of Sweden the latter country has 16 times more number of vehicles than Tanzania.

Until 2005, it is noted that the statistic of road traffic accidents is on increasing. This implies that this problem of road traffic accidents has not clearly defined. Regardless, of all ongoing implemented road safety initiatives, the situation is worsening. The scenario by the end of 2007 will be that persons killed in accidents will increase by 30%, the number of reported injuries will increase by 35%, and the cost of reported accidents and causalities will as well increase by 30 % Tanzania Annual Road convection Report, (2005), Astrom, et al. (2006). According to the same study it is estimated that accidents cost per year is estimated at 190 billion Tanzania shillings

which is equivalent to 0.2 billion USD.However, it is noted that, although road traffic accidents is a global phenomenon (Mannan and Karim, 1999), but in developing countries the proportion of serious injured and killed casualties are higher than in the developed countries (Kindaya, 2014).

The evidence from literature by Kindaya, (2014), Soderlund et al (1995), noted that road traffic related deaths have shown that the poorest countries have highest road traffic related mortality rates. In his analysis, many industrialized countries appear to have introduced interventions that have reduced the incidence of road traffic injuries and improve survival of those injured. In developing countries there are some peculiarities regarding the accident profiles. A study done in Calcutta India, reported that there are some host (human) factors (such as the behavior of drivers, pedestrians and cyclist behaviors) and seasonal factors (weather and time) that contribute to fatal road traffic accidents Zhang et al (1998). Overall, most traffic accidents occurred on main roads (highways) and in the majority of cases pedestrians were found to be at fault situation. Therefore, this study aimed to make analysis of road traffic accidents in Dar es Salaam city in order to identify the relevant issues.

1.3 Statement of the Research Problem

Traffic accident is serious problem throughout the globe, particularly, in developing countries like Tanzania. The increased rates of roads associated accidents are alarming on effects of these problems in social and economic development of the country. It is common knowledge that the major aim of development and improvement of road transport infrastructure is to contribute to the social well-being and economic growth of the country. However, what is not yet known is the impact

of transport infrastructure to people's social wellbeing and country social and economic development.

As noted in Tanzania Road Safety Policy (2009) nearly 1.3 million people die and more than 50 million are injured each year worldwide as a result of road crashes. Although Africa south of the Sahara accounts for a small proportion of the world's Gross National Product (GNP) and motor vehicles population this area accounts for a more significant proportion of the world's road fatalities, mainly due to inadequate levels of investment in road safety promotion.

In Tanzania alone especially for the year 2007, of the number of persons who died, 78% were male and 22% were female (ratio of 3.55:1) and of the number of persons who were injured, 72% were male and 28% were female (ratio of 2.52:1). An examination of the gender disparity in the Traffic Police Report revealed that males are 3.55 times more likely than females to be killed in a motor vehicle crash and that males are 2.52 times more likely than females to be injured in a motor vehicle crash. Though, this study is not based on gender studies, but at least this variations shows how big is the problem in Tanzania.

In recently discussions on the phenomena that affect country growth, the death associated with Malaria is given more attention. The assumption of this study is roads traffic accidents are more critical than malaria. In this case there is a need to analyze the phenomenon of road traffic accidents. Though vast majority of literature have reported on the problem still the rate of death, injuries and disabilities

associated to roads traffic accident have been increasing. The interest of this study under its objective seeks to fill the gap of knowledge which exists.

1.4 Research Objective

1.4.1 General Objective

The general objective of the study is to provide an analysis of road traffic accident in Dar es Salaam City, especially on it nature, contributing factors and its consequences.

1.4.2 Specific Objectives

(i) To identify types of Road traffic accident in Temeke District

(ii) To identify the major causes of road traffic accidents in Temeke District

(iii) To identify the impacts of Road traffic accidents to pedestrians

1.5 Research Questions

(i) What are the types of Road traffic accident happening in Temeke District?

(ii) What are the major causes of road traffic accidents in Temeke District?

(iii) What are the impacts of Road traffic accidents to pedestrians?

1.6 Significance of the Study

Road traffic accident problem in Tanzania, particularly in main cities, is now a major concern of the government, its organizations and other institutions concerned with road safety as well as the public in general. The main towns and cities of Tanzania such as Dar es Salaam is becoming densely inhabited from time to time; and also the number of vehicles running in these cities is increasing at an alarmingly faster rates

than ever before. The infrastructural arrangements in the city are also increasing both in quantity and quality; new asphalt roads and cobblestone works are being built. But the increase in infrastructural setups and the increase in the number of vehicles and population are not proportionate. So, the findings of this study will: enrich the road traffic accident literatures, make practitioners be aware of the problems and take appropriate measures, show readers the severity of the problem so that they will save their lives and livelihoods from loss and destruction, serve as a clue for those researchers who are interested in conducting further studies in the area and finally enable policy makers to design appropriate strategies so that practitioners and other concerned bodies make preventive as well as countermeasures and monitor road safety problems.

CHAPTER TWO

LITERATURE REVIEW

2.1 Chapter Overview

The objective of this section is to present a literature review related to road traffic accidents. The focus of this review is to search for the available knowledge on the problem under study. Generally, the purpose is to look for the gap that needs to be filled in. This is due to the fact that, the problem of road traffic accidents is on increase despite of so many studies in the topic. The assumption of this study is this problem is unclearly defined. Thus, more studies needed to unearth the parameters of this problem in Africa, East Africa and Tanzania in particularly. Literature reviewe seems to suggest that road traffic accidents are preventable, and that they can be minimized and reduced. But, why the accidents are increasing remains mystery.

2.2 Definition and Concepts

2.2.1 Road Traffic Accidents

Several authors have defined this concept; among them is Kandiya, (2014). According to him, Road Traffic Accident is any vehicle accident occurring in a public highway. It includes collision between vehicles and animals, vehicles and pedestrians or vehicles and stuck obstacles. Single vehicle accidents that involve a single vehicle, which means without other road user, are also enclosed (Safecarguide 2004).

In a similar manner Ajit and Ripunjoy (2004), have mentioned that an accident is an occasion, occurring abruptly, unpredictably and inadvertently under unforeseen

circumstances. Seemingly, Segni (2007) have also outlined that an accident is a rare, random, multi-factor event always preceded by a situation in which one or more road users have failed to cope with the road environment. Far from the above arguments, Alister and Simon (2011) stated that accident involves personal injury occurring on the public highway (including footways) involving at least one road vehicle or a vehicle in collision with a pedestrian and which becomes known to the police within 30 days. In the case of this study, researcher will use Kandiya, (2014) definition as explained above in examining factors contributing to Road traffic accidents in Temeke District.

All the same, the World Health Organization's (WHO) World Report on Road Traffic Injury Prevention (2004) defines a road traffic injury as fatal or nonfatal injuries incurred as a result of a road traffic crash. A road traffic crash is defined as a collision or incident that may or may not lead to injury, occurring on a public road and involving at least one moving vehicle. This implies that, RTA can be defined as an accident that occurred on a way or street open to public traffic; resulting in one or more persons being killed or wounded, and at least one stirring vehicle was intricate. Therefore, RTA is a smash between vehicles; between vehicles and pedestrians; between vehicles and animals; or between vehicles and geographical or architectural obstacles.

2.2.2 Transport

Transport is the movement of people and goods from one place to another (Peters 1982; Khanna and Justo 1986; Goodall 1987). But according to Belachew (1997), transport also comprises movement of information. Similarly, transportation is the

conveyance of people, properties and information from one place to another or stated differently it is the repositioning of people, properties and information over space. The type of transport which exhibits accident that drastically affects the wellbeing of the people and economy of the nations is the one which involves the movement of people and or goods from one place to the other. Several RTA incidences occur throughout the world at every fraction of times in a day. Whatever the reason, where ever the scene and whoever the victim is, road traffic accidents remain a headache to everyone.

2.3 Theoretical Literature

2.3.1 Human Factor

There are varieties of theories concerning the causes and effects of road traffic accidents one among them is account for human error. The theory was introduced by Murell, (1965), it was later on extended by Van Elslande. The theory analyzes human error in the field of accident causation analysis such as pressure, fatigue, motivational, drugs, alcohol and worry. The aim of the theory is to contribute to a deeper comprehension of the complexity of the human aspects involved in driving activity by promoting human centered methodological tools.

It analyzes all the disciplines of psychology that are relevant for driving behavior such as human perception, attention, cognition, personality and social. It is noted that human error is a problem of great concern within complex sociotechnical systems, being consistently implicated in a high proportional of accident and incidents Salmon (2006). Recently, research within the road transport domain indicates that human

error contributes to as much as 75% of all roadway crashes. The literature review conducted by Salmon, Regan, and Johnston, (2005) indicated that the key aspects of error management within complex sociotechnical systems include the recognition of the fallible nature of humans and the inevitability of error occurrence and the enhancement of error tolerance throughout the system. Rather than attempt solely to enhance system safety through the eradication of errors, system should also be made safer by increasing their tolerance of error.

However, they concluded that despite road safety professional's best efforts, safety interventions, strategies, new technologies and countermeasures will never completely eradicate road user's error. Drivers, pedestrian and other road users will continue to make error for as long as the road system exists. It was therefore, concluded that rather than focusing entirely upon removing road users error through training, awareness campaigns and enhanced technology, effective error management in road transport should as a complementary aim, focus on increasing capacity of the road transport system to tolerate error.

Therefore, it can be summarizes as follows human factors in road accidents include all factors related to drivers and other road users that may contribute to a collision. Examples include driver behavior, visual and auditory acuity, decision-making ability, and reaction speed. The feeling of being confident in more and more challenging situations is experienced as evidence of driving ability, and that 'proven' ability reinforces the feelings of confidence. Confidence feeds itself and grows unchecked until something happens a near-miss or an accident.

2.3.2 The Systems Theory on Accident Causation

Another theory on Road traffic accident is system theory; Salmon et al, (2009) are among researcher used this theory in the context of road safety to conceptualize the causes of road traffic accident. Considerable evidence for a systems approach to safety has been gathered in most safety critical domains. Such an approach is based on the notion that human performance is a function of many interacting system-wide factors.

According to this theory safety is no longer solely the responsibility of front line operators; rather, the responsibility is shared between actors across all levels of the complex sociotechnical system (e.g. Regulators, policy makers, designers, line managers, manufacturers, supervisors, and front line operators). In the context of human error and accident causation, for example, it is now accepted that errors are a consequence of 'systems' failure, rather than merely aberrant psychological factors within individuals; human error is thus no longer always seen as the primary cause of accidents, rather it is treated as a consequence of latent failures residing within the wider system (e.g. Reason, 1990). In a road safety context, elements of the system beyond road users, such as vehicle design and condition, road design and condition, road policies, and so on, all shape driver behavior on the road.

Across the safety critical domains, various models of accident causation exist (e.g. Leveson, 2004; O'Hare, 2000; Rasmussen, 1997; Reason, 1990). The most prominent of these are systems-based models (e.g. Reason, 1990), and it is now widely accepted that the accidents which occur in complex sociotechnical systems are caused by a range of interacting human and systemic failures. Undoubtedly the

most popular and widely applied model is Reason's (1990) systems perspective model of human error and accident causation. It is noted that most accident analysis methodologies are underpinned by systems thinking of the like displayed in Reason's Swiss cheese model. The model is highly applicable in a road transport context, with each of the levels specified applicable to road transport systems, and yet it does not appear to have been widely accepted or applied in such a fashion

2.3.3 Political Ecological theory

Political ecology has emerged as a new field of research bringing together human ecology's focus on the interrelations between human societies and their respective biophysical environments and political economy's analyses of the structural power relations occurring between these societies (Little, 1999a; Sheridan, 1988; Stonich, 1993). The theory of Political ecology in human geography was introduced by Blaike and Brookfield (1987 cited in Zimmer, (1996)). Zimmer, (1996) explains that political ecology is the combination of ecology and political economy and observes that Piers Blaikes (the Political Ecology of Soil Erosion in Developing countries) contributed immensely to the political ecology approach in human geography.

nonetheless, Mayer (1996) then introduced the political ecology of a disease concept which focuses on the relevance of political and economic factors at different geographical levels in the study of health and diseases in a locality, this can be extended to health and accident risk as well. The theory suggest that although politics is not the direct concern of geography, it plays a very vital role in determining the way in which people view and utilize the recourses and opportunities available to them. The above exposition indirectly shows the importance of political ecology of

disease or accident concept when one is researching into any study such how community perceive risk in relation to road traffic accident in any country at local scale.

All the same, political ecology Political economy is concerned with issues of power, influence and authority. Thus the content of political ecology emphasizes that human-environment relationship at local, regional, and global scales can be understood only by analyzing the relationships of patterns of resource to political economy forces (Basset, 1988).

2.4 Empirical Literature

Several researchers have studied this topic of road traffic accidents in the world, Africa, East Africa and Tanzania in particularly. However, this review of literature noted that the extent and the rate of road accidents differ between the developed and developing worlds. It is noted that in the developed world governments have tried to implement measures that have helped to minimize this problem. It appears that the incidences of road traffic accidents are more common in developing countries than in the developed world. This alone shows this problem can be prevented.

Charles O. Bekibele, (2007) have studied about road traffic accident. Their study was aimed to identify the risk factors for road traffic accidents among drivers of public institutions in Ibadan, Nigeria. The main objective was to determine the prevalence and risk factors for self-reported RTA among drivers of educational institutions and make suggestions to promote safer driving. A cross sectional population study of motor vehicle drivers from the College of Medicine, University of Ibadan and

University College Hospital (UCH) Ibadan was undertaken between December 2003 and January 2004. However, it is noted that the increasing rate of road traffic accidents has influenced them to undertake the study of this kind. The study comprised of 99 motor vehicle drivers. 67 (67.7%) were from the College of Medicine, and 32 (32.3%) from the UCH. In fact the findings of the study indicated that Mechanical fault contribute to the occurrence of road traffic accident for about 50.0%, Bad Road account for 12.5%, Armed robbery attack for about 6.3. On the other hand, it was noted that Slippery wet Road contribute for about 18.8% and human error contribute for about 12.5%. Actually, this shows that in Ibadan City (Nigeria) mechanical problems take large percent among the causes of road traffic accident, followed by bad road.

Like other researcher, Odero et al (2003) also studied about the problem of road traffic accidents. The study shows that Road traffic crashes exert a huge burden on Kenya's economy and health care services. Current interventions are sporadic, uncoordinated and ineffective. Their study based in Kenya experiences. Actually these researchers noted that Kenya has experienced a rapid increase in number of road traffic injuries and their consequences in terms of mortality, morbidity and disability. According to traffic police reports, road traffic crashes rose from 3562 in 1965 to 14,342 in 1998, and the number of persons killed from 552 to 2972 increases of 300% and 430%, respectively. The road traffic fatality rate per 100,000 populations during the period 1985 to 1998 ranged from 7.8 to 10.6

However, the main categories of causes of motor vehicle related traffic injuries, based on the Accident Cause Code classification used by the Kenya police, are

human factors (85.5%), vehicle defects (5.1%), road environment (2.9%) and other factors (6.4%).The relative contribution of these factors has remained unchanged over the years. Driver errors such as losing control, speeding, misjudgment and improper overtaking accounted for the greatest proportion (44.4%) of all causes attributed to human error. Among the human factors, alcohol has been established to be associated with increased incidence of motor vehicle crashes.

A survey involving patients hospitalized for injury treatment in Eldorado showed that 40% of drivers and 20.2% of pedestrians were Road traffic injuries in Kenya intoxicated at the time of the crash. Surprisingly, alcohol is almost never reported as a contributing factor in the police accident reports, partly because of lack of technologies and facilities to measure it, and the difficulties in getting doctors to examine crash-involved drivers and take their blood samples for BAC analysis at a government forensic laboratory. Contrary to Nigeria it seems that in Kenya human factor account for a large percent contribution in road traffic accidents.

Similar experiences drawn in India were it is reported that Emergence of Road Traffic Injuries (RTIs) a leading cause of Deaths & Disabilities. The study showed that Accidents impose significant costs. The data shows that road traffic accident was 9th leading cause of death in 2004 and expected to be 5th leading cause of death by 2030 worldwide. India: Incidence of Road Accidents. Rise in number of accidents, injuries & deaths per lack of population. This reflects the rise in motor vehicle population, increase in duration & number of travel trips with rise in income. Like other researcher the following factor identified to be the major causes of RTAs in India Defect in Road 1.5%, Weather Condition 1.0%, and Defect in Condition of

Motor Vehicle 1.6%, Fault of Pedestrian 2.4% and Fault of Cyclist 1.3%. However, the study identified that fault of drivers alone contribute for about 77.5% in the causation of road traffic accident in India. Therefore, like Kenya, India also human factors account for large percent in the causes of road traffic accident

Mwakapasa (2013), in his study on Attitude Towards and Practice of Helmet Use among Commercial Motorcyclists in Dar es Salaam Region, Tanzania have shown that human factor in the country influenced the increase in road traffic accidents in Dar es Salaam. However, the findings of his study cannot be generalized because based on the context of motorcycle. The assumption of this study is Dar es Salaam is one among the largest cities in Tanzania and Africa in general, National Road Safety (2009) report that there is an increase in cars ownership. The policy acknowledges that these increases in car ownership have influenced the increase in road traffic accidents. In a similar manner, Komba (2007) have also studied the topic understudy. The major concentration was in road accidents happening in a highway from Dar to Kibaha. Like other researcher his study also reported on the human factors as causality. In fact, the findings provided by these authors cannot help us understand the types of accident that happening in Dar es Salaam city.

Moshiro, (2012) is one among other researchers who studied the road traffic accidents. The study acknowledges that road traffic accidents is a problem in Tanzania. He used case study approach to identify risks associated with road crashes. However, the findings of his study are not sufficient to strengthen our understanding of the problem under study. This is due to the fact that the study population in his study was children only. He was interested to identify risk factors associated with

injuries among children below 18 years attending health facilities in Dar es Salaam. In fact this study agrees with him that road crashes is serious problem especially in his findings which shows 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 is 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.

Perhaps the work of WHO, (2013) support the argument of this study as presented above. World Health Organization not only acknowledges that this phenomenon is a global issue, but has also explained the kind of people affected by it. According to WHO, (2013) road traffic accident worldwide affects people with the ages between 5 to 44 years. In fact, this is a productive age group that contributes to the social and economic development of the families and national economic growth.

Next to Moshiro, (2012) is Komba (2007), like others he also used case study approach to study the risk factors which are associated with road traffic accidents in Kibaha district. The study aspired to assessing different road safety measures taken by the local authorities to prevent accidents in Kibaha district. The study concentrated on the highway that connect Dar es Salaam city to Kibaha. The study has revealed the pattern and trends of motor traffic accidents in Kibaha district from

2001 to 2004. It shows that the accident occurrence was increasing every year, passengers and pedestrians are always at highest risk of being injured or killed on the road, young males are highly prone to motor traffic accidents. Though Komba (2007) show clearly this trend but the findings reflect a case study of the Kibaha District. This makes us to lack the important information of road traffic accidents in the city of Dar es Salaam and its characteristics. Second, Dar es Salaam is a city not a district, it is noted that it is a fast growing city in Africa. Therefore, there is a need to analysis the problem particularly in the city of Dar es Salaam on which the incidence of road crashes are increasing.

Regardless of the countless amounts of research and development, road safety is still one of the main societal concerns today. This alone justify that more studied of this kind are needed in order understand clearly the problem understudy and come up with informed knowledge that could help to minimize if not to end road accidents.

Table 2. 1: Summary of Literature Review

Factors	Country	Method	Findings	Author
Mechanical factors	Nigeria	Cross sectional study	Mechanical fault contribute to Road accident for 50.0%	Charles O. Bekibele, (2007)
	Kenya	Documentary reviews, medical records, statistics abstract	Vehicle defects contribute to Road accident for 5.1%	Wilson Odero et al (2003)
Design Factors	Nigeria	Cross sectional study	Slippery wet Road contribute to Road accident for 18.8%	Charles O. Bekibele, (2007)
	Nigeria	Cross sectional study	Bad Road contribute to	Charles O. Bekibele,

			Road accident for 12.5%	(2007)
Human factors	Nigeria	Cross sectional study	Human error contribute to Road accident for 12.5%	Charles O. Bekibele, (2007)
	Kenya	Documentary reviews, medical records, statistics abstract	Human contribute to road accidents for 85.5%	Wilson Odero et al (2003)
	India	Case study	Human factor contribute for 77.5% in the causation of road traffic accident	Ministry of Road Transport and Highway (2013)
	Tanzania	Cross sectional study	Human factor is the major causes of road traffic accident	Mwakapasa (2013) Komba (2007)

2.5 Research Gap

After a critical review of relevant literature several gaps have emerged and needs to be filled. It is note that, the characteristics of road traffic accident happening in Dar es Salaam city are missing in most reviewed literatures in the topic under study. Second, it is shown in literature that road traffic accidents in Tanzania have not been considered as a public health matter like Malaria and other diseases despite the fact that road crashes is the third largest cause of death (WHO, 2013) worldwide. Finally, most of the reviewed literature on the topic particularly those empirical literatures, shows that the problem understudies have not been studied holistically in Tanzania. Therefore, this study aims at extending our knowledge of these issues.

2.6 Conceptual Framework

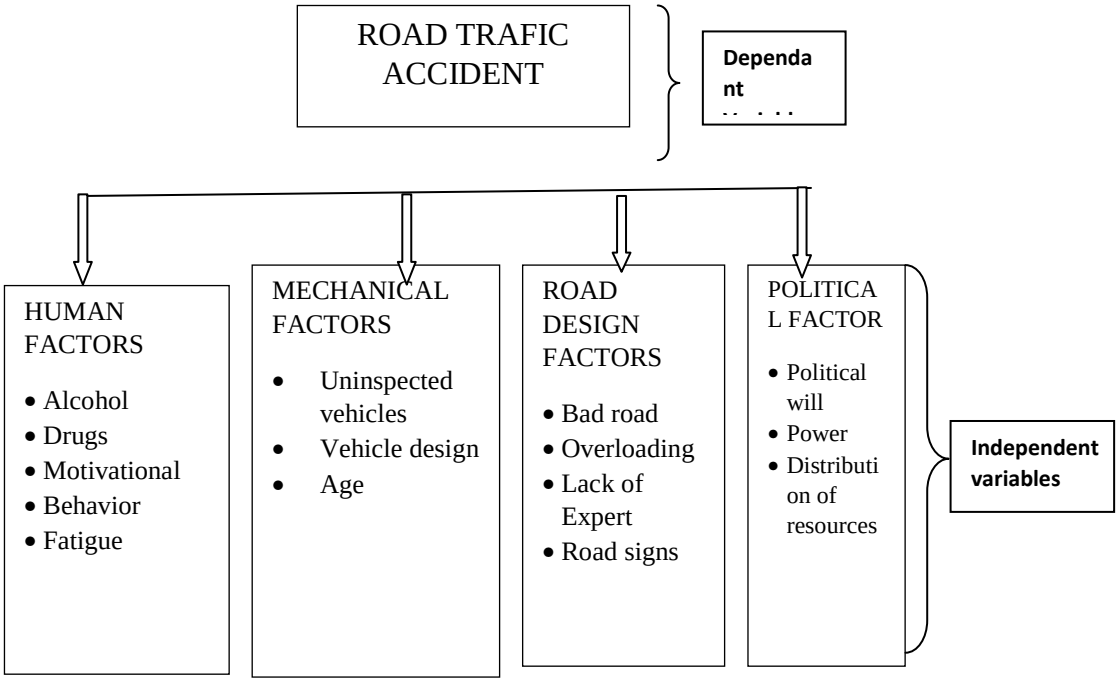

Figure 2.1: Conceptual Framework

Source: Researcher, 2015

In this conceptual framework Road accident is dependent variable while human factors, mechanical factors, design factor and political factors are independent variables. This implies that the occurrence of road traffic accidents either influenced by human, mechanical, design and political factors. Therefore, any efforts to minimize the accidents will depend with improving these factors.

2.7 Theoretical Framework

This study is an attempt to theorize the road traffic accidents within the framework of Political Ecology. This theory is capable of analyzing the phenomenon of road traffic accidents Peter, J. Taylor, (1999), Keil, 1998). This is due to the fact that, Political Ecology analyses the complexity of social and environmental change as something

produced by intersecting and conflicting economic, social, and ecological processes operating at different scales. Political ecology as an analytical framework originated in the 1970's with a paper by Eric Wolfs seen as the earliest work of political ecology Taylor, (1999)Keil, 1998).Political ecological deals with issues related to environment, political economy, society and ecology. The main focus of the approach is the future of work and population growth in relation to factors influencing future developments.

Theorists in this approach connect local struggles and changes related to land, labor which are contested are drawn upon the historical background of the current process, highlight the dynamics related to inequality, and attend to critical developments in the larger political economies(Taylor, 1999). It also emphasizes the importance of asymmetries of power, the unequal relations between different actors, in explaining the interaction of society and environment.

Mayer (1996) introduced the political ecology of diseases. This concept focuses on the relevance of political and economic factors on different geographical locations in the study of health and diseases.In fact, this can also be extended to health and accident risk as well. This study agrees with the assumption that although politics is not of direct concern of geography, it playsa very vital role in determining the way in which people view and utilize the recourses andopportunities available to them. The above exposition indirectly shows the importance of political ecology of disease or accidents concept when one is researching into any study such how community perceive risk in relation to road traffic accident inany country at local scale. It

follows that, this is strongly linked to available resources and capacity of the national and local authorities to put road safety strategies in place. The lack of resources and power to follow up on control and enforcement can result in lower motivation of police force. This is because government policy does have an influence on all the factors that cause traffic accidents, be it the quality of the road network, the associated physical environment , traffic engineering, the condition of vehicle or vehicle fleet stock or the behaviors and attitudes of road users.

In accordance with the topic of road traffic accident in Tanzania, the proposed approach will help to associate and integrate human-environmental factors at local level and the traffic accidents at specific locations in relation to social, economic and political aspect and practice. How local authority prioritizes the traffic safety measures in terms of distribution and allocation of resources, budgeting, rules, regulations and control is a matter of interest for this study.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Chapter Overview

The section presents research methodology used in this study. The section describes the research design, study area, data source and type,study population, sample size, data collection, data analysis, definition and measurement of variables and sampling procedures.

It is also important to note that this study was built upon interpretive philosophy. The rationale was that the research was based on some underlying assumptions about what constitutes ‘valid’ research. The philosophy was chosen because of its assumption such as it considers social reality as socially constructed. Simultaneously, it views theories as reconstructions of the facts, and the criterion of a good theory is an understanding of meaning and intentions rather than deductive explanation. On the other hand, Meanings in natural science are separate from facts, whereas in social science meanings are what constitute facts, for data consist of documents, intentional behaviour (action), social rules, culture, and these are inseparable from their meanings for agents. Finally, the ‘logic’ of interpretation parts cannot be understood without the whole, data and concepts cannot be understood without theory and context (Michael, 2008).

3.2 Research Design

The discussion up to now (from the previous chapters) has been to make a case for this research study and to justify why it will be carried out. This study will use case study approach to analyze the phenomenon of road traffic accident. 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. In a similar manner, Platt (1992) maintains that case study approach is one of the several ways of doing social science research. The rationale of using this method was that it is a preferred strategy “when ”“how” or “why” questions are being posed Schorr (1997), when the investigator has little control over events, and when the focus is on a contemporary phenomenon with the same real experiences/context Silverman (2000).

Nonetheless, case studies allow a researcher to retain the holistic and meaningful characteristics of real life events. It is an empirical inquiry that investigates a contemporary phenomenon within its real life context when the boundaries between phenomenon and contexts are not clearly evident. In the process of analyzing the effects of road traffic accidents in Tanzania, Dar es Salaam city is chosen to bethe unit of analysis for an in-depth understanding of life experience of accident victims in relation to safety measures undertaken by the government to improve health and system risks in the country. A case study approach seems to be relevant in my study during the retention of the holistic information of individuals with similar situation.

This method was also chosen because was to explain the causal links in real life intervention, describe the real life context in which an intervention has occurred, and

evaluate the intervention itselfYin, (2003). Given the nature of this study, it is the appropriate approach to use in understanding the real life context associating to causal link of traffic accidents (based on environment, human behavior, and vehicle and traffic regulations) and associate with the traffic safety interventions in reducing high health and system risks in the country.

3.3 Study Area

Dar es Salaam is located at 6°48' South, 39°17' East (−6.8000, 39.2833). Dar es Salaam is Tanzania's largest and richest city, the largest city in eastern Africa by population, and is a regionally important economic center. It is the capital of the Dar es Salaam Region administrative province and consists of three local government areas or administrative districts:

Kinondoni in the north, Ilala in the center, and Temeke in the south. The region has a population of 4,364,541 as of the official 2012 census. The city remains the focus of the permanent central government bureaucracy. The city is comprised of three Municipalities; Kinondoni, Ilala and Temeke. In fact, this research will be conducted in Temeke District.

Temeke District is the southernmost of three districts in Dar es Salaam, Tanzania with Kinondoni to the far north of the city, and Ilala in the downtown of Dar es Salaam. To the east is the Tanzania Indian Ocean and to the south and west is the coastal region of Tanzania. The 2012 Tanzania National Census reports that the population of Temeke District is 1,368,881. The area is 656 km².

3.4 Data Types and Sources

Both quantitative and qualitative data was used. Primary data was collected from Temeke main roads namely Mandela, Kilwa, Chang'ombe, Temeke – Mbagala, Dr. Omary, Taifa, Davies Corner – Jet Lumo which are located within Temeke District.

3.5 Study Population

The study population for study involved the Victim of road traffic accident, Traffic Police, Drivers, SUMATRA, Medical doctors, pedestrian, and driving schools. A total number of 108 key informants will be interviewed.

Samples for qualitative studies are generally much smaller than those used in quantitative studies. Ritchie, Lewis and Elam (2003) provide reasons for this. There is a point of diminishing return to a qualitative sample as the study goes on more data does not necessarily lead to more information. This is because one occurrence of a piece of data, or a code, is all that is necessary to ensure that it becomes part of the analysis framework. Frequencies are rarely important in qualitative research, as one occurrence of the data is potentially as useful as many in understanding the process behind a topic. This is because qualitative research is concerned with meaning and not making generalized hypothesis statements (crouch and McKenzie, 2006). Finally, because qualitative research is very labor intensive, analyzing a large sample can be time consuming and often simply impractical.

Within any research area, different participants can have diverse opinions. Qualitative samples must be large enough to assure that most or all of the perceptions that might be important are uncovered, but at the same time if the sample is too large

data becomes repetitive and, eventually, superfluous. If a researcher remains faithful to the principles of qualitative research, sample size in the majority of qualitative studies should generally follow the concept of saturation (Glaser and Strauss, 1967) when the collection of new data does not shed any further light on the issue under investigation. Therefore, a total number of 108 key informants will be interviewed, but the size may increase if there would be no saturation of answers. The categories and criteria has described in the Table 3.1 below

3.6 Sample Size

Stratified sampling was used to obtain the sample size given the population of Temeke District. A proportionate stratification was adopted to obtain sample size of 108 respondents as follows

Table 3.1: Sample Size

Types of group	**Population**	**Sample Size**
Victim of road traffic accident	N1 = 30	15
Traffic Police	N2 = 5	3
Drivers of Public Transport	N3 = 30	16
Nurses and medical doctor in accident ward	N4 = 2	1
Pedestrian	N5 = 30	15
Driving schools	N6 = 11	6
Total	**N= 108**	**56**

3.7 Sampling Techniques

Both probability and non-probability sampling techniques was used to get respondent in this study. Again quantitative and qualitative methods used in the process of data collection. The assumption of the study was each methodology has specific advantage and weakness. Therefore, combining the two helped to cover the weakness of each. The assumption was the study was interested in specific information from the victims of accidents and specific authority dealing with road safety; specifically purposive sampling techniques used to get respondents and key informants. On the other hand, the study collected the general knowledge from pedestrian and other stakeholders. In this case random sampling was used to get those respondents. It is important to note that the difference between non probability and probability sampling is that, non-probability sampling does not involve random selection whiles probability sampling does. This implies that the usage of non-probability samples cannot depend upon the rationale of probability theory.

Researchers have observed that in applied social research, there may be circumstances where it is not feasible or practical to use probability samples. Flick (1998); Baker (1999) notes in her book Doing Social Research that there are two major goals that sampling can achieve.

The first is to establish representatives of what is being studied and conversely to reduce bias , The second was to be able to make inferences from findings based on a sample to a larger population from which that sample was drawn. A study based on a sample that does not conform to the above conditions has to use no probability

sampling considering the aim of the study and the respondents to be interviewed. Probability sampling is not feasible hence the use of non-probability sampling was the best option available for this study.

3.8 Data collection Techniques

3.8.1 Questionnaire

Questionnaire was used as one method in the process of data collection. This method involved pedestrian, drivers of public transport, and driving schools.

3.8.2 In-depth Interview

An in-depth interview is a qualitative research technique conducted in a form of conversation/discussion between researcher and respondent (person to person discussion) with the purpose of exploring issues or topics in great detail (Babbie, 2010). The interviewer encourages participants to freely discuss their feelings and opinions, and probes on questions to gain insight and depth to responses. This type of interview was often unstructured. Therefore it permits the interviewer to encourage participants to talk at length about the study topic, hence to increase insight into people's thoughts, feelings, and behaviors.

This method was used to interview the Traffic Police, accident victims, drivers and school driving. According to Saunders et al. (1997), Schindler, (2001) with semi-structured interviews the interviewer will be guided by a set of questions or themes and shall attempt to establish rapport with the respondent to produce richer data. The advantage of a semi-structured interview is the flexibility in obtaining information based on themes such as characteristic of road traffic accident as happening in Dar es Salaam city, causes and effects of road traffic accident in Dar es Salaam city and the

relationship between society, economy and ecology. It also provides the opportunity to probe answers, to build on the interviewees responses and to address the sub problems under study. A pilot survey conducted to ascertain the level of reliability, validity and ambiguity in respect of understanding the issues and the responses.

3.8.3 Documentary Review

In this study the documentary review was also used as a source of secondary data. Several documents are reviewed ever since it is impossible to review all of them. The review involves reports carried out by individuals and organizations on the problem understudy. The purpose was to generate concepts and theoretical knowledge available and to prepare research instrument and field observation.

3.8.4 Observation

This study used observation as method of data collection. This was in the form of non-participant observation. In this method research observed things such as driving behavior, adherence to road traffic signs and the use of speed required and other issues that can be seen physically and interpreted.

3.9 Data Analysis

In qualitative research data analysis tends to be an ongoing and iterative (nonlinear) process. The procedures involved include interim analysis, memoing, data entry and storage and coding and developing category system. The method guiding the analysis was comparative cases where researcher was comparing response from key informant and come up with themes and concepts related to the topic under study.

In case of quantitative data analysis the dominant methods used were frequency, percentage and graphs. This was facilitated through Statistical Package for social scientist (SPSS) and excel where by correlation analysis and regression model was used to analyze data to test the impact of road accident in Temeke District. Likewise frequency distribution tables were used to analyze and present data for interpolation.

3.9 Definition and Measurement of Variables

Table 3.2: **Measurement of Variables**

Types of Variables	**Name of Variable**	**Definition of variable**
Dependent variables	Road Accident	An accident involving at least one road vehicle occurring on road open to public circulation and in which at least one person is injured or killed
Independent variables	Human factors	Any accident which are caused by human errors or fault
	Mechanical factors	Accident caused by vehicle problem
	Road design factors	Poor road design may lead to road accident
	Political factors	Interference of politicians during design of roads may lead to road accident

CHAPTER FOUR

RESULTS ANALYSIS, DISCUSSION AND INTERPRETATION

4.1 Chapter Overview

As indicated in chapter one the specific objectives and subsequent research questions that informed this study were as follows (i) what are the types of Road traffic accident happening in Temeke District? (ii) What are the major causes of road traffic accidents in Temeke District? (iii) What are the impacts of Road traffic accidents to pedestrians? In order to answer these questions questionnaire, interview and observation were used in the process of gathering data and information needed by the study. These methods were taken from both qualitative and quantitative methodology. The rationale of combining the two methods was that the study wanted to ensure that the limitations of one type of data are balanced by the strengths of another. This ensured that understanding is improved by integrating different ways of knowing. In this regards, the research findings, interpretation and discussions are presented in the following manner;

4.2 Demographic Characteristics of Studied Population

4.2.1 Age of the Respondents

The analysis of age composition to the respondents who participated revealed that the age of respondents range between 25 and 50 years. As shown in Table 3 below, about 31.5 percent of all the total respondents belong to the age of 40-44; on the other hand, about 27.8 percent belongs to the age of 30-34 and it was also revealed that about 13.0 of the total respondents are aged between 45-49 respectively while at least 9.3 percent were those respondents belong to the of 35-39. This means that the study involved both category youth and adults, with this age researcher was able to get knowledge and information required to answer the specific questions posed by the study.

Table 4.1: Percentage Distribution of Respondent Age

	Frequency	**Percent**
25-29	20	18.5
30-34	30	27.8
35-39	10	9.3
40-44	34	31.5
45-49	14	13.0
Total	**108**	**100.0**

Source:Researcher (2015)

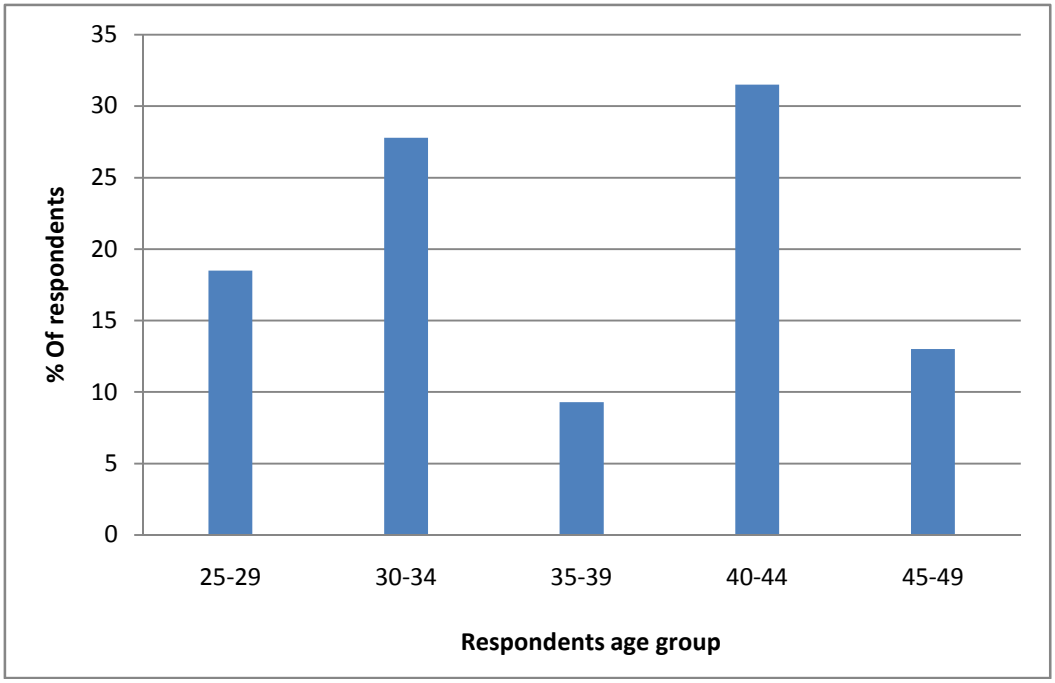

Figure 4.1: Percentage Distribution of Respondent Age

Source:Researcher (2015)

Age group should be understood as one among the criteria which determine the quality of information and answers one is able to give. With this in mind, it should be noted that social research like this one helps policy maker about how things work, helps to understand why things are the way they are, and sometimes just informs society about problems that exist. It helps not only to supply information useful in remedying problems already known; it serves to make the problems known.

4.2.2 Gender of the Respondents

Looking at the Table 4.2 we see that more than 72.2 percent of the total respondents who participated in this study were male and the rest percent of respondents were female.The reasons why men have high participation to issues related to conversation, dialogue and information sharing is cultural oriented. Though currently

this have habit have been dropping out because of modernization, civilization and educational factors.

Table 4.2: Gender of the Respondents

	Frequency	**Percent**
Male	78	72.2
Female	30	27.8
Total	**108**	**100.0**

Source: Researcher (2015)

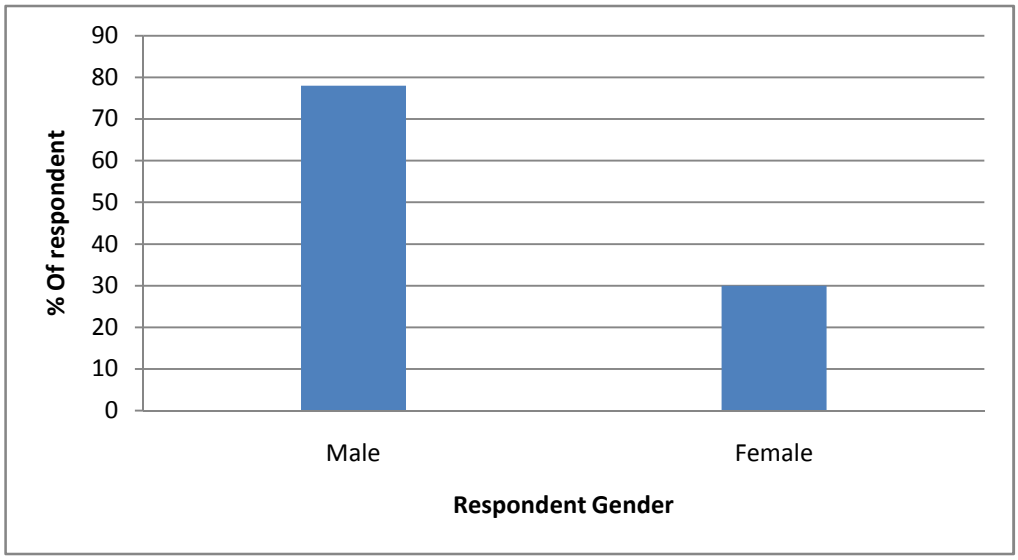

Figure 4.2: Gender of the Respondent

4.2.3 Education Level of Respondents

The study was conducted to respondent of various level of education thus almost 50.0 percent of them went in secondary school while 18.5 percent were those completed the level of primary education, additional to that at least 13.9 of them were graduates while 9.3 percent of them went for diploma and only 8.3 percent of them possesses a certificate level of education. Generally, this implies that the study

people from different categories of education and thus they were preferred as the sample for conducting the research. The following Table 4.3 indicates more on education categories and amount of respondents from such category

In today's society education is one among the important thing people needs to acquire. It provides them with knowledge and skills that can lead to a better quality of life. Education is a key determinant of the life style and status an individual enjoy in the society. However, the data presented in Table 4.3 above indicates that still there is a need to encourage people to get more education. In the study area (Temeke) the findings reveled that highest number of the people participated in the study were people who completed the level of secondary school.

Table 4.3: Percentage Distribution of Respondent's Level of Education

	Frequency	**Percent**
Complete primary education	20	18.5
Secondary education	54	50.0
Certificate	9	8.3
Diploma	10	9.3
University	15	13.9
Total	**108**	**100.0**

Source: Research (2015)

As noted by Jo Blanden*et al* (2002) on which this study concur to their findings they explained that family income is a key factor determining educational attainment. It is noted that all this has become even more relevant today, given sharp increases in incomeinequality. In particularly, Existing research tends to show that children from poorer backgrounds do lesswell in a number of dimensions than the rest of society (see, for example, Gregg andMachin, 1999, 2000).

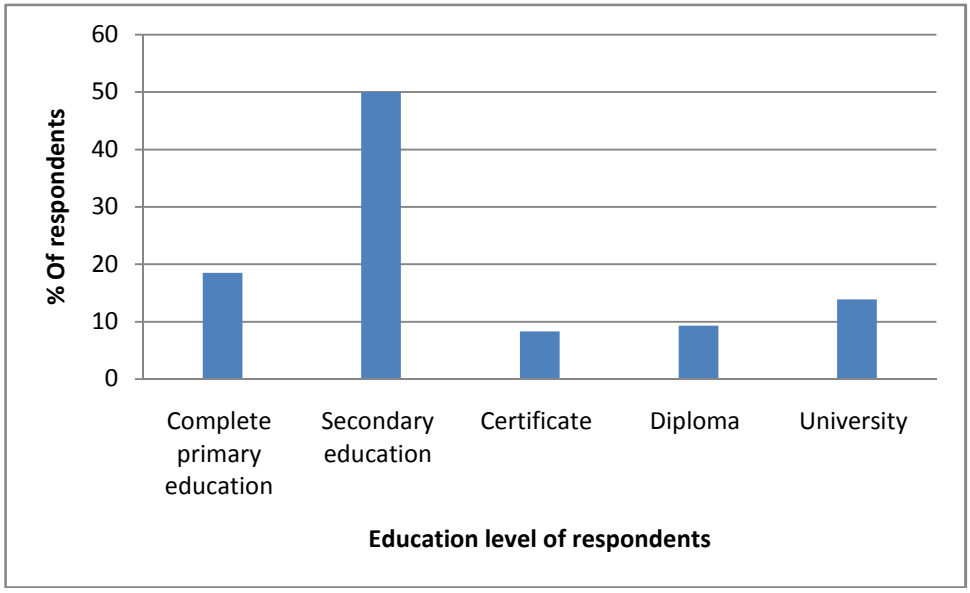

Figure 4.3: Assessing Education Level of Respondents

4.2.4 Respondents Occupation

The respondents selected belong to different occupation categories. Majority of them are self-employed constituting 48.1 percent followed by employed respondents constituting 32.4 percent. Also students 'constitute10.2 percent and unemployed respondents constituting 9.3 percent. The respondents were chosen in these categories because it includes majority people have their own life, families and have children's. They travel regularly to look for their daily bready and so can respond appropriately to the factors contributing to road traffic accidents in the city of Dar es Salaam.

Table 4.4: Percentage Distribution of Respondents by Occupation

	Frequency	Percent
Employed	35	32.4
Self-employed	52	48.1
Student	11	10.2
Unemployed	10	9.3

Total	**108**	**100.0**

Source:Research (2015)

The forgoing shows that majority of urban dwellers make their living through informal sector. The reason to this are many, some of them includes limited formal employment, low level of education to many people because of poverty prevent particular group of people from getting more opportunity to go to school. Other factor includes rural-urban migration where some particular groups of people go to towns to look for the good life because they cannot get what they want in the rural area. It is noted that some of these migrant are uneducated their possibility of getting formal education is limited to them.

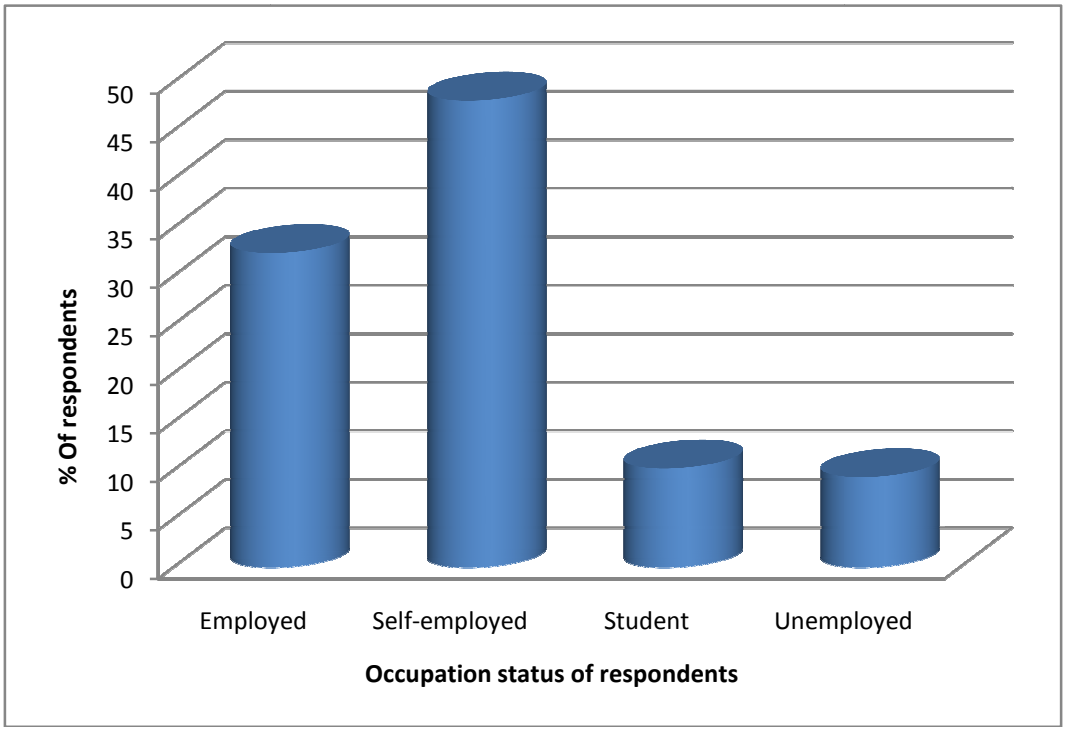

Figure 4.4: Percentage Distribution of Respondents by Occupation

4.2.4 Marital Status of Respondents

Majority of the respondents (72.2%) were married, while at least the rest of the percent (27.8%) were single (table 4.5). This implies that majority of respondents have families in which they are exposed to different family responsibilities. Therefore, because of income limitation in urban setting due to over concentration in informal sector it is clear that accessing to basic needs including highest level of education is also limited.

Table 4.5: Percentage Distribution of Respondents by Marital Status

	Frequency	**Percent**
Single	30	27.8
Marriage	78	72.2
Total	**108**	**100.0**

Source: Research (2015)

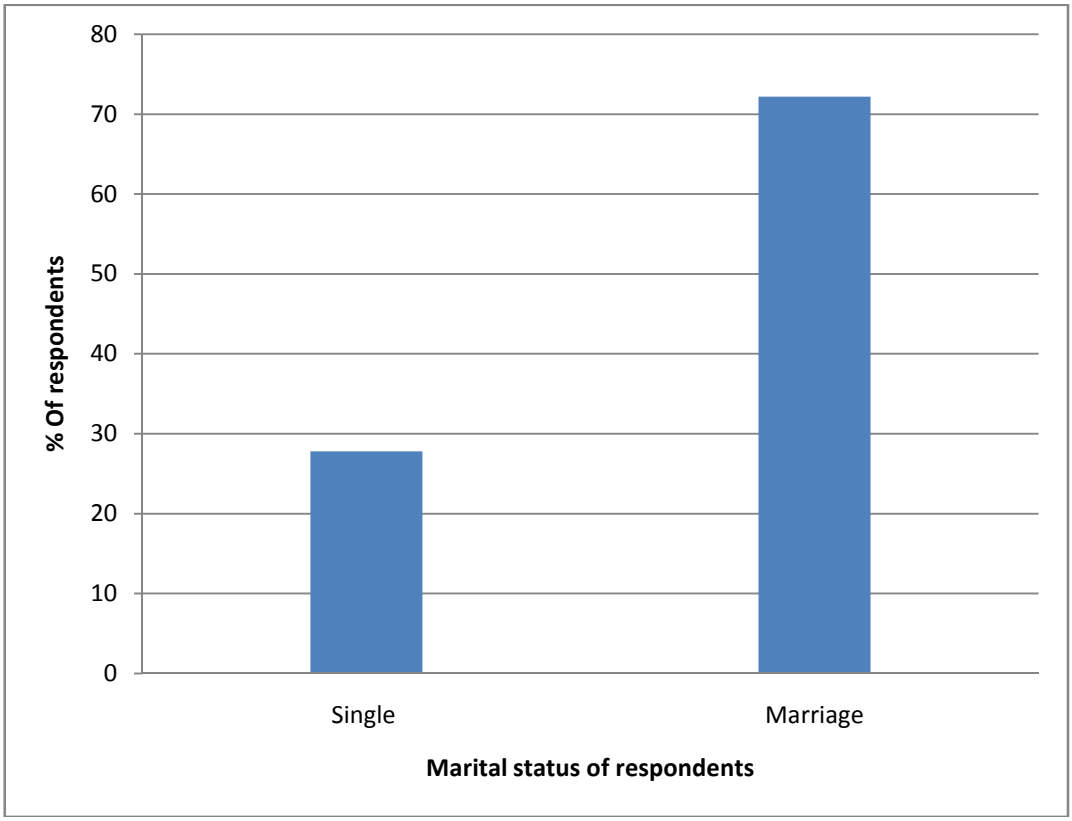

Figure 4.5: Percentage Distribution of Respondents by Marital Status

4.3 Driving Behavior in the City of Dar es Salaam

Dar es Salaam is among rapid growing cities in Africa. Despite of its rapid growth road the road transport system is the most important mode of transport in the city and the government and the public is concerned about thesafety of the system.The number of reported RTA has been increasing inspite of the stakeholders' efforts through the National Road Safety Council(NRSC) and other government sporadic initiatives.

One of the critical areas in which this study investigated is driving behavior in the city of Dar es Salaam. Behavior is the range of actions and mannerisms made by individuals, organisms, systems, or artificial entities in conjunction with themselves or their environment, which includes the other systems or organisms around as well

as the physical environment. Behavior can change as a result of learning, provided we take up new strategies and practice them until they become new schema. This study was also interested to understand people's perception about the driving behavior in Dar es Salaam city. In doing so, respondents were asked to explain about it. The findings of the study revealed that 71.3% of respondents constitute bad behavior while 54.6 % of them constitute worse driving behavior, and 17.6% of them constitute somehow good. Furthermore, 12.0% of them constitute good behavior and only 9.3% constitute better behavior (Table 4.6).

Table 4.6: Percentage Distribution for Driving Behavior in the City of Dar es Salaam

	Frequency	**Percentage**
Better	10	9.3
Good	13	12.0
Somehow good	19	17.6
Bad	77	71.3
Worse	59	54.6

Total N=108

The forgoing suggest on the need to impact the human behavior in order to minimize the road traffic accidents in the city. Government is supposed to understand what they can do to help produce behavior change to help protect lives of the many people living in urban settings. *Many city drivers learn their driving in the street; they did not go to school driving in this case their driving are guided by emotion not road safety measures* (Male informant reported, August, 2015).

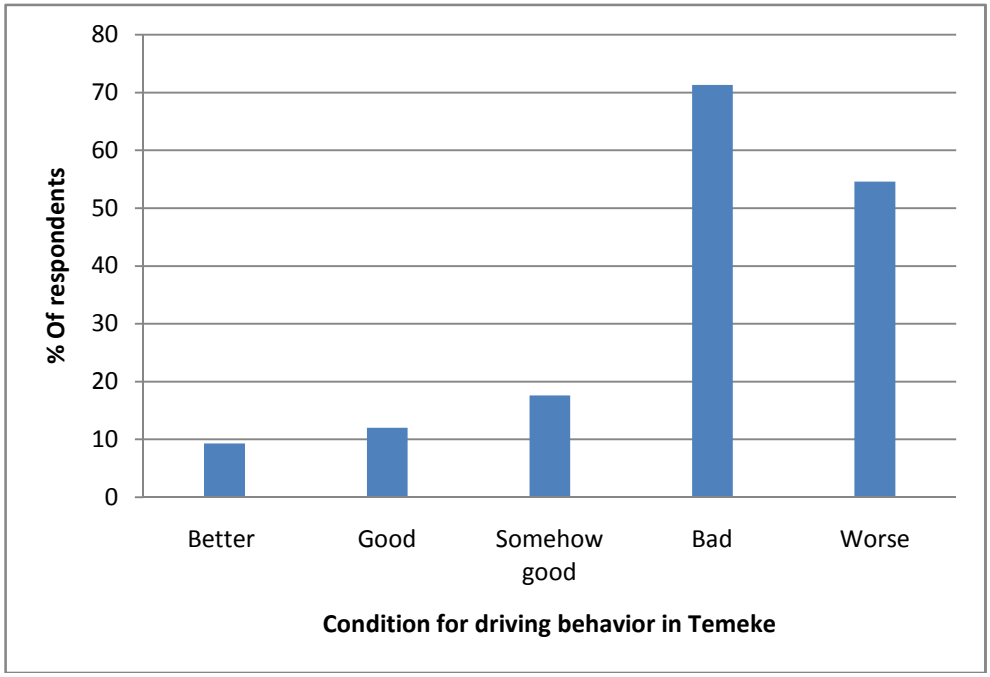

Figure 4.6: Distribution for Driving Behavior in the City of Dar es Salaam

It was also reported that *driving in urban settings are characterized by careless driving* (Female informant reported, August 2015). On the other hands, it was also commented that *mobile phone use while driving is common among city drivers, despite of being considered dangerous due to distracted driving. This has influenced a number of accidents that some have taken people's lives and leave other with disability* (Male informant reported, August 2015).

According to National Highway Traffic Safety Administration (NHTSA) (2006), has also noted the same. It noted that poor driving behavior is problem not only in Tanzania, but it happens in other city. NHTSA identifies that driving behavior is affected by age. The study continues to note that and driving experience coupled with theiroverconfidence and risk-taking behaviors. High-risk behaviors include failure to wear safetybelts, speeding, and driving while impaired (by alcohol or other

drugs), and drowsy or distracteddriving. This age group is particularly susceptible to distractions caused by other passengers inthe vehicle, electronic devices, and music.

Similar observation has also noted by Global Road Safety Partnership (2004).The impairment of normal driverbehavior is regarded here as ‘a reducedisability to perform adequately the variouselements of the driving task’.The cause ofdriver impairment (or resulting dangerousand erratic behavior) may be the resultof a number of factors such as alcoholconsumption, drug ingestion, injury,infirmity, fatigue, the natural ageingprocess; or a combination of these factors.

4.4 The Major Causes of Road Traffic Accidents in Temeke District

Temeke Municipality is one of the three Municipalities within the Dar es Salaam City Council. Evidence from literature suggests that Temeke District was established in 1972 as a result of Decentralization Policy famous in Swahili Madaraka Mikoani. Major social economic changes have happened ever since followingseveral reform programs (Temeke Municipal Council, 2013). It is worth equally to note that since thegovernment adopted decentralization by devolution policy in 1998, TemekeMunicipal Council have undergone major achievements in the all social-economic sectors. Temeke Municipality has been implementing interventionsgearing at contributing to National Strategies and Policy specific outcomes forgrowth, improved quality of live, good governance and equity.The micro socio-economic characteristics in brief indicates that Temekefaces the challenges of increasing population while slightly close to halfof its population is involved in informal sector as area of employment(49%). About one-fifth are involved in service sector, and

13% are involvedboth in agriculture and livestock and 18% do involved on others as area ofemployment (Temeke Municipal Council, 2013). This situation poses challenges in the projection of serviceprovision requirements and hence quantity and quality of the same may behindered.

However, the findings of the study noted that apart from those achievement and growth as indicated in the Temeke Municipal Council (2013), it is also revealed that like other municipal Temeke is also facing the problem of road traffic accidents. Like other areas human, mechanical, political and infrastructural factors have noted to contribute in the occurrence of road traffic accident in the municipal. It is revealed that 72.2 percent constitute driving behavior while alcoholism account for 55.6 percent in the causes of road traffic accidents in Temeke and 40.7 percent account for overloading. In fact, the following table 6 illustrates more on the causes of road traffic accidents in Temeke.

Table 4.7: Percentage Distribution on the Major Causes of Road Traffic Accidents in Tameke District

	Frequency	**Percent**
Alcoholism	60	55.6
Use of drugs	10	9.3
Driving behavior	78	72.2
Uninspected vehicles	30	27.8
Vehicle design	20	18.5
Bad road	60	55.6
Overloading	44	40.7
Poor road signs	20	18.5
Political will	20	18.5

Total N=108

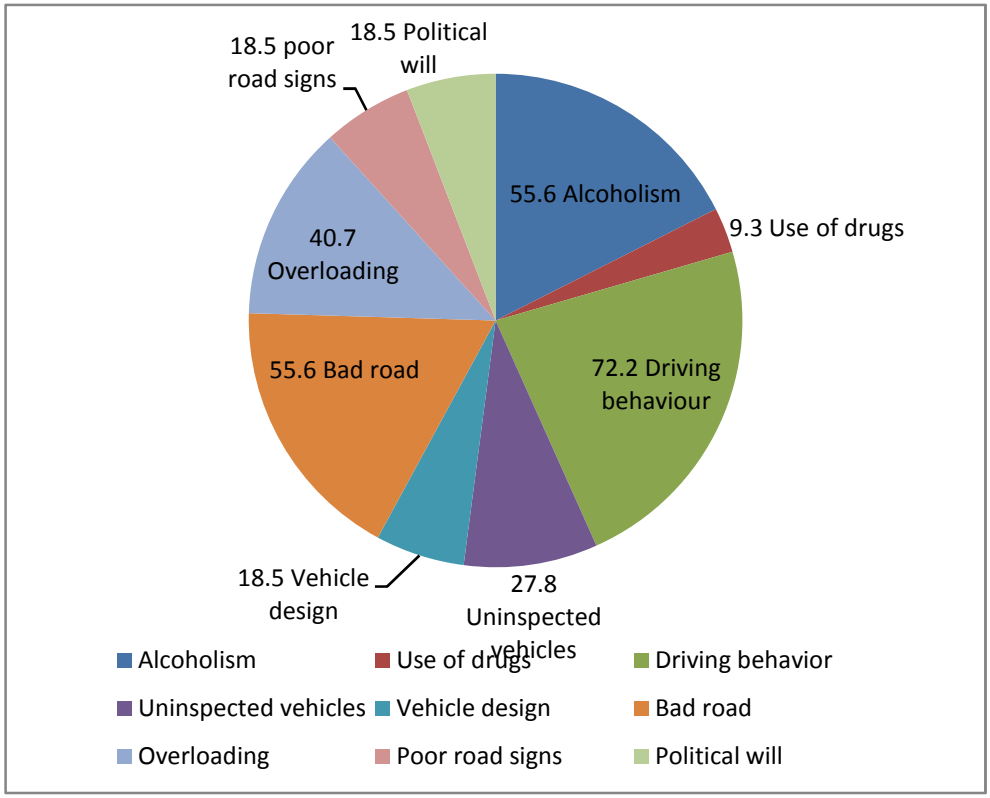

Figure 4.7: Percentage Distribution on the Major Causes of Road Traffic Accidents in Temeke District

From the data presented above, it follows that the major causes of road traffic accidents in Temeke District are poor driving behavior, alcoholism, poor road infrastructures, overloading and uninspected vehicles. Identifying the causes of phenomena and processes influences the problem is one among the achievement in planning the manner in which the problem can be reduced. *Lack of contract for most of the driver especially those from Daladala influences the increases in road traffic accidents because we are paid less, therefore, sometimes we drove fast in order to get money for the owner and for us also to remain with something.* (Daladala driver reported, August 2015). The forgoing was supported by another informants who said that; *sometimes drivers take alcohol because did not sleep the whole night was in the road as you know in Dar es salaam there is no night or afternoon all time is the time*

for work(Daladala driver reported, August 2015). Also the following Table 4.6 illustrates more on the people who commented on road traffic accidents in Temeke.

Table 4.8: Assessing Respondent Attitudes in the Agree or Disagree on Major Causes of Road Traffic Accidents

	Strong Agree	Agree	Somehow agree	Disagree	Strong Disagree	Total
Driving while drinking alcohol among Temeke drivers causes road traffic accidents	50.0%	40.7%	9.3%	-	-	100.0%
Drug use influences the occurrence of road traffic accidents in Temeke district	9.3%	27.8%	31.5%	22.2%	9.3%	100.0%
Driving Behavior in Temeke District causes road traffic accidents	35.2%	37.0%	27.8%	-	-	100.0%
Lack of motivational among drivers of public transport is the major causes of road traffic accident in Temeke District	18.5%	27.8%	18.5%	35.2%	-	100.0%
Road traffic accident in Temeke district is caused by too many uninspected vehicles	9.3%	27.8%	31.5%	31.5%	-	100.0%

Vehicle design influence the occurrence of road traffic accident in Temeke District	-	-	9.3%	88.5%	9.3%	100.0%
Bad road in Temeke District is the major cause for road traffic accidents	22.2%	18.5%	40.7%	18.5%	-	100.0%
Distribution of resources in the country is the major causes of road traffic accidents	-	9.3%	53.7%	37.0%	9.3%	100.0%
Poor road signs in Temeke highway roads contributes to the occurrence of road traffic accidents	9.3%	81.5%	9.3%	-	-	100.0%
Lack of political will contribute to the occurrence of road traffic accident	-	-	18.5%	72.2%	9.3%	100.0%

Source: Research (2015)

Proceeding from the data presented above, it appear that other countries also are suffered from the roads traffic accidents because of similar factors. For instance, Ayeboo (2009), from Ghana identified that the numerous accidents on our road networks have been linked to various causes which include over speeding, drink

driving, wrong over taking, poor road network and the rickety vehicles which ply on our roads. The study continues to note that the National Road Safety Commission (NRSC) has identified over twenty causes of road accidents in Ghana which include unnecessary speeding, lack of proper judgment of drivers, inadequate experience, carelessness, wrong overtaking, recklessness, intoxication, over loading, machine failure, dazzling and defective light, boredom, unwillingness to alight frommotion objects (vehicles, motor cycles, human being and uncontrolled animals), skid and road surface defect, level crossing and obstruction. Other factors are inadequate enforcement of road laws and traffic regulations, use of mobile phones when driving, failure to buckle the seat belt and corruption, (National Road Safety Commission, 2007).

It follows that elsewhere, the causes of road accidents have also been linked to one or combination of the following four factors, equipment failure, road design, drivers‟ behavior and poor road maintenance. However, studies have shown that over 95% of all road crashes are caused by the behavior of the driver and the combination of one or more of the other three factors. Similar observation was also noted to happen in Cambodia where it is reported by Ung Chun (2007).According to the country report on Road Safety in Cambodia, road accident is caused by human factors (road users), road defects and vehicle defects. It was found in the report that road accident in Cambodia was increased by 50% in five years while the fatality rate was doubled. To help reduce the rate of road accident it was suggested that Road accidents Safety Committee was set up, accident data system was established, accident evaluation policy and driver training measures were to be put in place (Ung Chun, 2007).

Experiences drawing from other researches on which this study agrees shows that the escalating number of carnage on our roads especially in sub Saharan Africa to bribery and corruption. In a study conducted in Russia to find out the contribution of corruption to road toll, it was found out that people were paying as much as US800.00 to obtain driving license without going through any form of driving school ("Russia" Today,2010). Therefore, this implies that human factor contributes to great extent in the causes of road traffic accidents though other factors also such as infrastructure and mechanical factors.

4.5 The Common Types of Road Traffic Accidents in Temeke District

Another area of interests to this study was to find out the types of road traffic accidents happening in Temeke District. The assumption of the study was that understanding the nature of road traffic accident by district helps in generation solution which is relevant in a particular context.

Table 4. 9: Percentage Distribution in the Types of Road Traffic Accidents in Temeke District

	Frequency	**Percent**
People versus vehicles	30	27.8
Vehicles versus motorcycle	88	81.5
Vehicle to vehicle	40	37.0
Public vehicle versus individual vehicle	20	18.5
Public vehicle versus public vehicle	20	18.5

Total N=108

The analysis of data for this study indicated that vehicles versus motorcycle constitute for 81.5 percent total accidents happening in Temeke while 37.0 percent of

accidents are vehicle to vehicle, furthermore 27.8 percent account for the accidents happen between people versus vehicles and 18.5 percent of road accidents are those between public vehicles to public vehicles (Table 4.8).

As we have seen the Table 4.8, the leading types of road traffic accidents in Temeke Vehicles versus motorcycle. This category has the highest frequency compared to other types of accidents. It is noted that Motorcycle riders are in a unique position on the road. They enjoy the freedoms that come with their chosen form of transportation, but they are also exposed to dangers not met by automobile drivers and other motorists. This also is happening elsewhere, According to the U.S. (NHTSA), in 2006, 13.10 cars out of 100,000 ended up in fatal crashes. The rate for motorcycles is 72.34 per 100,000 registered motorcycles.Motorcycles also have a higher fatality rate per unit of distance travelled when compared with automobiles. Per vehicle mile traveled, motorcyclists' risk of a fatal crash is 35 times greater than a passenger car. Similar to that, in 2004, figures from the UK Department of Transport indicated that motorcycles have 16 times the rate of serious injuries compared to cars.

Similar observation has been made by Bryson (2012) in the city of Dar es Salaam on which this study concurs. The finds that motorcycle are increasing in the city of Dar es Salaam since have been identified as a source of employment. The study continues to note that, this increase in motorcycling has been accompanied by an increase of motorcycle crash injuries. Despite the alarming increase of motorcycle crash injuries, little is known about the pattern of injuries and associated factors of motorcycle

crash in the local setting.In the period of six months a total of 2429 road traffic injury victims were treated at the emergency department of MOI out of who 886(36.5%) were motorcycle crash injury victims.The study included 722 motorcycle crash injury victims, 625 (86.6%) were males and 97 (13.4%) females with a mean age of 33.9 years (SD=13.1), ranging from 13 to 90 years. Majority (65.0%) motorcycle crash injury victims were between the age of 20 and 40 years.

It was also observed that though Dar es Salaam is becoming a highly urbanized city the infrastructures have not kept pace. Dar es Salaam is the major commercial, administrative and industrial Centre of Tanzania with a large number of registered motor vehicles. The city has no sufficient transport system and the majority of the roads are of poor surface conditions caused partly by lack of maintenance.

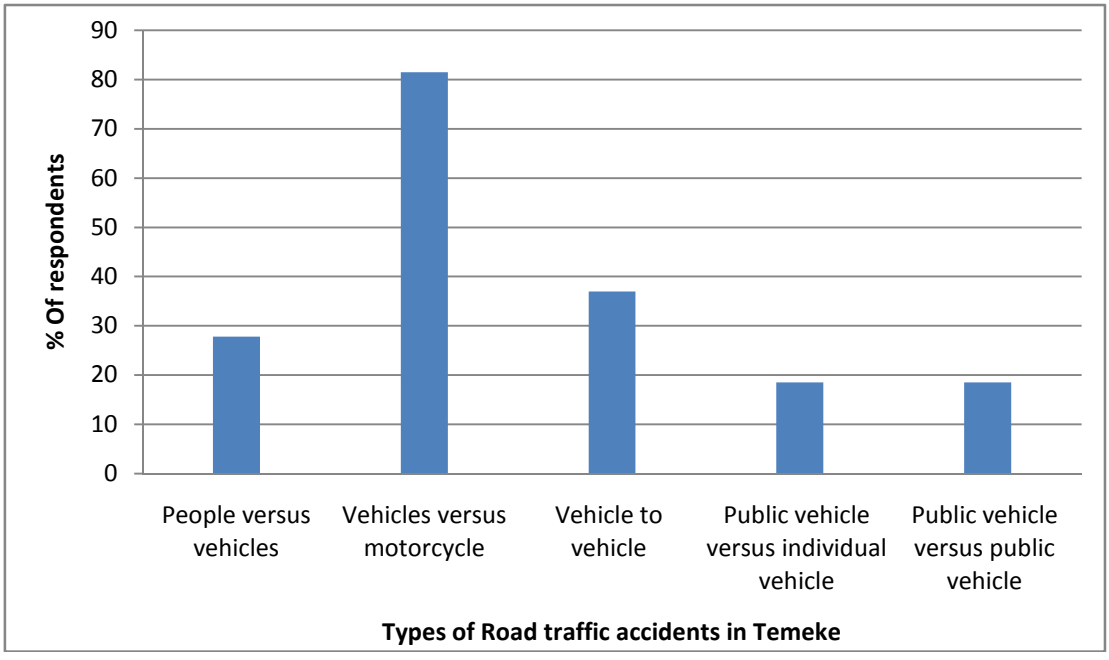

Figure 4.8: Assessing Common Types of Road Traffic Accidents in Temeke District

4.5 The Consequences of Road Traffic Accidents

The impacts of road traffic accidents are many and some are short term while others are long term. Additional to that they can be categorized in terms of social and economic consequences. This study was also interested to identify the consequences of road traffic accidents. In doing so, it came to be known that 90.7% resulting in death while 68.5% leads in loss of property and 63.9 constitute to poverty. On the other hand, at least 59.3% of the accidents lead to disabilities and about 62.0% leads to injuries See Table 4.10.

Table 4.10: Percentage Distribution of the Consequences of Road Traffic Accidents

	Frequency	Percent
Death	98	90.7
Injuries	67	62.0
Disabilities	64	59.3
Psychological problem	54	50.0
Poverty	69	63.9
Loss of property	74	68.5

Total N=108

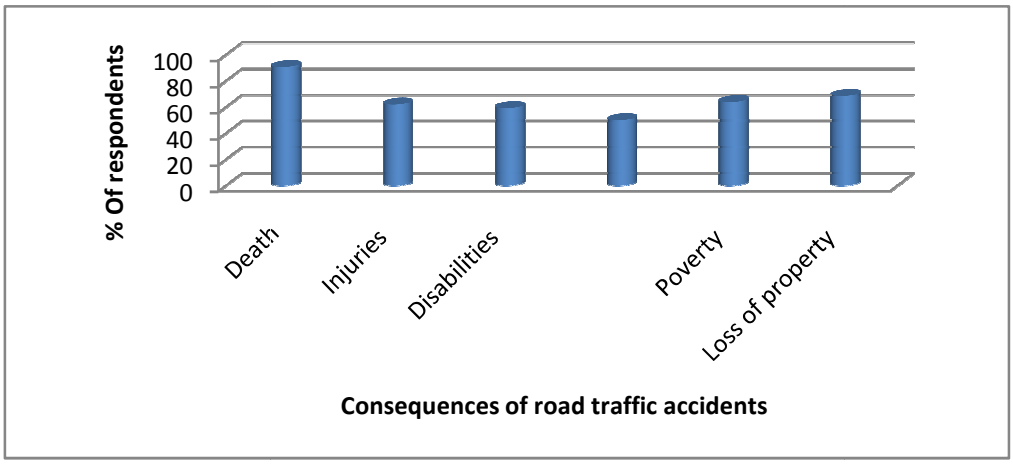

Figure 4.9: Percentage Distribution of the Consequences of Road Traffic Accidents

The forgoing shows that road traffic accidents is a critical problem that needs to be addressed seriously. Various countries are suffering from the impacts associated to road accidents. As noted by Awal, (2013) of which this study agrees with noted that, the problem of deaths and injury as a result of road accidents is nowacknowledged to be a global phenomenon.As a result authorities in virtually allcountries of the world are now concerned about the growth in the number of peoplekilled and seriously injured on their roads including Tanzania.Motor vehicle registration in Dar es Salaam is increasing rapidly as the population growscontributing to a rise in the number of road traffic injuries and fatalities.

Road traffic accidents have become ‘hidden epidemics’ across the world and have posed asubstantial health and economic burden to many developing nations.Experiences drawn from other countries suggests that road traffic has serious economic impacts. Forexample, in Mexico and India, road accidents may well be costing US$2.5-3.2 billion perannum, in South Africa and Pakistan US$0.5-1.0 billion and in Zimbabwe and KenyaUS$55-70 million per year and LDCs being around US$36 billion (Rwebangira, 2010) who explained that road traffic accidents costs the less developing countries around US$230 billion, with the cost to a sum that they can ill afford.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Chapter Overview

The main objective of this study was to examine factors contributing to road traffic accident accidents. In doing so, the study intended to address three objectives and answered three key research questions which are (i) what are the main types of road traffic accidents in Temeke District? (ii) What are the major causes of road traffic accidents in Temeke District? (iii) What are the impacts of road traffic accidents? In particularly, the answers to these raised questions were possible through the use of both quantitative and qualitative methodology. However, the conclusion and recommendation is arranged in the following manner.

5.2 Conclusion

Noticeably, road transport in Tanzania account for about 70% and it is the dominant means of transport of goods and passengers. However as important as it is the system has always been accompanied by a good deal of catastrophe emanating from tragic road accidents, which have been increasing year after another. It is estimated that every day thousands of people are killed andinjured on our roads. Men, women or childrenwalking, biking or riding to school or work,playing in the streets or setting out on long trips,will never return home, leaving behind shatteredfamilies and communities.Millions of peopleeach year will spend long weeks in hospital aftersevere crashes and many will never be able to live,work or play as they used to do. Current efforts toaddress road safety are minimal in comparison tothis growing

human suffering. Because of the seriousness and the impacts of road traffic accidents, this study calls for effective measures in preventing and minimizing its impacts.

In particularly, the study also observed that despite the fact that Dar es Salaam is becoming a highly urbanized city the infrastructures have not kept pace. Dar es Salaam is the major commercial, administrative and industrial Centre of Tanzania with a large number of registered motor vehicles. The city has no sufficient transport system and the majority of the roads are of poor surface conditions caused partly by lack of maintenance. In fact, this alarming on the increase in road traffic crashes in the city of Dar es Salaam and elsewhere. Here now the study providing the conclusion on the specific objective of the study;

In identifying major types of road traffic accidents in Temeke District, the study can be concluded that;

There are five types of road traffic accidents happening in Temeke District, these are between people versus vehicles, vehicles versus motorcycle, vehicle to vehicle, public vehicle versus individual vehicle and public vehicle versus public vehicle. However, the study noted that the dominant one is the accidents involves vehicles versus motorcycles. It is observed that current there are an increase in motorcycles because it has now become the source of employment to majority of youth especially who have did not get the opportunities of getting formal education due to various reasons while poverty and income limitations being the dominant one. The proportion of motorcycle crash injuries among road traffic injuries are noted to be higher for 36.5 percent compared to other types of road traffic accidents. Among the

reasons that influences this type of accidents ignoring the road safety measure, careless driving and speeding up their motorcycles.

In identifying the major causes of road traffic accidents in Temeke District, the study can be concluded that

There are several major causes of road traffic accidents identified by this study. The causes are categorized in several groups such as human, technical, mechanical and political factors. Altogether in one way or another involved in the causes of road traffic accidents. In particularly, they can be outlined generally as follows alcoholism, use of drugs,driving behavior, uninspected vehicles, and vehicle design. Other causes include bad road, overloading, poor road signs and political will. However, human factors have noted to be dominant factors influence's the occurrence of road traffic accidents.

In examining the impacts of road traffic accidents in Temeke, this study can be concluded that;

Road traffic injuries are a major but neglected publichealth challenge that requires concerted effortsfor effective and sustainable prevention.Of all thesystems with which people have to deal every day,road traffic systems are the most complex and themost dangerous. The associated impacts identified by the study are such as, death, injuries, disabilities and psychological problem as well as poverty and the loss of property. In this, the study found that death is the main consequences resulting from road traffic accidents. Generally, the impacts can be grouped into social and economic consequences.

5.3 Recommendations and Areas for Further Research

This study recommends the following;

5.3.1 Road safety measure needs to be taught as a subject in primary school. This is because large number of people ends with that level of education

5.3.2 Strict enforcement of road laws

5.3.3 Road traffic injuries should be considered as a public health issue. It is noted that the vulnerable groups of road users, including the poor. More than half the people killed in traffic crashes are young adults aged between 15 and 44 years often the breadwinners in a family.

5.3.4 To help strengthen institutions and to create effective partnerships to deliver safer road traffic systems.

5.3.5 To create greater levels of awareness, commitment and informed decision-making at all levels government, industry, international agencies and nongovernmental organizations so that strategies scientifically proven to be effective in preventing road injuries can be implemented.

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APPENDICES

Appendix I: Interview Guide and Questionnaire to Road users Open University of Tanzania

The study is conducted by Pharles Elisha Ngeleja a student of Open University of Tanzania inthe Faculty of Business Management. The study will result into a dissertation report, which is a partial fulfillment for the award of a Mastersof Business Administration Degree of Open University of Tanzania in Transport and Logistics. This study is in**Examining Factors Contributing to Road Traffic Accidents in Dar-Es-Salaam**

The survey thus is meant to avail background information about the causes of road traffic accident in Dar es Salaam city.

Thepurpose of the survey is therefore to gather data from different stakeholders in Temeke District. You have been selected because you are a the main user of roads in the City. I would like you to assist me in answering the question follow below. Thedata collected shall be treated with utmost confidentiality and anonymity.

Thanking you for your cooperation

Appendix II: Interview Guide

Dear Respondent, My name is **Pharles E. Ngeleja**, a Masters student in Business Management, Open University of Tanzania. I am currently conducting a research entitled **"Examining *Factors Contributing to Road Traffic Accidents in Dar es Salaam City*"**. I would like you to assist me in answering the question follow below. The answers provided with you will remain confidential between you and researcher.

1. Outline the major causes of road traffic accidents in Temeke district

_____

_____

_____

_____

2. What are the major types of road Traffic accidents happening in Temeke District

_____

_____

_____

_____

3. Outline the impacts of road traffic accident

_____

_____

_____

What should be done to minimize road traffic accidents in Temeke District?

_____

_____

_____

Appendix III: Questionnaire

Dear Respondent, My name is **Pharles E. Ngeleja**, a Masters student in Business Management, Open University of Tanzania. I am currently conducting a research entitled **"Examining *Factors Contributing to Road Traffic Accidents in Dar es Salaam City*"**. I would like you to assist me in answering the question follow below. The answers provided with you will remain confidential between you and researcher.

Section A: Demographic Characteristics

1. Name of respondents _____
2. Respondent Gender
    i) Male
    ii) Female
3. Respondent Age
    i) Below 19
    ii) 20 – 24
    iii) 25 – 29
    iv) 30 – 34
    v) 35 – 39
    vi) 40 – 44
    vii) 45 – 49
    viii) 50+
4. Education level of Respondents
    i) Incomplete primary education (_____)
    ii) Complete primary education (_____)

iii) Secondary education (_____)

iv) Certificate (_____)

v) Diploma (_____)

vi) University Degree (____)

vii) Tertially education (_____)

viii) Others specify (_____)

5. Respondent occupation

i) Employed

ii) Self-employed

iii) Entrepreneur

iv) Business

v) Student

vi) Unemployed

vii) Others (specify)_____

6. Marital status

i) Single

ii) Marriage

iii) Separated

iv) Divorced

v) Cohabitated

vi) Widow

vii) Others (specify)_____

Section B: Road Traffic Accidents in Temeke District

7. How do you explain the driving behavior in the city of Dar es Salaam?

   i) Better

   ii) Good

   iii) Somehow good

   iv) Bad

   v) Worse

   vi) Other (specify)_____

8. What are the major causes of road traffic accidents in Temeke District?

   i) Alcoholism

   ii) Drugs

   iii) Driving Behavior

   iv) Motivational

   v) Uninspected vehicles

   vi) Vehicle design

   vii) Bad road

   viii) Overloading

   ix) Poor road signs

   x) Political will

   xi) Power

   xii) Distribution of resources

   xiii) Others (Specify)_____

9. In a five point of scale, how do you rate the following statements? Where SA-strongly agree, A-Agree; SHA-somehow Agree; D-disagree and SD-strongly disagree

	SA	A	SHA	D	DS
Driving while drinking alcohol among Temeke drivers causes road traffic accidents					
Drug use influences the occurrence of road traffic accidents in Temeke district					
Driving Behavior in Temeke District causes road traffic accidents					
Lack of motivational among drivers of public transport is the major causes of road traffic accident in Temeke District					
Road traffic accident in Temeke district is caused by too many uninspected vehicles					
Vehicle design influence the occurrence of road traffic accident in Temeke District					
Bad road in Temeke District is the major cause for road traffic accidents					
Distribution of resources in the country is the major causes of road traffic accidents					
Poor road signs in Temeke highway roads contributes to the occurrence of road traffic accidents					

Lack of political will contribute to the occurrence of road traffic accident					

10. What kinds of road traffic accident are common in Temeke District?

    i) People versus car

    ii) People versus motorcycle

    iii) Car versus motorcycle

    iv) Car to car

    v) Public car versus individual cars

    vi) Public cars to public cars

    vii) Others (specify)_____

11. In a five point of scale, how do you rate the following statements? Where SA-strongly agree, A-Agree; SHA-somehow Agree; D-disagree and SD-strongly disagree

	SA	A	SHA	D	DS
Most road traffic accident in Temeke district happen is between people versus car					
Most road traffic accident in Temeke district happen is between people versus motorcycle					
Most road traffic accident in Temeke district is happening between cars versus motorcycle					
The most common road traffic accidents in Temeke district is happening between car to					

car					
The most common road traffic accident in Temeke district is happening between public transport versus individual cars					
The most common road traffic accident in Temeke District is happening between public cars to public cars					

12. What are the impacts of road traffic accident?

i) Death

ii) Injuries

iii) Disabilities

iv) Psychological problems

v) Poverty

vi) Loss of property

vii) Others

(specify)_____

13. Do you agree with the following statements?

	Yes	No
Road Traffic accident limit the victims to participating in the social and economic development of the country		
Road traffic accidents increases dependent ratio especially those		

with serious injuries or disability		
Road traffic accidents contributes to poverty in the country		

14. What should be done to reduce the incidence of road traffic accidents in Temeke District

_____

_____

_____

Appendix IV: Interview Questions

Dear Respondent, My name is **Pharles E. Ngeleja**, a Masters student in Business Management at the Open University of Tanzania. I am currently conducting a research on ***"Examing Factors Contributing to Road Traffic Accidents in Dar es Salaam City".*** I would like you to assist me in answering the question follow below. The answers provided with you will remain confidential between you and researcher.

1. Please tell me a little about yourself? (Name, occupation, marital status and your monthly income)?
2. How do you describe the driving behavior in Dar es Salaam city?
3. Could you please explain under what conditions drivers violates road safety measures in Dar es Salaam city?
4. In your opinion is the road safety measures user friendly to pedestrian and drivers?
5. What kind of drivers/or cars are leading in violation of road safety measures in Dar es Salaam city? Why?
6. In your opinion, how do you explain the increase in the event of road traffic accidents in Dar es Salaam?
7. I would like you to explain various types of road accidents occurs in this area?
8. Would you explain the major causes of road traffic accident in this area?
9. What is unique about the road accidents occurs in this area?
10. Would you kindly explain the consequences of road traffic accident in this area? Who are affected more with these events
11. What do you think should be done to minimize the road traffic accidents in this area?