THE INFLUENCE OF TRANSPORT SAFETY POLICIES ON MOTORCYCLE (*BODA BODA)* INDUSTRY: A CASE STUDY OF KISUMU EAST CONSTITUENCY, KISUMU COUNTY, KENYA

BY

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DECLARATION

Declaration by the Student

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DEDICATION

This work is dedicated to my family and friends.

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ABSTRACT

Motorcycle related accidents have been on the increase despite the establishment of the National Transport and Safety Authority (Operations of Motorcycles) Regulations, 2014.Currently, motorcyclists contribute up to 20% of all deaths recorded in the country every year. This study therefore aimed at: examining the influence of transport safety policies on motorcycle industry, explaining the causes of motorcycle accidents, explaining the challenges facing the implementation of the policies and examining the measures to mitigate the challenges. Literature review was organized thematically based on the study objectives. This study adopted the elite model of policy making. A conceptual framework was also used to explain the variables which directed the study. This study embraced a descriptive survey research design methodology. A mixed method approach was used to collect data. Questionnaires, interview guides and focus group discussions were employed as data collection tools. Purposive sampling techniques were used to sample the study area, key informants and the interviewees. Stratified random sampling was used to sample the respondents. Qualitative data was analysed by categorizing it into themes and narratives based on the study objectives. Quantitative data was analysed through descriptive analysis techniques and managed using SPSS Version 24.0. Since the study was descriptive in nature, quantitative data obtained was presented in the form of pie charts and bar graphs for easy understanding. Findings from both qualitative and quantitative data analyses indicated that the existing transport safety policies had achieved little on the *boda boda* industry as accidents were largely caused by human error. Bribery, ignorance and poor implementation of the existing policies emerged as challenges. This study therefore recommended that sensitisations on the safety policies be carried out on all riders. There is also need to make motorcycle license and insurance fees affordable to all riders by subsidising the current fees. In addition, more rider training schools be established in the rural set ups to enable the riders acquire proper riding trainings. Further, the study recommended that separate motorcycle lanes be constructed on major highways and speed governors be properly mounted on all motorcycles and also the initiation of electronic payments of fines.

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OPERATIONAL DEFINITION OF TERMS

***Boda boda* -** This is a bicycle or motorcycle taxi used for both commercial and private transport services of passengers and goods. For the purposes of this study, it shall be limited only to the commercial motorcycle taxi.

Impaired riding- This refers to riders with blood alcohol concentrations exceeding 0.08 g/dl. For the purposes of this study, this term shall apply.

***Matatus*-** These are East African minibus taxi innovations commonly used for commercial transportation of goods and services. In this case, this definition shall apply.

Motorcycle- A motorcycle refers to a two or three wheeled motor vehicle similar to a bicycle but motorised and is usually bigger in size. In this study, it refers to a two-wheeled vehicle.

Motorcyclist-This is a general term referring to a rider. This definition shall apply for the purposes of this study.

Policy- A law, regulation, procedure, administrative action or practice of governments and other institutions.

Rider- A rider is a person who is in motion (riding a bicycle, motorcycle, horse or camel). It also means a clause that is attached to a legislative bill. In this study, a rider shall only mean a person operating a commercial motorcycle.

ABBREVIATIONS

AFKMF - Ambassador Francis K. Muthaura Foundation

BAC - Blood Alcohol Concentration

CBDs - Central Business Districts

cc - cubic centimeters

cm - centimeters

ECD - Early Childhood Development

FGDs - Focus Group Discussions

FG - Recommended class for motorcycles

FRSC - Federal Road Safety Corps

g/dl - grams/deciliter

IEBC - Independent Electoral and Boundaries Commission

IMT - Intermediate Means of Transport

JOOTRH - Jaramogi Oginga Teaching and Referral Hospital

KEBs - Kenya Bureau of Standards

Kg - kilogram

km/h - kilometer/hour

KNBS - Kenya National Bureau of Statistics

KURA - Kenya Urban Roads Authority

m - meters

MVA - Motor Vehicle Act

NACOSTI - National Commission for Science and Technology

NHTSA - National Highway Transport and Safety Administration

NTSA - National Transport and Safety Authority

SID - Society for International Development

SPSS - Statistical Package for Social Science Students

sq.km - kilometer squared

UK - United Kingdom

USA - United States of America

WHO - World Health Organization

CHAPTER ONE

INTRODUCTION

This chapter discusses the background information, statement of the problem and the purposes of this study. It also addresses the research objectives, research questions, significance and justifications for the study. The study area, limitations and scope of the study are also discussed in this chapter.

1.1 Background Information

Motorcycles, commonly known as *boda bodas* in Kenya are a quick means of transport in both the urban and rural areas. They are easily available and efficient in mitigating traffic jam delays within the cities. Due to the poor road networks and few vehicles in the rural areas, motorcycles come in handy. Motorcycles have emerged to be essential in the transport sector as they fill in the gaps left by other modes of transport like taxis, buses and bicycles. Several factors have made it possible for motorcycle business to thrive. These include few vehicles, poor road networks especially in the rural areas but key to these is the abolishment of import tax on motorcycles by the government in 2008.Interestingly, both bicycles and motorcycle services are known by the same name *boda boda* but for the purposes of this study, it concerns motorcycles only.

Boda boda, a corrupted English word from the term 'border' is a type of motorcycle with a space for a passenger or for carrying goods. It is often used as a taxi.*Boda boda* transport services emerged in Uganda in the 1960s in the form of bicycles along the border of Busia Kenya and Busia Uganda. In 2008,the government of Kenya introduced a tax waver on imported motorcycles which brought a shift on the use of bicycles to the use of motorcycles as a common means of transport. According to Duku (2010), most people opt to use motorcycles as one can navigate easily in cases of traffic jams. Currently, these motorcycles are used to transport passengers and goods both in the

urban and rural areas. In Kisumu, *boda boda* motorcycle transport also exists and has been operating since 1997 (Kisumu County Council, 2005). The zero rating that was done by the government of Kenya sharply introduced the use of motorcycles even though few bicycles are still in operation.

Indeed, motorcycle transport services are flexible and affordable (Aworemi, Salami, Adewoye, & Ilori, 2008). They enhanceconnectivity both within the urban and rural areas thus acting as feeders to main roads. Despite these major contributions of *boda boda* motorcycles in the transport sector, many lives have been lost. In a press statement released by the National Transport and Safety Authority in 2016, motorcycle riders contributed up to 20% of all deaths recorded in the country. Further, a press release by the United Nations-Kenya in 2012 indicated that more than 3000 people die annually as a result of road traffic accidents of which 7% are motorcycle riders. In 2004, 33 motorcycle deaths were reported. However, this has increased by five folds to 152 in 2008 (Odero, 2009). Over the years, motorcycle related accidents have been on the rise. Data from the NTSA have it that by 2014, the death toll rose to 553.In 2015,637 fatalities was reported. In 2016 and 2017,708 and 715 deaths were reported respectively. In the year 2018, a total of 833 fatalities were witnessed. In 2019, 597 fatalities were witnessed leading to a significant drop in motorcycle deaths .Between the months of January and October, 2020,884 fatalities occurred. This can be illustrated graphically as shown in the next page.

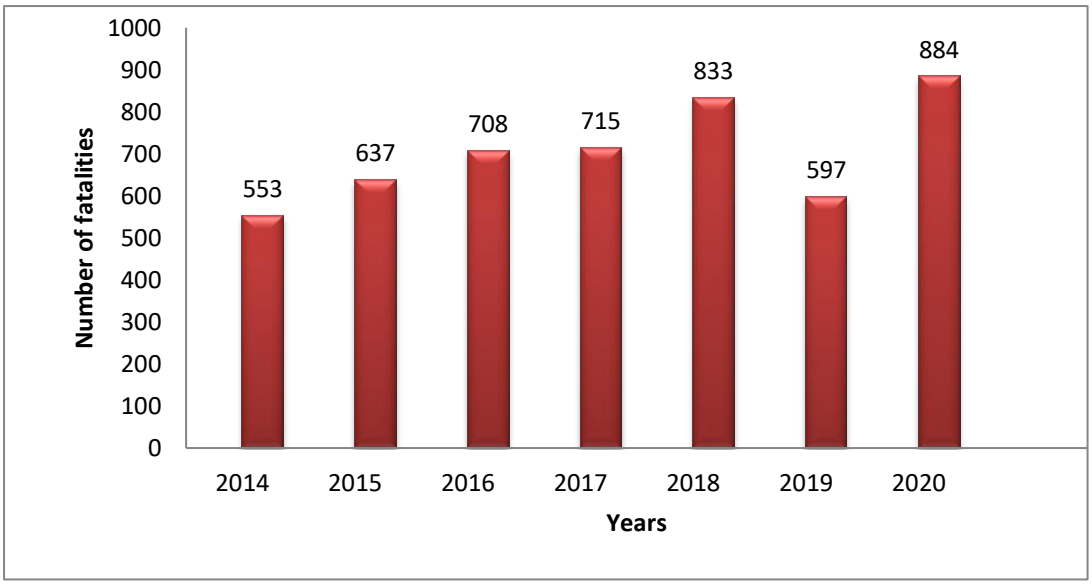


Fig.1.0: Motorcycle fatalities between the years 2014-2020

Source: National Transport and Safety Authority, (2019)

From the figure above, motorcycle accidents are on the rise despite the enforcement of transport safety policies in 2014. This increase in motorcycle fatalities in Kenya has resulted into the loss of many lives. Are there transport safety policies regulating this industry?

1.2 Transport Safety Policies on Motorcycle (*Boda boda)* Industry

In Kenya, policies have been established to regulate motorcycle industry. The Ministry of Transport, established a National Transport and Safety Authority Act (2012) which is responsible for the formulation of transport safety policies. In response to this, the National Transport and Safety Authority (Operations of Motorcycles) Regulations, 2014 was established. This regulation applies to all motorcyclists operating on public roads in Kenya. It states that: Riders must observe traffic discipline, have valid riding licences and insurances, protective gears (two yellow helmets and reflective jackets in compliance with Kenya Bureau of Standards (KEBs) and carry one passenger at a time seated astride save for people with disability and children below 13 years. In addition,

this policy also states that loads and passengers must not be carried at the same time and that no part of the load can drag on the road. Riders must not carry loads whose width projects more than 15 centimetres beyond the outside ends of the handle bars and whose height is more than 2 meters from the ground. The weight of the load must also not exceed 30kilograms for a motorcycle whose carrying capacity does not exceed 50cubic centimetres. Besides, no structural modifications that may affect the safe operation of the motorcycles or even obstruct visibility are allowed for instance exhaust system modification or noise abatement device on motorcycles. This policy also provides the hours of operation for all motorcyclists within the country. This is from 5:00 a.m to 11: 00p.m East African time. No motorcycle is allowed to operate beyond 11:00p.m in all the roads and highways in Kenya. Besides, all riders must acquire and complete training from certified motorcycle schools before commencing operations (NTSA, 2014).

1.3 Statement of the Problem

As a result of the great emergence and use of *boda bodas* as a common means of transport, motorcycle related accidents have been on the rise. In view of this, the United Nations General Assembly 2011-2020 Action Plan and WHO 2009 and WHO 2013 Global Status Reports on Road Safety called member countries to establish ways to reverse the high rates of accidents. In response to this, the Kenyan government through the NTSA established policies to regulate the conduct of all motorcycle users. Despite the establishment of these safety policies, a continuous increase in the number of *boda boda* accidents has been witnessed country wide. In 2010, before the establishment of the National Transport and Safety Authority (Operations of Motorcycles) Regulations, 2014, a total of 3055 road traffic deaths were reported. Out of these reported cases, approximately 7% involved motorcyclists (Kenya Traffic Police, 2010). This rose up

from 553 in 2014 to 884 fatalities in 2020 (NTSA, 2020). This increasing trend in the number of fatalities over the years therefore calls for a re-examination of the existing transport safety policies and their influence on *boda boda* industry.

1.4 Objectives of the Study

1.4.1 Main Objective:

1. To examine the influence of transport safety policies on motorcycle (*boda boda)* industry in Kisumu East constituency.

1.4.2 Specific Objectives:

2. To establish the causes of motorcycle (*boda boda)* accidents in Kisumu East constituency.
3. To explain the challenges facing the implementation of transport safety policies on motorcycle (*boda boda)* industry in Kisumu East constituency.
4. To examine the measures in place to mitigate the challenges on motorcycle transport safety.

1.5 Research Questions

The research study was guided by the following questions:

1. How has the transport safety policies influenced motorcycle (*boda boda*) industry in Kisumu East constituency?
2. What are the causes motorcycle (*boda boda)* accidents in Kisumu East constituency?
3. What are the challenges facing the implementation of transport safety policies on motorcycle (*boda boda)* industry in Kisumu East constituency?
4. Are there measures in place to mitigate the above challenges

1.6 Scope of the Study

This study aimed at examining the influence of transport safety policies on motorcycle (*boda boda)* industry in Kisumu East Constituency, Kisumu County, Kenya. This study area was chosen because of its long history in the use of *boda boda* transport both in the form of bicycles and later motorcycles. In addition, the study area was chosen because it connects the urban and rural setups of Kisumu County. This study limited itself to safety policies regulating the motorcycle sector. It concentrated on responses obtained from the ministry of transport officials, motorcycle riders and the passengers who were being ferried.

1.7 Significance and Justification of the Study

This study focussed on the influence of transport safety policies on motorcycle *(boda boda)* industry. It is therefore significant as it fills in the gap for decision makers in the area of policy making. This study is also significant as it will generate knowledge in the area of motorcycle safety and contribute to the growing literature on motorcycle transport due to the increasing number of accidents witnessed within this industry. The recommendations of this study will also help inform stakeholders on the proper measures to take. Another justification of this study is that it will help understand the context of motorcycle transport safety policy in a developing world set up where *boda bodas* are used to meet the immediate and daily needs of the people.

1.8 Limitations of the Study

One of the limitations was that the study covered a wide area which was Kisumu East constituency in Kisumu County.Kisumu East constituency is the second largest constituency after Kisumu Central and covers an area of 135.90 sq.km. In addition, accessing accident records at the Traffic Police Office and the National Transport and Safety Authority (NTSA) proved to be challenging and it took the researcher

approximately one month to interview them. Completing the questionnaires also posed challenges as the riders left half-filled questionnaires in order to ferry passengers. Another limitation is that most motorcycle accidents were not reported. As a result, the researcher focussed only on the reported cases which were considered to be estimates of the actual statistics on *boda boda* accidents. Besides, this study focussed on *boda bodas* but handled only motorcycles. As a result the findings obtained are beneficial to motorcyclists only. As a way of addressing these challenges, questionnaires were issued during off peak hours (between 10 am-11am and 2pm to 3pm) when riders were less busy.

1.9 Conclusion

This chapter has discussed the origin of motorcycle *(boda boda)* in Kenya, the transport safety policies on motorcycle industry, the statement of the problem, the objectives of the study, the scope of the study, the significance and the limitations thereof. This chapter has also illustrated the research problem and shown the magnitude of the transport safety policies in relation to *boda boda* industry in Kenya. Further, it has demonstrated how the use of *boda bodas* as means of transport in Kenya has continuously increased accidents. As a result, this chapter has justified the need to investigate the impact of transport safety policies on motorcycle industry. The next chapter discusses literature review which has been organized thematically. It also explains the theoretical and conceptual framework for this study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The purpose of this chapter is to examine the conceptual and empirical research in order to provide understanding on the impact of transport safety policies on motorcycle industry. Literature review has been done thematically based on the sub topics under study thereby highlighting the impact of transport safety policies on motorcycle industry. The first review examines the transport safety policies on motorcycle *(boda boda)* industry in Kenya. The second review looks at the impact of the transport safety policies while the third review looks at the causes of motorcycle accidents. The fourth review examines the challenges facing the policies whereas the last review looks at the measures in place. The conceptual and theoretical frameworks adopted on the study have also been discussed. Despite the transport safety policies in Kenya being significant, the scope of literature review in this chapter expands and includes literature from other countries such as the United States of America, the United Kingdom, the Republic of India, the Federal Republic of Nigeria and the Republic of Uganda.

2.2 Transport Safety Policies on Motorcycle (*boda boda)* Industry

Boda boda motorcycles have emerged to be a dominant means of transport world over. In the developing states for instance, *boda boda* transport has been much more prevalent and has been used as a common means of transport. In the developed world, motorcycles are mainly used for luxurious purposes such as recreation, lifestyle accessories and even as a symbol of personal identity. Due to great use of motorcycles world over, policies have been put in place to regulate the conduct of all motorcycle users. According to the United Nations Decade for Action on Road Safety (2011-2020), nearly 1.3 million people die every year as a result of motorcycle accidents and 20-50

million people suffer non-fatal injuries, with many sustaining disabilities as a result of the injuries. Thus, motorcycle transport safety policies are critical in regulating the conduct of riders.

To start with the United States of America (USA), a (NHTSA) has been established to provide for the overall regulation of motorcycles. This states that all riders must ride using protective gears such as helmets, gloves, boots, long pants and durable long-sleeved jackets (which meet the Federal Motor Vehicle Safety Standard 218). Further, this regulation requires a rider to be in possession of a valid riding license and to have acquired rider education and training as approved by each state before operating motorcycles. Consequently, alcohol impaired riders must not exceed the Blood Alcohol Concentration (BAC) of 0.08grams/deciliter (g/dl). Findings of this study indicate that riders who suffered from alcohol impairment were highly involved in accidents as compared to other riders. Traffic discipline therefore must be mandatory to enhance safety. In addition to this regulation, highway engineering systems like warning signs for motorcyclists and sensitisations have been initiated to enhance motorcycle safety. Likewise, each state has initiated its own safety policies for its operation within its respective states which complements the overall safety policies (NHTSA, 2006).

The United Kingdom (UK) is also one of the developed states with a long history in the use of motorcycles. Here, motorcycles are majorly used for leisure and recreation. Thus, statutory No.1807 of 1998 was established to regulate the conduct of all motorcycle users. This regulation states that all riders must operate using protective gears in compliance with the British standards and user license. Besides, all riders must have their headlights on while operating to enhance conspicuity (Statutory No.1807 of 1998). Further, all riders must have personal insurance, motorcycle insurance and also third party insurance. Likewise, an enhanced rider scheme that checks your motorcycle

riding skills and provides training to help you improve your skills before obtaining a license has also been established to ensure that only competent riders have the way (Statutory No.1807 of 1998).All in all, safety challenge in the United Kingdom seems to be each individual's responsibility. This is evidenced through the several partnerships witnessed between the motorcycle industry association and the police with a common goal of enhancing safety. Unfortunately, such partnerships are inexistent in Kenya. This study therefore found out that there is need to have such initiatives that will help improve the safety of all motorcycle users.

The Republic of India is a vast country in the Southern part of Asia. It too has an established motorcycle transport sector which dates back to 1981. As a result of its increasing use of motorcycles both as a means of transport and for leisure, the motor vehicle act of 1981 was amended in 2018, thus the Motor Vehicle Act (MVA), 2018.It states that all riders must be above sixteen years of age and must obey traffic rules such as traffic signals and lights. Further, all riders must ride astride and must always put on a red reflector jacket, designed and approved by the Insurance Corporation of British Columbia. Likewise, riding in India takes place on the right side of the road and overtaking takes place on the left. As a matter of fact, riders must always ride on the right side of the road and not on the side walk, cross walk or highways where a sign prohibits their use unless authorized to do so by a law made under section 124. This is the opposite of what happens in Kenya as riding takes place on the left side and overtaking on the right side of the road. Consequently, riders are advised to always carry a passenger at a time. In cases where a motorcyclist operates between 1-2 hours before sunrise or after sunset, the front and the rear lights should be put on (Section 183(6) of MVA 2018).As a way of ensuring that this regulation is strictly adhered to, the government of India has established a fine system not exceeding Rs 10,000 or

revocation of license in cases of speeding, drunk riding, overloading and riding without the use of protective gears (MVA, 2018)

The Federal Republic of Nigeria is a country located in the Gulf of Guinea. It too has a national functional safety policy known as the Federal Road Safety Corps (Ranks and Badges of Ranks) Regulations 2004.It assumes that riding takes place on the right while overtaking takes place on the left side of the road. It also outlines the minimum age for one to be a motorcyclist as eighteen years. This policy calls for the observation of traffic rules and the use of protective gears such as reflectors while riding. Besides, it is mandatory for all riders to register and obtain valid riding licenses. Similarly, riders are advised to use correct lanes without lane splitting and observe traffic discipline. This includes observation of traffic lights, avoiding the use of mobile phones or head phones while riding and even installing musical gadgets on motorcycles (FRSC, 2004). Besides, the designated time frame for operations which is from 6:00 am to 6:00 pm riders must operate within the recommended average speed limit of 40 km/h within town,80 km/h on single carriage way and 120km/h on dual carriage ways. Riders are encouraged to acquire full insurance covers; that is motorcycle insurance, rider insurance and third-party insurance. In addition, expectant women, children under the age of twelve years, defective motorcycles and adults carrying loads on their heads are prohibited. The Blood Alcohol Concentrations (BACs) for riders who take alcohol and other drugs does not exceed 0.05g/dl (FRSC, 2004).

In Uganda, the Traffic and Road Safety (Motorcycles) Regulations,2004 was established to regulate motorcycle operations. According to this regulation, all riders must have valid riding permits of Group A for them to operate motorcycles. In Uganda, Group A is a special class referring to motorcycles. In addition, all riders and passengers

are required to wear crash helmets, bright and light-coloured clothing at all times when riding. Further, all riders must carry one passenger at a time and must use dipped headlights during day light. Besides, all riders must observe traffic regulations including overtaking, giving way, loading and speed limits which do not exceed 100km/h on dual carriage ways, 80 km/h on single carriage way and 30km/h in built areas (Traffic and Road Safety (Motorcycles) Regulations,2004). Consequently, observing and obeying traffic lights and traffic police signals, riding in the proper lane and not riding on pedestrian pavements is also part of the regulation.

In Kenya, the National Transport Safety Authority Act (2014) has been established. It states that all motorcyclists must operate as from 5:00 am to 11: 00 pm and must be in possession of valid riding license or valid provisional licences in respect to the class of their motorcycles. All riders must have acquired and completed training from certified motorcycle schools before commencing operations. Further, traffic discipline must be observed by all motorcycle users by always parking at designated areas and overtaking on the right side and not within the same lane as the vehicle which is being overtaken. This regulation also states that all operators must carry one passenger at a time seated on a proper seat with footrests securely fixed. Thus, passengers must sit astride (save for people with disability).A child who is less than 13 years must board a motorcycle accompanied by an adult. Further, loads and passengers cannot be carried at the same time and no part of the load should drag on the road (NTSA, 2014). The picture below demonstrates just how motorcyclists flout traffic rules.

Picture 1: Demonstrates how motorcyclists flout traffic rules in the study area
Source: Daily Nation, August 10th,2014

All motorcycles must have protective gears; one for the rider and the other for the pillion passenger. These protective gears include two yellow helmets and two reflective jackets which are compliant with KEBs. In case of a child, the rider should provide him or her with the children's helmet. Further, the registration number of the motorcycles must all be indelibly printed in letters on each of the protective gears. In addition, passengers are also advised to fasten their protective gears properly before commencing the ride. Third party insurance (passenger insurance) and public service vehicle insurance are also mandatory. No structural modifications that may affect the safe operation of the motorcycles or even obstruct visibility are allowed for instance exhaust system modification or noise abatement device on motorcycles (NTSA, 2014).

As a way of strengthening the already laid down policies, several motions have been tabled both at the national and county levels for instance, the banning of motorcycle operations from the central business districts (CBDs) of Nairobi alongside late-night operations in Kisumu County. Despite this, *boda boda* operations still do occur late into

the night and within the CBDs of the study area. As a result of twenty-four-hour work with no rest, the riders become fatigued and drowsy thus easily get involved in accidents. Mbugua 2011 in his study on the 'Effects of the Motorcycle Transport Revolution on the Economic Growth of Kenya, A Case Study of Thika District' affirms that motorcyclists have got a poor safety record when compared to other road users. This study found out that the motorcyclists got involved in accidents frequently and experienced more serious fatalities when compared to other users. Besides, majority were aware of the safety policies but unfortunately their compliance levels were extremely low. Most riders suffer from alcohol impairment and in most cases operate without the use of protective gears. Similarly, they lack the formal training as they obtain motorcycle riding skills through apprenticeship. As a result, motorcycle accidents become more prevalent. What then could be the influence of the national transport safety policy on motorcycle industry?

2.3 The Influence of Transport Safety Policies on Motorcycle *(boda boda)* Industry

The establishment of the National Transport and Safety Authority (Operations of Motorcycle) Regulations, 2014 came along with a promise of positively impacting the *boda boda* industry. One of the key reasons behind the establishment of this policy was to minimise the loss of lives caused by road crashes, motorcycle crashes being one of these road crashes. Actually, this has not been the case as motorcycle deaths have continuously been on the rise. In 2010 before the establishment of this authority, motorcycle accidents involved 7% of all the reported cases (Kenya Traffic Police, 2010). Currently, the National Transport and Safety Authority (2016), confirm that motorcycle riders contribute up to 20% of all deaths recorded in the country every year. In 2014,553 fatalities were witnessed as compared to 637 in 2015.Further, 708 fatalities were reported in 2016 and 715 in 2017.Consequently,833 deaths were reported in

2018.The findings obtained from the study indicated that majority of the respondents disagreed that the transport safety policies had failed to reduce motorcycle accidents. Thus, motorcycle related accidents have been on the rise despite the implementation of the policies.

The transport safety policy has also led to the reduction in traffic congestion. The influx of motorcycles as a result of the 2008 zero rating by the Ministry of Finance in Kenya contributed to traffic congestions in major highways within the urban areas. Traffic discipline specifically the observation of traffic rules which is one of the tenets of this policy has helped decongest most highways within the country. Consequently, the results of this study indicate that over 70% of the respondents refuted the fact that transport safety policies had reduced traffic congestions. Over the years, motorcycle riders have increased in numbers as most drop out of school to engage in *boda boda* business. The increase in their numbers has been so great within a short span of time to the extent that there are no clear statistical records of the total number of motorcyclists countrywide or even within the study area. Infrastructural developments such as road expansion ought to be put into consideration to help fight traffic snarl ups and congestions.

Another influence of this motorcycle transport safety policies is that it has led to the recognition of motorcycle as an industry of its own. The purchase and use of motorcycles for transportation has risen over the years. Due to the increase in their numbers, *boda bodas* have developed into an industry of its own. Thus, the establishment of the National Transport and Safety Authority (Operations of Motorcycles) Regulations,2014 authenticated this industry. Currently, *boda bodas* are

recognised and categorised under the informal industries in Kenya. In Kisumu County, most youths have been employed within this informal industry as riders.

2.3.1 Summary of Research Gaps

Despite the good policies in place to spearhead safety within the motorcycle transport sector, there is still an increase in the number of accidents involving motorcycle users. One of the key aim of the motorcycle transport safety policies was to reduce accidents that had been on the rise. Unfortunately, this has not been the case as there has been a steady rise in motorcycle fatalities over the years. In 2014 for instance, 553 deaths were reported. Four years down the line, the death toll increased to 833 (NTSA, 2018). This illustrates just how the motorcycle transport safety policies have failed to achieve their intended objective. This study therefore sought to gauge how the transport safety policies have reduced motorcycle accidents and to what extent. Thus, a gap exists between the establishment of the safety policies and the continuous increase in accidents. This study sought to fill this gap by examining the reasons behind the increase in motorcycle accidents despite the establishment of the safety policies. What then were the causes of motorcycle accidents?

2.4 Causes of Motorcycle (*boda boda*) Accidents

Boda bodas have emerged over the years as one of the most preferred means of transport. This is because they are quick and easy to mitigate traffic jams within the urban areas. In the rural areas, they are affordable and act as feeders to main roads. This increase in the number of motorcycles has been accompanied by a corresponding increase in the number of accidents. What then are the causes of these accidents? The common causes of motorcycle accidents can be categorised as human choice or error, road conditions, defective motor cycles or environmental factors.

2.4.1 Human choice or error as a cause of motorcycle accidents

Most motorcycle accidents occur as a result of human choice or error. This can be manifested in the form of recklessness, ignorance, speeding, lane splitting, carelessness and disregard for the law, negligence, impaired riding and lack of proper training. Our attitudes and behaviour greatly impact the choices we make. As a result of negative attitudes and behaviour, most riders have blatantly been disregardful the law. Cervero (2000) in a study on the Informal Transport in Developing World states that motorcycle related accidents occur due to ignorance. He observed that most motorcyclists possessed an irate behavior of failing to observe road signs and other motorists. Manyara (2013) in his study on Combating Road Traffic Accidents noted that most riders did not use protective gears while in operation. It is common to find riders within Kisumu County operating on highways without protective gears such like helmets and protective clothing which increases their visibility to other road users thus reducing their risk of getting involved in accidents.

Picture 2: Demonstrates a rider ferrying five passengers all without protective gears

Source: Daily Nation, September 24th 2015

Motorcycles do not offer much protection to the riders thus helmets are required for people riding motorcycles (Nyachieo, 2015, p.48). Motorcycle helmets have proved to offer the best protection from injury in times of crashes. Most respondents who participated in this study indicated that they did not wear helmets as they were inconvenient and that they felt uncomfortable in them. Furthermore, they did not expect to get involved in any accident and that it was too hot at times to put on the helmets. Hurt, Quellet and Thom (1981) in their study observed that young and informally trained riders voluntarily failed to use helmets on hot days and during short trips. Findings obtained from this study indicate that most riders between the age of 18-30 years never used protective gears while in operation. In 2004, the World Report on Road Traffic Injury Prevention recommended that countries set and enforce helmet laws for riders and passengers of motorcycles. Kenya, being one of them enforced the mandatory use of helmets (both for adults and children) in compliance with the Kenya Bureau of Standards ten years later. Unfortunately, four years down the line, this has not been embraced. Lane splitting is the tendency of riding motorcycles between lanes of slow moving traffic. In highways within the urban areas, it is common to find riders operating in two lanes especially during traffic jams. They manoeuvre their ways between lanes thus risking their lives and that of their passengers. While sharing the lanes, riders often overtake on any side of the road and within the same lane occupied by the vehicle being overtaken. Kisumu County which happens to be the county under study is not left behind as it also experiences minor traffic jams on its major highways especially during peak hours. At this time, most riders find themselves in a rush and therefore swerve in between other vehicles and manoeuvre their way. In the process they end up getting knocked, a scenario that can simply be avoided.

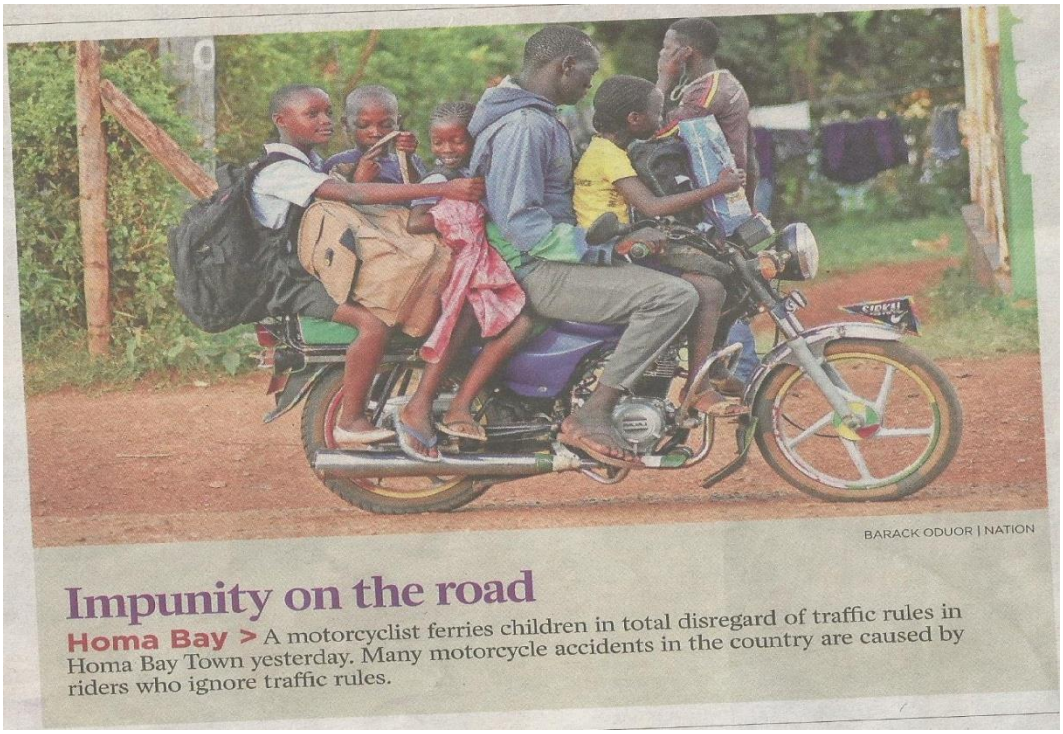
Another cause of motorcycle accidents is speeding. Most riders ride their motorcycles faster than the recommended speed. The NTSA Act, (2014) on the operation of motorcycles in Kenya allows motorcyclists to ride at 100 km/h on single carriage ways and at 110 km/h on dual carriage ways. Within the trading centres, towns, municipalities and cities, they ride at an optimum speed of 50km/h. In addition to this, motorcyclists ought to ride at 30km/h within the boundaries of ECD, primary and secondary schools. This also applies to the public children playgrounds, where children cross to and from school and also within the health facilities. As a matter of fact, all motorcycles must be equipped with an accurate and properly working speedometer but in most cases, this never happens. Thus, accidents that could otherwise be controlled tend to occur. Overloading can also be categorised under human choice or error. It is synonymous to strain. Overloading normally makes the motorcycles less stable thus leading to accidents. The National Transport Safety Authority (Operations of Motorcycles), Regulation 2014 part 2(8) states that riders shall not carry a load whose width projects more than 15centimeters beyond the outside end of the handle bars. The load's height must also not be more than 2 metres from the ground and the weight must also not be more than 30kilograms.Besides, no part of the load should drag on the road. In case of a luggage that is carried together with a passenger, it must not exceed 10 kilograms and must not project more than 15 centimetres beyond the outside end of the handle bars. The luggage should be carried together with the passenger provided it is properly secured between the rider and the passenger. All in all, this has not been the case. The passengers also collude to share rides with the intentions of subsidising fare. Overloading therefore reduces the stability of the motorcycles and increases the risks of getting involved in accidents. The picture in the next page illustrates some

motorcyclist ferrying passengers. Both the riders and the passengers lack protective gears, they are overloaded and the rider carries more than a pillion passenger.

Picture 3: Demonstrates how riders overload motorcycles.

Source: The Standard, May 26th 2017

Recklessness, ignorance and negligence always occur as a result of human choice. Recklessness is an act of showing no regard to the consequences or results of one's actions. Recklessness often occurs as a result of ignorance. Most riders show no regard to the policy. They mostly operate without protective gears and observe traffic indiscipline. As a result of negligence, they have not taken time to learn and understand this policy. In Kisumu East constituency for instance, a large number of riders are school drop outs who have learnt the art of riding from friends and relatives. As a result, they lack understanding on the policy frameworks regulating this industry. For instance, they are not fully and properly trained, they do not put on the full protective gears, have no valid license and most significantly, they flout the traffic rules. They therefore operate in a lawless state, making them prone to accidents. The picture in the next page illustrates just how riders disregard the traffic rules.



Picture 4: Demonstrates a rider operating while in total disregard of the traffic rules

Source: Daily Nation, July 9th 2016

Furthermore, most riders lack proper training on the use of motorcycles. Hurt et al., (1981) observed that motorcycle riders involved in accidents were without training. As a result, they were more prone to getting involved in accidents. Despite the increasing cases of motorcycle accidents, it is not clear what percentages of motorcyclists actually attend formal riding schools. Motorcycle rider training experience is of great importance in reducing accidents. According to Chitere and Kibua (2004), most riders learn through apprenticeship. Given this casual manner in which training and certification is done, it is not surprising that riders are a major cause of motorcycle accidents. The capacity and competence of training institutions is also of major concern as most training institutions are not properly equipped and staffed. As a result, rider testing lacks rigor and can easily be passed even by weak candidates (Nyatundo, 2014, p.17).

Another cause of motorcycle accidents is impaired riding. Impaired riding can also be termed as riding under the influence of alcohol and other related drugs. Hurt et al., (1981) notes that drinking and riding is more dangerous than drinking and driving. Thus, motorcyclists are more vulnerable to accidents than other operators. Most youth riders suffer from alcohol impairment (Odero, 1998). As per this study, majority of riders are youths. The Kenyan legislation provides a BAC of 0.08g/dl which is above the worlds recommended limit of 0.05g/dl. This study noted that reduction in the BAC could be of help in reducing the numerous cases of accidents caused mainly by impaired riding. The results of the findings of this study do indicate that human error is a major cause of motorcycle accidents. As a way of reducing accidents, proper sensitisations should be introduced. Besides, speed governors ought to be fixed on all motorcycles to help regulate their speeds.

2.4.2 Road conditions as a cause of motorcycle accidents

Road conditions refer to road defects and hazards in the form of potholes, black spots, debris, wet pavements and uneven road surfaces. These conditions that characterise the urban roads include pot holes, winding roads, wet roads, and black spots whereas in the rural areas, debris, slippery roads, animals and uneven surfaces also lead to the increase in accidents. These roads are characterised with pot holes which in most cases leads to accidents. A motorcyclist for instance tries to avoid potholes and by bad lack causes accident. Our Kenyan road infrastructural design is in a way that it has ignored other users like pedestrians and cyclists. The Ministry of Transport and Infrastructure in a press statement in 2013 cited the lack of inadequate infrastructure for intermediate modes of transport as a major cause of accidents. Thus, motorcyclists have to struggle with motorists for space, a scenario that eventually leads to accidents. Findings from this study indicate that poor road networks increase the occurrence of accidents. Within

the area of study, pot holes and slippery roads emerged as major causes of motorcycle accidents. Thus, the national government in collaboration with the county government of Kisumu needs to put in effort to reconstruct and rehabilitate these poor roads that are claiming many lives.

2.4.3 Defective motorcycles as a cause of motorcycle accidents

Defective motorcycles commonly referred to as faulty motorcycles in most cases result into accidents. These include engine failures, leaks in the fuel tank, brake failure, defective handle bars, fractures in the frame alongside defective wheels and tyres. Defective tyres always result into accidents when a tyre burst occurs. Handle bar clamps can crack forcing the handle bar to move from its fixed position. This unexpected movement then causes riders to lose control and eventually crash. In the study area, it is normal to find riders making their income using defective motorcycles. In most cases, the handle bars are loosely tied with leaking fuel tanks. In addition, the tyres wheels are bent with abrupt engine failures. In many cases, these engines mostly fail abruptly in the middle of the ride automatically causing a crash. Most riders are ignorant and therefore fail to keep their motorcycles in proper conditions. From this study, findings indicate that defective motorcycles resulted into accidents. As a result, sensitisations and proper enforcement ought to be established to help reduce the ever-increasing motorcycle accidents.

2.4.4 Environmental conditions as a cause of motorcycle accidents

Environmental factors also do lead to motorcycle accidents. These environmental factors include poor weather conditions which eventually lead to poor visibility. Poor weather conditions manifest in the form of rain, mist and snows. In Kisumu East constituency, these environmental factors manifest mostly in the form of rain and mist. Rain increases the chances of riders getting involved in accidents as the roads become

wet and slippery thus reducing the stability of the motorcycle. When it is misty, visibility is poor making it difficult for drivers to see motorcyclists. Actually, motorists in many cases fail to see motorcyclists. Hurt et al., (1981) reiterates that the failure of motorists to see motor cyclists often lead to accidents. Extreme caution should be taken during these times and this can be through enhancing conspicuity. Riders themselves ought to be conspicuous and this can be through putting on the full riding gear and always riding with headlights on during both day and night.

2.4.5 Summary of research gaps

Indeed, motorcycle accidents have been on the rise even after the establishment of the NTSA Act, 2014. Findings from this study indicate that human error is the leading cause of accidents. Despite the establishment of the motorcycle transport safety policies, accidents majorly caused by human error have been witnessed. Even though other factors such as poor weather, road hazards and even defective motorcycles also led to accidents, most accidents were as a result of recklessness, ignorance and impaired riding. As a result the gap that this study fills is that despite the existence and the functionality of motorcycle transport safety policies, fatal accidents have continuously been on the rise mainly due to human error. This therefore becomes a challenge to the transport safety policies.

2.5 Challenges Facing the Implementation of Transport Safety Policies on Motorcycle (*boda boda)* Industry

There are challenges facing the implementation of transport safety policies on motorcycle industry. One of these challenges is the weak legislative frameworks with regards to violation of policies in place. Indeed there are penalties that deter one from violation but these penalties seemingly, have not been effective. In Kenya for instance,

a fine of a thousand shillings which is paid in cases where riders or passengers are caught riding without the requisite full protective gear is affordable to many riders. Protective gears like helmets greatly reduce the chances of having fatalities in cases of accidents. Thus, it is life saving and not commensurate to the one thousand Kenyan shilling fine. Besides, there are weak alcoholic policies regulating its production, sale, promotion and advertising. This study found out that indeed alcohol and other related drugs are among the common causes of motorcycle related accident. First, the BAC limit for Kenya which is at 0.08g/dl is above the worlds recommended limit of 0.05g/dl (Odero, 2009). As a result of excessive toxicities and irresponsible drinking habits which in the end, results into crashes that could otherwise be controlled. This study recommends that setting lower BAC limit of below 0.05g/dl is effective in reducing accidents caused by impaired riding. As a result of these weak legislations, challenges emerge making the transport safety policies ineffective.

In addition, poor implementation of the transport safety policies in place is also a challenge. Kipngetich (2017) acknowledges that graft and corruption have contributed to the increase in accidents. In Kenya, graft and corruption manifests itself in the form of bribery. This study confirms that the traffic police in Kenya in most cases have allowed motorcyclists to break laws in exchange of bribes. As a result, un-roadworthy motorcycles are in operation. In the area of study, it is common to find riders comfortably operating without valid licenses, protective gears, using un-roadworthy motorcycles. The result is recklessness, negligence, carelessness and ignorance. Consequently, the national motorcycle safety policy has been poorly enforced due to unavailability of timely data to inform prevention strategies (Matheka, Omar, Kipsaina &Witte, 2015).This thus results into laxity in the implementation of the safety policy.

Another challenge facing the implementation of transport safety policy on motorcycle industry is the attitudes and behaviour of some motorcycle users. Our attitudes directly affect our behaviour. Positive attitudes result into positive behaviour and vice versa. Kenyans have got an attitude of bending policies in order to favour them. This inculcates into negative attitudes towards the safety policy in place. Riders are usually aware of the risks that eventually lead into accidents but all they do is to assume. In the area of study, most passengers for instance did not put on helmets because of high temperatures. It was also common to find a rider carrying two or three passengers with their luggage at the same time or even carrying unaccompanied young children less than 10 years. This laissez fare attitude depicts that money is more significant than human safety. Our negative attitudes result into bad behaviour such as drunk riding, bribery and speeding which automatically lead to accidents

This study also found out that inadequate infrastructure for intermediate means of transport (IMT)is also a major challenge facing the transport sector. The intermediate means of transport in this case include bicycles, motorcycles, motorised three wheelers and two-wheeled tractors. The Kenyan road ways are quite congested and with no room for expansion leaving the intermediate means of transport with no option but to fight for space in the busy highways with other vehicle. As a result, accidents become inevitable. It is necessary for the government to construct infrastructure which will incorporate all vehicles including the motorcycles.

2.5.1 Summary of research gaps

The NTSA Act 2014 has achieved little in reducing motorcycle accidents four years down the line due to numerous challenges. Some of these challenges include poor implementation, bribery, ignorance and inadequate infrastructure for IMTs.

2.6 Measures That Have Been Put in Place to Address the Transport Safety Challenges

Several interventions have been put in place to address the previously mentioned challenges one of them being advocacy. This has been done through sentisations and awareness creation programs, one of the greatest steps towards bringing safety on the roads. In Uganda, sensitisations have been conducted through the Global Helmet Vaccine Initiative which advocates for formal trainings of all motorcyclists and encourages the use of protective gears. In 2010 for instance, Bloomberg philanthropies initiated the *No helmet, no ride* campaign with a focus of improving helmet wearing and reducing speed amongst motorcyclists. In the year 2016, the Kenya Urban Roads Authority (KURA) in collaboration with the Traffic Police and the NTSA held a sensitisation campaign to promote safety of all riders. The Yamaha Kenya in collaboration with the NTSA, Traffic Police and the County Governments offered enhanced safety training for *boda bodas* through the Yamaha riding academy. Such initiatives should be put into focus in order to enhance safety. Matheka et al., (2015) argues that it is imperative to advocate for road safety measures such as helmet wearing, provision of high-quality affordable helmets, responsible riding and stronger legislations in an environment characterised with minimal sensitisations.

Another intervention is the use of sanctions in cases of violation of the policies. These do emerge in the form of fines and penalties. The National Transport and Safety Authority Act 2014 has established sanctions as a way of deterring riders from flouting the safety policies in place. Riders and passengers for example who happen to ride without putting on protective gears risk being fined one thousand Kenyan shilling. This is according to Section 103 B (1) and (7) of the NTSA traffic offences Act. Similarly,

section 60(1) and 60(2) prohibit riders from carrying more than one pillion passenger failure to which they risk paying a similar fine of a thousand Kenyan shilling.

Consequently, in other states sanctions also do exist. In India for instance, riders are fined upto Rs 1000 in cases of speeding and riding without a helmet. Impaired riders on the other hand are normally fined up to Rs 10,000. Besides, triple riding (riding carrying two pillion passengers) could automatically lead to suspension of riding license for up to 3 or 4 months. Other states like the United States of America and the United Kingdom have initiated infrastructural measures. These include the construction and rehabilitation of motorcycle highways to help reduce motorcycle related accidents. In the United States for instance, motorcyclists have got special lanes in major highways. This therefore reduces the likelihood of riders getting knocked down by big vehicles (NHTSA, 2006).Besides, varying speed limits have also been established in various states depending on the nature of the highways. This therefore reduces the likelihood of an accident occurring as a result of speeding. In addition, a BAC of below 0.05 g/dl which is the world's recommended BAC limit has also been adopted as one of the ways of reducing motorcycle related accidents.

Despite these measures in place, there is low use of protective gears and still passengers and riders collude in carrying three or even four pillion passengers. These common scenarios automatically increase the occurrence of accidents that could otherwise be avoided.

2.6.1 Summary of research gaps

Despite the government of Kenya establishing ways on which these challenges can be addressed, motorcycle related accidents have still been on the rise over the years. Some of the measures that have been put in place by the government include payment of

penalties and fines, sensitisations and conducting formal trainings. This study strongly states that these are not enough. Sensitisations ought to be conducted specifically to the motorcycle users and not wholesomely the way the government does. In addition, the government should introduce a digital system where fines and penalties are paid instantly. Besides, there is need to decentralise motorcycle training schools and also waiver the training fees to facilitate more riders access the formal riding schools. These are some of the measures this study advocates for to help fill in the gap.

2.7 Theoretical Framework

A theory is a well-established principle that has been developed to explain certain phenomena. A theoretical framework thus helps in introducing and describing the existing theories thereby explaining the research problem (Swanson, 2013). This study adopted the elite model of policy making.

2.7.1 Elite Model of Policy Making

This model is based on the assumption that a small elite group, (usually in government) has the sole responsibility for policy decisions. Thus, public policy reflects the preferences and values of the power elites (Cochran & Malone,2014). In this case, society is divided into the powerful few (who are the elites) and the powerless many (who are the masses). The elites have higher income, education and status which they use to overpower the masses. They simply believe that they alone have the ability to determine the policies that promote the welfare of the masses. The elites shape mass opinion while mass opinion has little influence on them (Cochran et al., 2014). This theory also suggests that the masses are apathetic, passive, ill in formed and easily manipulated so they cannot be allowed make decisions. The end result is that the policies reflect the values of the elites who prefer status quo to radical changes (Naidu,

1997). As a result, the government adopts and implement them. These policies flow downwards from the elites to the masses

This can be represented diagrammatically as shown in the next page:

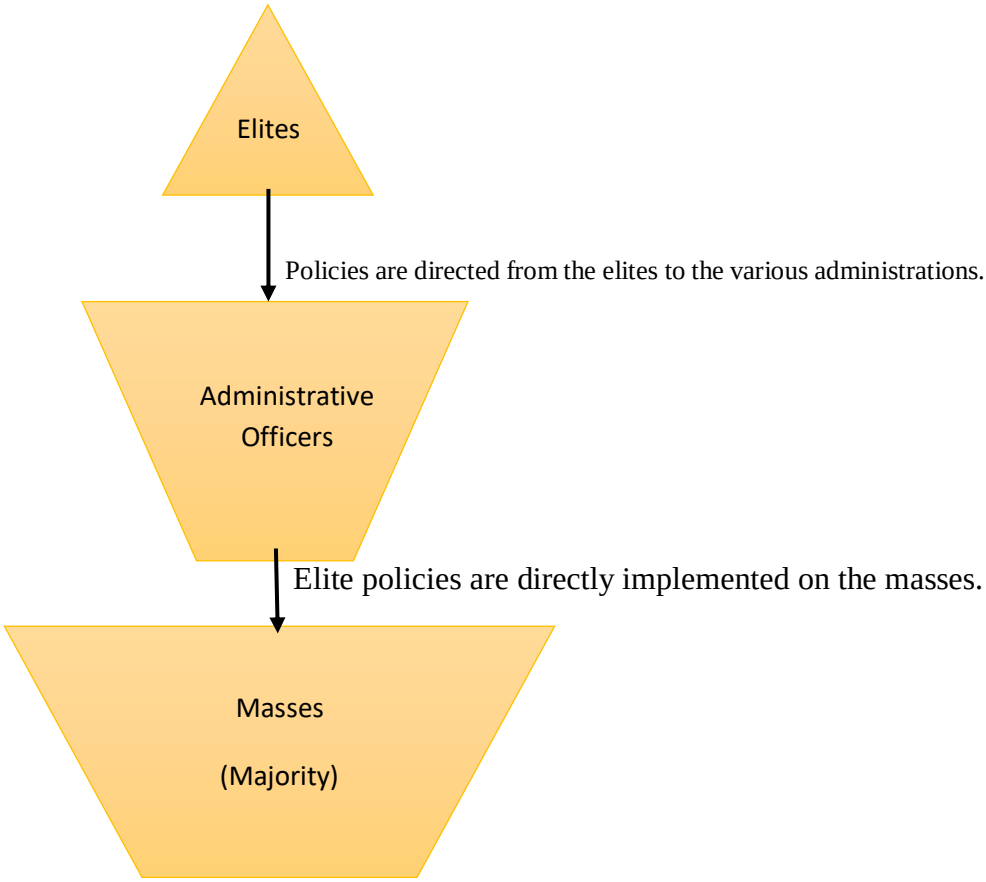


Fig. 2.0: Elite Model of Policy Making

Source: (Field data, 2019)

The implication of this theory is that the state of policy making rests primarily with the elites. As a result of their high status, they believe that they alone have the capacity to make proper decisions. The masses are generally apathetic and poorly informed. Thus, if the masses are allowed to directly influence the policies, they will distort information and continue ill informing the public. Mass opinions are therefore manipulated by the elites through control of much of the "mass media"(Cochran et al., 2014). In Kenya, this model clearly explains how policies are made in Kenya. The transport safety

policies reflect the elite model of policy making whereby a set of elites come together and determine the policies which reflect their own values and preferences.In Kenya, it's the elites who formulate and select policy options that reflect their values and preferences.The mass has only but an indirect influence on policy decisions (Cochran et al., 2014).Thus, movement from non elite to elite status occurs only when individuals acquire wealth and accept to be assimilated into the elite culture. In this study the NTSA and the traffic police are the administrative officers who are used by the elites to force their policies down to the masses.

Kumar (2011) argues that government interventions have allowed the development of policies that favor the interests of selected few. This is a similar case of what happens in Kenya.The National Transport and Safety Authority (Operations of Motorcycles) Regulations,2014 is an example of policies formulated using this theoretical approach. Stakeholder involvement in its formulation was limited to the representatives who to a greater extent were assimilated into the 'elite culture'. Most people who use motorcycles are the masses who indirectly influence the policy. As a result, they are left with no choice but to flout it.

2.8 Conceptual Framework

A conceptual framework outlines the researchers own position on the problem and gives direction to the study. Through it, the researcher is able to show the relationships of the different constructs that he or she is seeking to investigate. Transport safety policies on motorcycle (*boda boda)* industry were formulated by the National Transport and Safety Authority Act 2014. Despite its formulation, motorcycle accidents are still on the rise. This study therefore developed a conceptual framework as shown in the next page:

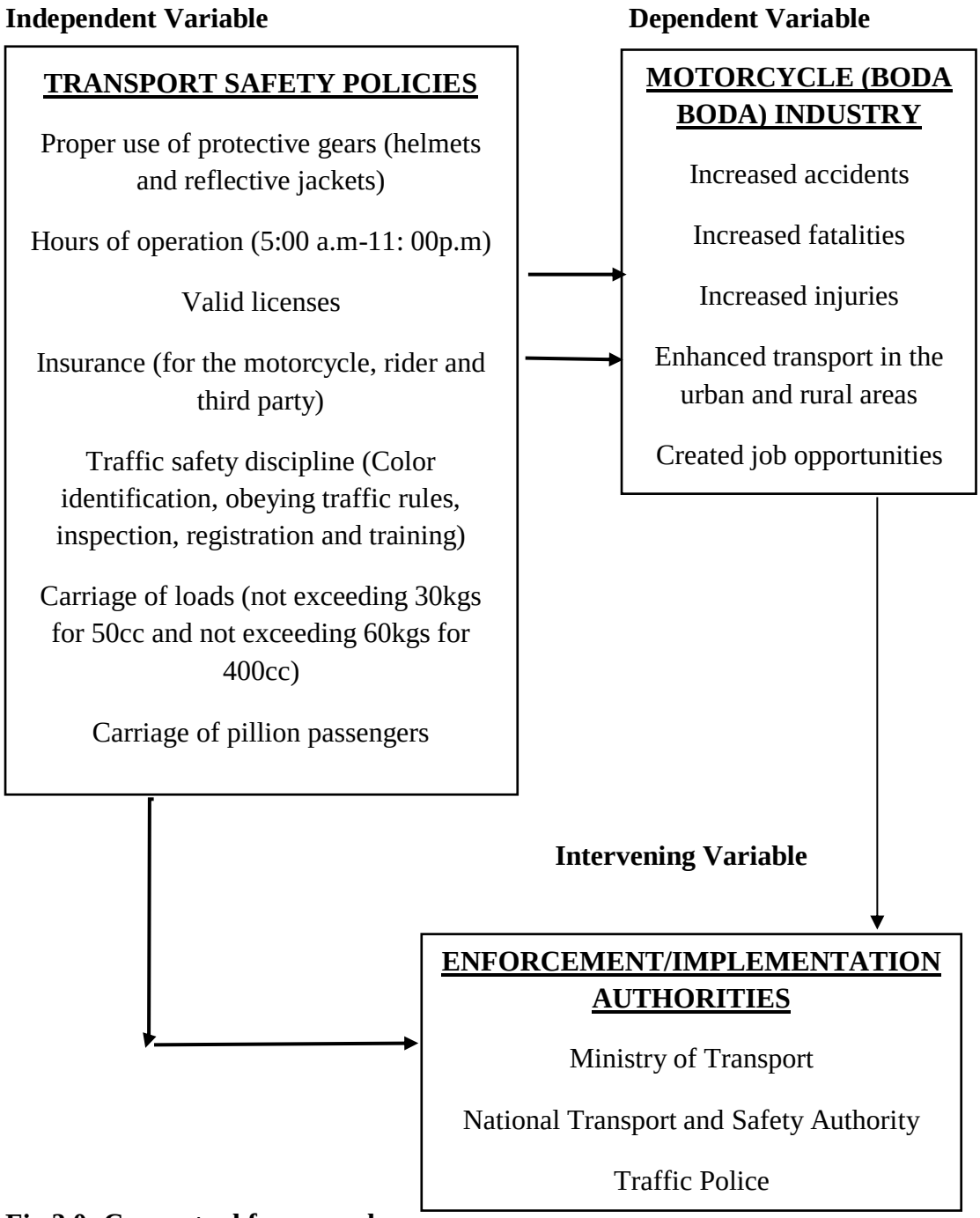


Fig.3.0: Conceptual framework

Source: Field data, (2019)

2.9 Chapter Summary

This chapter has discussed a review of the relevant literature, theoretical and conceptual frameworks adopted in the study. The review of literature has focused on the global, regional and local status of the impacts of the transport safety policies. Based on the

literature review, theoretical and the conceptual frame work, it is true that motorcycle accidents are on the rise. In fact, the severity of the accidents is mostly felt amongst the developing nations. In Kenya, there has been a steady rise in the number of motorcycle accidents witnessed over the years despite the establishment of the National Transport and Safety Authority (Operations of Motorcycles) Regulations,2014. As a result, concerted efforts from all stakeholders need to be put forth. This chapter has also discussed the theoretical and the conceptual framework guiding the study. The next chapter presents the research methodology.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter looks at the steps that the researcher adopts in studying a research problem. It therefore outlines the research methodology that was used during the study, data collection tools, procedures and analyses. Various themes like the study area and design, target population, sampling techniques and procedures, reliability and validity of data collection instruments are also discussed in this chapter.

3.2 Research Design

A research design is a conceptual structure within which research is conducted. Any piece of research work ought to have a research design which acts as the nerve of the study. In this study, the researcher adopted a descriptive survey which described and documented existing phenomena. According to Kothari (2004), descriptive research design is concerned with "describing the characteristics of a particular individual or a group" (p.37).This model therefore enabled the researcher to generate information concerning motorcycle safety policies. A mixed method approach was adopted to enable integrate both qualitative and quantitative data thereby increasing validity. Data was collected at the same time then concurrently analysed to minimize costs. Qualitative techniques of data collection were employed in this study to help describe real experiences. It helped capture information concerning motorcycle transport safety policies from the key informants and the interviewees through the experiences that they had. As a way of eradicating subjectivity, quantitative techniques were also employed. The study assumed that the researchers were impartial to the study.

3.3 The Study Area

This study was conducted within Kisumu East constituency which is located in Kisumu County, Kenya. Kisumu County is located in the shores of Lake Victoria. It borders Vihiga County to the North, Nandi County to the North East and Kericho County to the East. To the South, it borders Nyamira County, Homabay County to the South West and Siaya County to the West. According to KNBS (2013), Kisumu County has a population of 957,645 inhabitants. Kisumu County has seven constituencies namely Kisumu East, Kisumu West, Kisumu Central, Seme, Nyando, Muhoroni and Nyakach. Kisumu East Constituency on the other hand, has a population of 149,391 inhabitants who occupy an area of 135.90 sq. kms (KNBS & SID, 2013).The figures below show the maps of Kenya, Kisumu County and Kisumu East constituency.

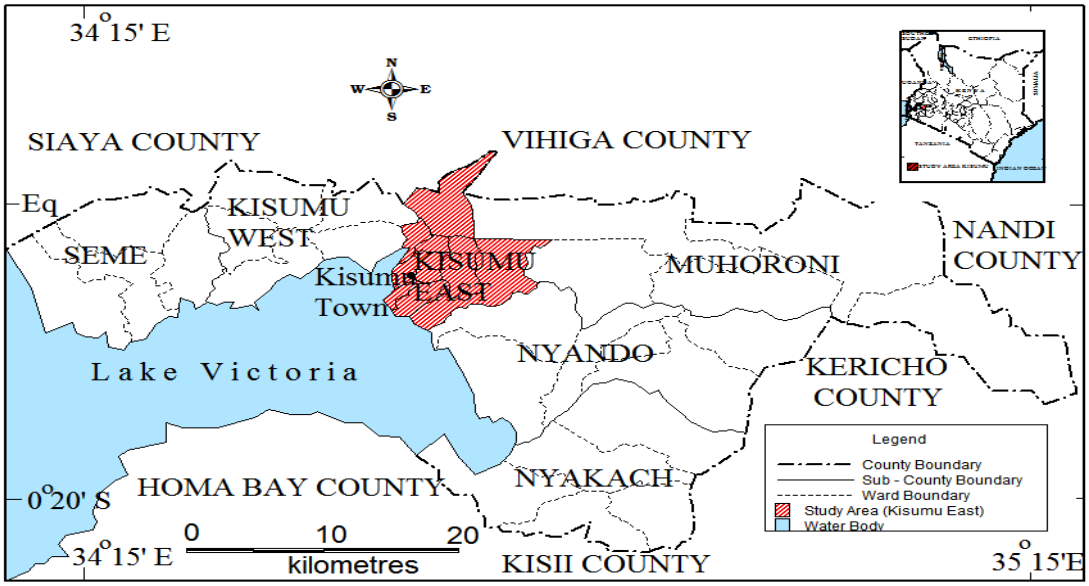


Fig.4.0: Map of Kisumu County showing the constituencies
Source: Field data,(2019)

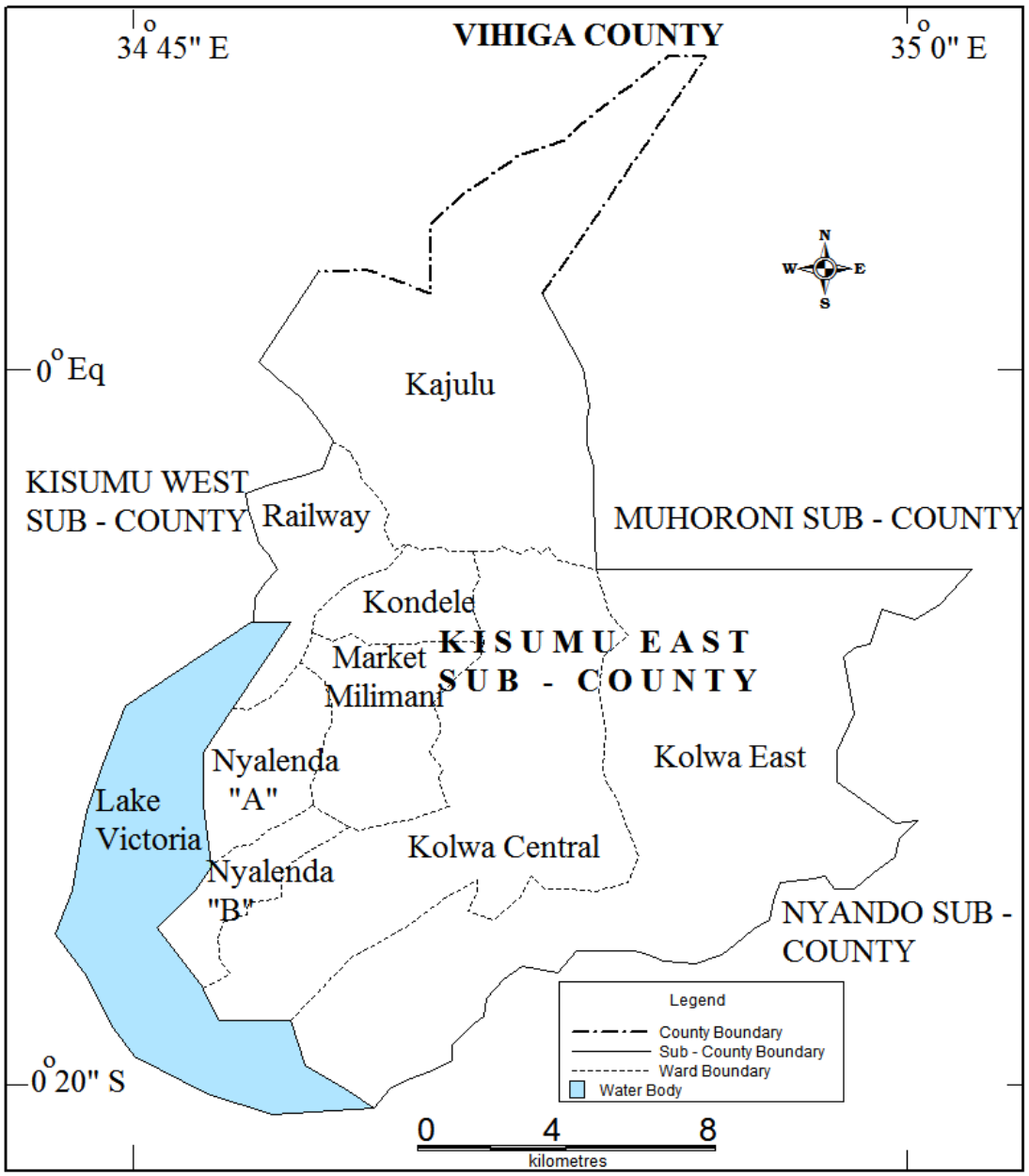


Fig. 5.0: Map of Kisumu East Constituency showing wards
Source: Field data,(2019)

This study area was selected significantly because of its long history in *boda boda* operations. In addition, it harbors two major government hospitals: Jaramogi Oginga Odinga Teaching and Referral Hospital (JOOTRH) and Kisumu County Referral Hospital. These government hospitals have special wards for motorcycle accident victims. This indicates then that there exist issues related to motorcycle accidents in the

area of study. Kisumu East constituency was therefore chosen because it covers both the rural and urban settlements of Kisumu.

3.4 Target Population

A population refers to an entire group of individuals, events or objects with a common characteristic (Mugenda and Mugenda, 1999). The target population for this study comprised the motorcycle users, NTSA officials and the traffic police. The main respondents for this study were motorcycle users which comprised of the riders and their passengers. Interviews were also held with the traffic police and the NTSA. Since there were no clear statistics on the number of motorcycle riders the researcher had no choice but to use the total population of Kisumu East which was 149,391 inhabitants (KNBS, 2013).This sample included riders since they were sampled purposefully and at their designated shades. Using Yamane (1967) formula, a sample size of 204 was obtained. Out of this, the respondents were 175, the key informants were 19 whereas the interviewees were 10 as tabulated in the subsequent pages (Field data, 2019). This target population was therefore able to provide answers to the research questions as it had diverse representation of the key stakeholders in the *boda boda* transport sector.

3.5 Sampling Design and Sample Size

3.5.1 Sampling Design

Sampling refers to the process by which a researcher selects the elements from a population for inclusion in the sample for research. This includes the procedures a researcher follows in selecting items for the sample (Kothari, 2004, p.55).It therefore encompasses the whole process of grouping units, determining the sample size and finally selecting the sample. In this case study, the researcher embraced both the probability and the non-probability sampling techniques for the study. This helped in the minimisation of bias and elimination of sampling errors that could have otherwise

occurred. Kothari (2004) defines non-probability sampling as a technique in which items from the sample are deliberately selected by the researcher, thus her choice remains supreme (p.59). The researcher adopted this technique to gather in depth information concerning the safety situations within the motorcycle transport sector. As a result, volunteer and purposive sampling methods were employed.

Having the research purpose in mind, the researcher selected the interviewees and the respondents. These interviewees included the traffic police and the National Transport and Safety Authority officials (road inspectors) whereas the respondents were the motorcycle riders. Using purposive sampling, focus group discussions were formed using boda *boda* accident victims. These key informants were selected on the basis of their willingness to participate in the study. They were then sub divided into two groups of male and female. The first group included 10 male victims of motorcycle accidents while the second group had 9 female victims of *boda boda* accidents. As a way of eliminating bias, probability sampling technique was employed. Probability sampling is a technique that gives individuals in the population under study equal chances of being selected. According to Kothari (2004), "In sampling, every item in the universe has an equal chance of inclusion in the sample" (p.60). Thus, every member of the population has a known non zero chance of being selected. Stratified random sampling as a technique of probability sampling was used in the study. This is the division of a population into smaller groups known as strata. This technique accurately enhanced the representation, reliability and flexibility of the sample. The target population was sub divided into homogeneous sub sets after which the appropriate number from the population was selected at random. Stratified random sampling was used to sample the location of *boda boda* operators. The study area was divided into strata based on the 5 administrative units namely Kajulu, Kolwa East, Kolwa Central, Manyatta B and

Nyalenda A. A simple random sample was then used to sample the operators from each stratum. This method of sampling was adopted because the population under study was too large to conduct research on. It ensured that the sub groups of the population were adequately represented and saved much time and money.

The table below summarises the sampling process as shown:

Table 1: Summary of the sampling process

Method used	**Reasons**	**How it was applied**
Purposive Sampling	To select the study area which was based on prior knowledge of the history of *boda boda* To select interviewees and respondents for the study.	Picked Kisumu East constituency as the area of study. Picked the Traffic Police and the National Transport and Safety Authority officials as the interviewees and the riders as the respondents.
Volunteer Sampling	To select the key informants for the study.	Visited Jaramogi Oginga Odinga Teaching and Referral Hospital and interviewed *boda boda* accident victims
Stratified Sampling	To sample locations and divide the respondents into strata.	Five strata were selected based on the administrative locations.
Simple Random Sampling	To identify individual riders to be sampled.	Samples were picked from each stratum.

Source: Field data, (2019)

3.5.2 Sample Size

Kothari (2004) defines a sample size as the number of items selected from the universe to constitute a sample (p.56). It refers to the number of cases or observations a researcher wishes to use. This study focused on the Impact of transport safety policies on motorcycle (*boda boda*) Industry within Kisumu East constituency, Kisumu County. The study area happened to have a population of 149,391 inhabitants (KNBS & SID 2013). Since there were no clear statistics showing the exact number of the motorcycle

operators, the researcher used the total population of the constituents which was 149,391 to calculate the sample size. Yamane (1967), formula of sample size calculation became helpful for the study.

Using this formula where:

n -is the sample size,

N -is the population size and

e - is the level of precision using the error of $\pm$7 if the confidence level is 95%.

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

Note: The level of precision using the error of $\pm$7 implies that the results obtained would match that of the actual population in a range of 197(204-7) to 211(204+7).

Using this formula:

$n = 149,391/1+149,391(0.07)^2$

$n = 149,391/1+149,391(0.0049)$

$n = 149,391/1+732.0159$

$n = 149,391/732.0159$

$n = 204.08163265$

The sample size therefore was 204.This implied that if a similar research was repeated over and over again, the results obtained would match the results from the actual population in a range between 197(204-7) to 211(204+7),95% of the time. This sample size included all the respondents, interviewees and the key informants. Basing on the purpose of this study, ten interviewees were selected as tabulated in the next page:

Table 2: Sample size for interviewees

Target population for interviewees	**Sample size**
National Transport and Safety Authority Officers	5
The National Police Service (Traffic Police Department)	5
Total	**10**

Source: Field data, (2019)

Focus group discussions were also conducted at JOOTRH. Volunteer sampling was used to select the key informants within the hospital institution. These were conducted by the help of key informants who were subdivided into two groups of males and females. The first group consisted of 10 males while the second had 9 females. All the key informants happened to be victims of motorcycle accidents as tabulated in table 3.

Table 3: Sample size for key informants

Target Population for key informants	**Sample size**
Males	10
Females	9
Total	**19**

Source: Field data, (2019)

The remaining sample size which was 175 was used to sample the respondents within the five strata. This was calculated as follows:

Sample size of strata= (Size of the entire population/Population Size) × layer size

Where: Sample size of strata = the number of respondents to be sampled

Size of the entire population=population per administrative location

Population size= the target population

Layer size=the total sampled size.

The table below in the shows the sample size for the respondents.

Table 4: Sample size for respondents

Ward Name	**Population**	**Number of the sampled respondents**
Kajulu	40,471	47
Kolwa East	21,203	25
Manyatta B	27,894	33
Nyalenda A	28,169	33
Kolwa Central	31,654	37
Total Population	**149,391**	**175**

Source: Field data, (2019)

3.6 Data Collection

Data was collected with the help of two research assistants who basically dropped and collected questionnaires at off peak hours which was between (10am-11am) and (2pm-3pm). This study embraced both the primary and secondary sources of data. As a primary source of data, the researcher used semi-structured questionnaires based on Likert-scale for respondents, interview guides for interviewees and Focus Group Discussions for the key informants. The combination of these three data collection tools proved to be instrumental in gaining in depth information. This questionnaire had the following sections: respondents' profile, impact of transport safety policies, causes of motorcycle *(boda boda)* accidents, challenges, measures in place and recommendations thereof.

The researcher also used the interview guides to collect data from the policy enforcers. Interviews were conducted orally and answers to the questions were recorded using a phone recorder. After the interviews, data obtained from was analysed and grouped into

various themes relating to the objectives of study. Focus Group Discussions (FGDs) were also employed to gather data. The key informants were divided into two groups. Group one consisted of ten male key informants while group two consisted of nine female key informants. These discussions which lasted for approximately one hour were conducted within the wards during visiting hours after obtaining permission from the JOOTRH ethics and review committee. The study also employed the secondary sources of data like newspapers and journals.

3.6.1 Pre-test

A pre-test is a trial administration of a research instrument to identify flaws that may arise (Kothari 2004).Prior to the actual study, the questionnaires were pre-tested to evaluate whether they were clear and addressed the research objectives. Since a research instrument should be pre-tested within a range of 1% and 10% of the sample size (Mugenda and Mugenda, 2003), the researcher pretested the questionnaires on 18 respondents who met the set criteria for the study. A pilot study was therefore conducted using 18 riders in Manyatta B location, one of the locations of Kisumu East constituency. The researcher found out that the questionnaires were poorly framed and that the research lacked consent. This led the researcher into restructuring the questions in the questionnaire and introducing the consent form.

3.6.2 Validity and reliability of research instruments

Validity is the extent to which a research instrument measures what it is intended to measure. Since the population under study was from diverse backgrounds with different education levels, the questions in the questionnaires were simplified to give the respondents easy understanding. Mugenda &Mugenda (2003), define reliability as a measure in which the research instrument yields the same results after repeated attempts. As a way of ensuring this, the researcher conducted a test-retest method where

the questionnaires were administered twice to the same group of the selected sample of the population but after an interval of two weeks. When compared, the results from the two tests had similarities thus enabling the researcher to conduct the research.

3.7 Data Collection Procedures

Prior to data collection, a letter was obtained from the graduate school and a relevant permit from the National Commission for Science and Technology (NACOSTI). The researcher went ahead and requested for permission from the County Commissioner of Kisumu and the County Education Officer, all which were successfully granted. During the field data collection, the researcher sought for consent from all the respondents, key informants and interviewees.

3.8 Data Analysis

Data collected from the field was organised and coded according to study objectives and variables. Summarised quantitative data was entered into the computer for editing and analysed using the Statistical Package for Social Science Students Version 24.0 .The analysed data which was in the form of frequencies and percentages was then transferred to excel spreadsheet and later presented in the form of bar graphs and pie charts for easy presentation and understanding. Qualitative data on the other hand was analysed through categorisation into themes and narrations based on the study objectives. Thus, the responses to open ended items (qualitative data) were organized and followed by creating categories and themes related to research questions.

3.9 Ethical Considerations

Ethical considerations refer to the norms and standards for conducting research. As an ethical requirement, the researcher sought permission from the respondents before initiating the study and assured the respondents of utmost confidentiality of the data

collected. Respondent participation was voluntary and no harm was done to the participants both psychologically and physically. The participants were treated with utmost respect and fairness irrespective of the dynamics within the environment such as age, gender and literacy levels. The researcher was keen and remained consistent with the ethics, culture or norms of the community under study.

3.10 Chapter Summary

This chapter has presented the research methodology for the study. This study adopted a descriptive research design with mixed method approach. It has used purposive sampling to sample the study area. Stratified random sampling has also been employed to obtain the sample size. The instruments of data collection used were the questionnaires and the interview guides. The data collected was both qualitative and quantitative in nature. Quantitative data was obtained from the respondents whereas qualitative data was obtained from the key informants. Thus, data analysis has been done separately for both the qualitative and the quantitative data. This study has also presented the study area and the target population. Data collection techniques have also been discussed in this chapter. Chapter four discusses data analysis, presentation and interpretation.

CHAPTER FOUR

DATA ANALYSIS

4.1 Introduction

This chapter presents and interprets the results of the data analysed. Data was collected and processed in response to the research objectives stated in chapter one of this study. The study had its main objective which was to examine the Impact of Transport Safety Policies on Motorcycle *(boda boda)* industry. This chapter therefore begins by discussing the existing transport safety policies on motorcycle *(boda boda)* industry. It also discusses the level of compliance to these policies. This chapter also addresses the impacts of the safety policies on motorcycle *(boda boda)* industry. Data obtained from the field has been analysed, interpreted and presented in the form of bar graphs and pie charts for easy interpretation.

4.2 The Existing Transport Safety Policies on Motorcycle *(boda boda)* Industry

In Kenya, the National Transport and Safety Authority Act of 2012 established the National Transport and Safety Authority (Operation of Motorcycles) Regulations, 2014 to regulate motorcycle industry. As a result, this study objective was determined by asking the following questions: *Are you aware of the motorcycle transport safety policies? Which safety policies are you compliant with?*Notably, quite a large number of riders were aware of motorcycle transport safety policies. Analysed data indicated that 93% of the sampled population was aware of the existing transport safety policies whereas 7% had no idea of what the safety policies were. This implies that a greater percentage of the population within the area of study is well conversant with the policies regulating the motorcycle industry.

The pie chart below shows the level of awareness on the existing safety policies.

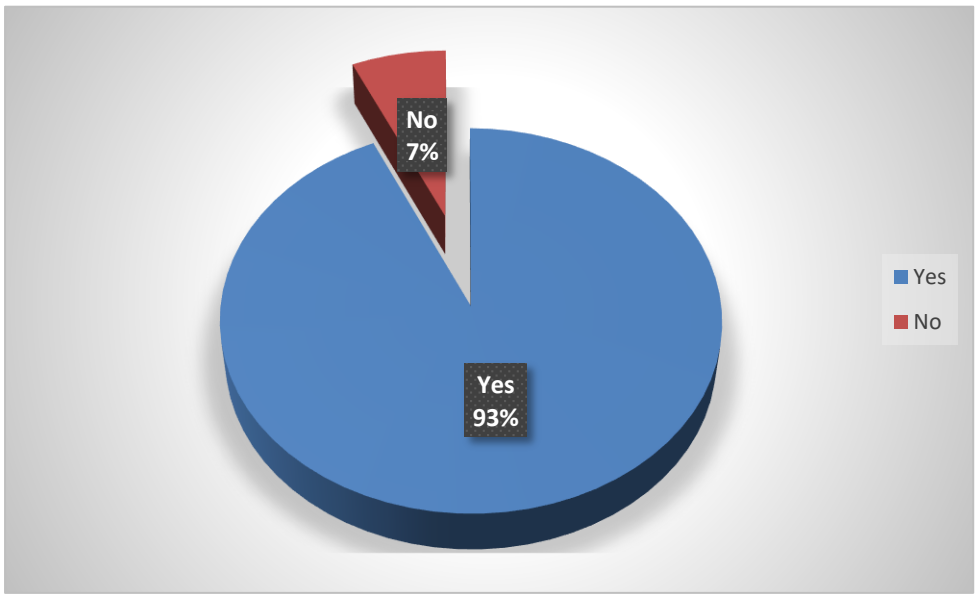


Fig.6.0: Awareness levels of the existing transport safety policies

Source: Field data, (2019)

In Kisumu East constituency which was the study area,93% of the sampled population was aware of the safety policies regulating motorcycle industry. This refutes the study's earlier assumption that most motorcycle users were unaware of the existing safety policies. Despite this great awareness, motorcycle related accidents are still on the rise. This study therefore went further and sought to find out the compliance levels on motorcycle safety policies.

4.2.1 The Level of compliance on motorcycle safety policies

The National Transport and Safety Authority (Operation of Motorcycles) Regulations, 2014 provides the policies regulating this industry as follows; all motorcycle operations are between 5:00 am to 6:00 pm and riders must carry pillion passengers without loads. Riders are also required to strictly

adhere to traffic safety discipline for instance licensing, inspection, training and observation of traffic rules. In addition, insurance and riding gears are a must for both the riders and their passengers. Most riders in Kisumu East constituency were aware of the existing transport safety policies regulating motorcycle industry. The pie chart below shows the level of compliance on motorcycle transport safety policies. How compliant were they?

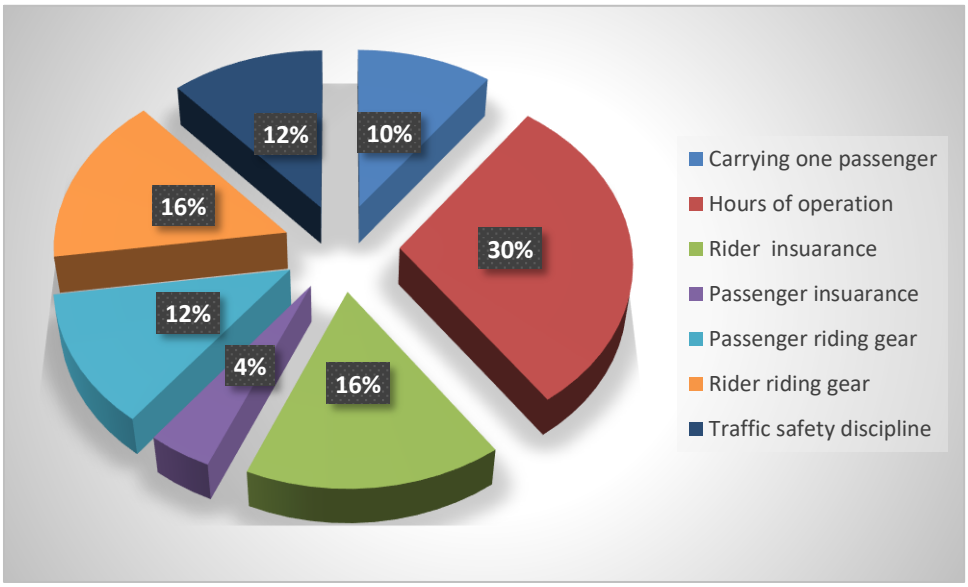


Fig.7.0: Compliance with safety policies

Source: Field data, (2019)

Analysis from the figure above indicates that 16% of all respondents normally put on the full riding gear for motorcyclists while in operation. This includes the reflector jackets and helmets. Another 12% provided their passengers with reflector jackets and helmets as outlined in NTSA Act 2014.While 16% of the sampled frame insured themselves against accidents, only 4% had their passengers insured. Those who operated between 5:00 am to 11:00 pm were 30% whereas only 10% of the riders carried one passenger at a time. Further, another 12% of the respondents observed traffic discipline.

All in all, the above statistics do indicate low compliance levels. Analysis on the responses from the qualitative data showed that traffic indiscipline was high. Further, riders did not have valid riding licenses, proper riding gears, and that they did not attain the required training. The sight of many being carried on *boda bodas* as either three or four pillion passengers together with loads is quite familiar in Kenyan roads and highways. In addition, helmet use was very low in the study area. According to WHO (2009), motorcyclists who do not wear helmets are three times most likely to be killed in cases of accidents. The reasons as to why most riders failed to wear helmets were not limited to hygiene and the hot temperatures within the study area. Further, Hung et al (2006) associates elder riders to helmet use. He states that many adult riders use helmets more than the young riders. Likewise, riders lacked valid licenses and insurances majorly because of ignorance. Chitere (2006) noted that "Motorcyclists carelessly continually defy the traffic rules and regulations" (p.4).This study therefore concludes that motorcyclists have blatantly disregarded the law.

4.3 The Influence of Transport Safety Policies on Motorcycle *(boda boda)* Industry

The abolishment of tax on imported motorcycles in the year 2008 saw the growth of motorcycles in Kenya. Motorcycles commonly referred to as *boda bodas* have since then provided quick, efficient and cheap means of transport in both the urban and rural areas. As a result of this increased use of motorcycles as means of transport, the Ministry of transport in partnership with the National Transport and Safety Authority (NTSA) came up with safety policies to regulate motorcycle industry. The National Transport and Safety Authority (Operations of Motorcycles) Regulations, therefore came into force in 2014.This policy has influenced motorcycle industry in different ways as discussed in the next page.

4.3.1 Reduction in accidents

The National Transport and Safety Authority Act 2014 was established to reduce the increasing number of motorcycle accidents. Motorcycle related accidents have therefore emerged over the years as a common characteristic of *boda boda* industry. In fact, in a press statement by the NTSA in 2016, motorcycles contributed to 20% of all deaths recorded in the country. The United Nations further noted that out of more than 3000 people who die annually as a result of road traffic accidents,7% are motorcycle riders (UN, Kenya 2012.)In this study, most riders had been involved in accidents either once or twice.

The bar graph below illustrates how transport safety policies have reduced motorcycle accidents.

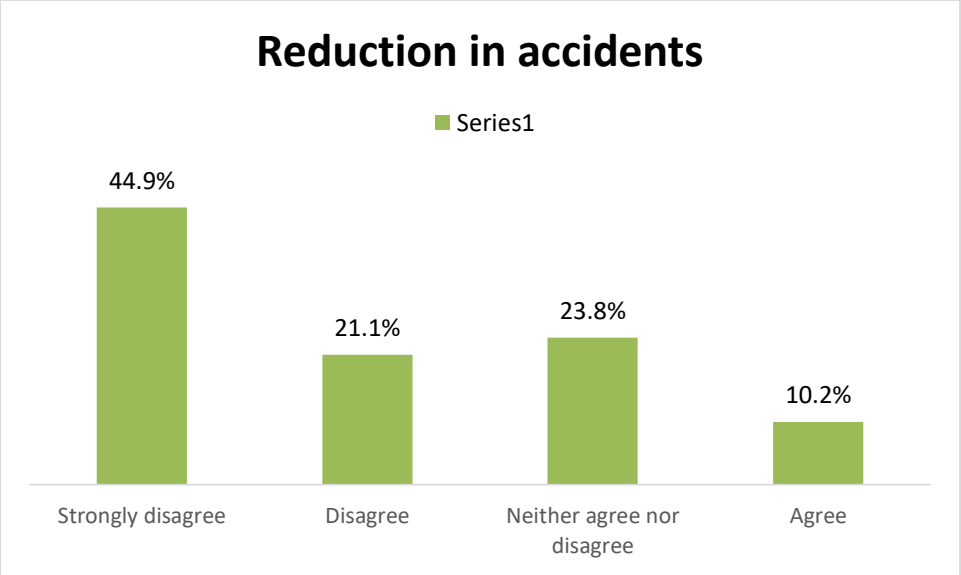


Fig.8.0: Transport safety policies have reduced accidents

Source: Field data, (2019)

The findings of this study indicate that safety policies have not led to the reduction in traffic accidents. Out of the total sampled frame, 44.9% of the sampled respondents strongly disagreed that the safety policies have reduced accidents. The respondents who disagreed were 21.1%. Another 23.8% neither agreed nor disagreed whereas 10.2% agreed. This implies that motorcycle safety policies have achieved little in reducing motorcycle related accidents as there has been a continuous rise in the number of motorcycle fatalities. This therefore calls for the reawakening of all stakeholders to provide solutions to the ever-increasing cases of motorcycle accidents witnessed.

4.3.2 Reduction in traffic congestions

Another influence of motorcycle transport safety policy is that it led to the reduction in traffic congestions especially in the urban areas. Analysis from the data collected confirmed that motorcycle transport safety policies had not reduced traffic congestions. This is represented graphically as shown in the next page:

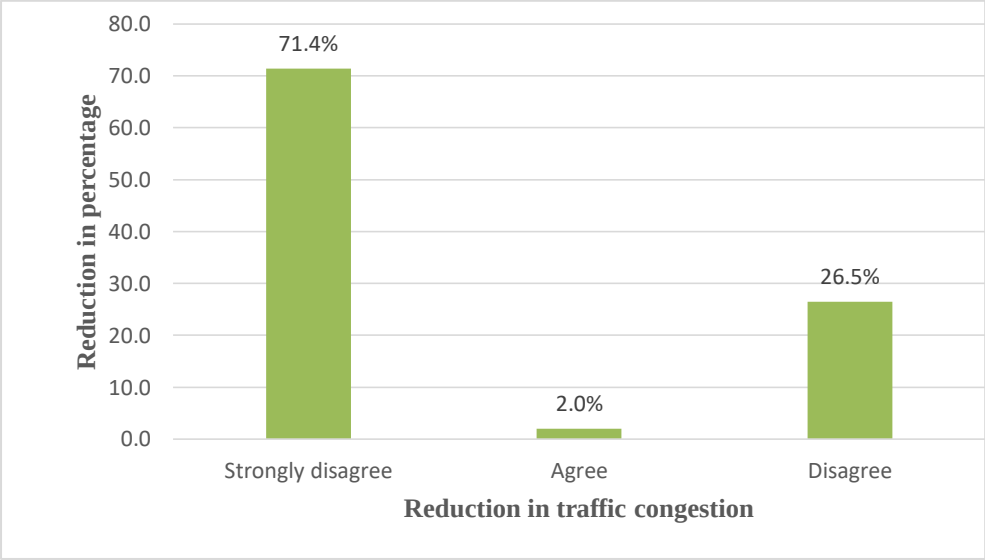


Fig 9.0: Transport safety policies have reduced traffic congestions

Source: Field data, (2019)

The bar graph above clearly illustrates that majority of the respondents strongly disagreed that transport safety policies had reduced traffic congestions. From the above figure,71.4% of the respondents strongly disagreed that transport safety had reduced traffic congestions. Another 26.5% disagreed while 2% agreed. This implies that traffic congestion is still a major occurrence especially within towns and urban areas. Despite the establishment of this policy, traffic snarl ups are still being witnessed in the area of study. Besides, the numbers of motorcycle riders have increased over the years. In the past decades, *boda boda* operations have greatly increased when compared to other modes of transport. This then calls for the expansion of roads and major highways as traffic congestions have become inevitable.

4.3.3 Recognition of motorcycle *(boda boda)* enterprise as an industry on its own

The establishment of the National Transport and Safety Authority Act 2014 led to the recognition of *boda boda* as an industry of its own. In this study,35.4% of the respondents disagreed that transport safety policies have led to the recognition of motorcycle industry. The respondents who agreed were 25.2% while 8.8% strongly disagreed. Another 30.6% were neutral on the fact that the transport safety policies had led to the recognition of *boda boda* as an industry on its own. The results have been graphically presented as follows:

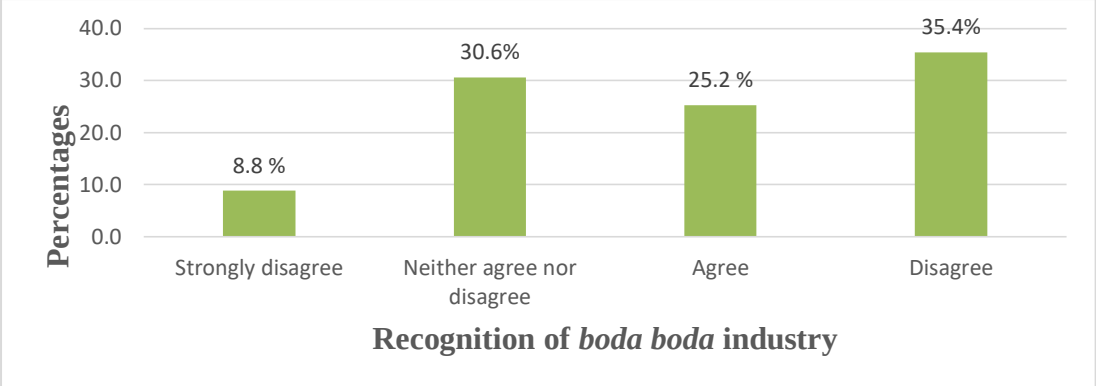


Fig.10.0: Recognition of *boda boda* as an industry of its own

Source: Field data, (2019)

Conclusions can be drawn that the existing transport safety policies have not led to the recognition of *boda boda* motorcycle as an industry on its own as 35.4% of the sampled respondents disagreed. A qualitative analysis on the impact of motorcycle transport safety policies indicated that motorcycle business emerged as an industry after the zero rating that was done by the Kenyan government in 2008.Motorcycles soon flooded the market and this saw the growth of *boda boda* as an industry on its own. Later, motorcycle transport policies were established in 2012 to regulate this industry that was seriously claiming many innocent lives.

4.4 Conclusion

This chapter has discussed the existing transport safety policies and it's influence on motorcycle *boda boda* industry. It has also presented the levels of compliance towards the existing transport safety policies. This study found out that most riders are aware that there are transport safety policies regulating motorcycle industry as 93% of the sampled population were aware. Despite the great awareness, compliance to these policies was low. As a result, motorcycle related accidents are still on the increase.

Transport safety policies have therefore failed to impact motorcycle industry positively.

The next chapter presents the causes of motorcycle *(boda boda)* accidents.

CHAPTER FIVE

CAUSES OF MOTORCYCLE (*BODA BODA*) ACCIDENTS

5.1 Introduction

This chapter analyses the causes of motorcycle *(boda boda)* accidents. Quantitative data collected from the field has been analysed descriptively using Statistical Package for Social Science Students Version 24.0.Qualitative data has also been analysed and categorized into themes and narrations based on the study objectives. Quantitative data was therefore interpreted and presented in the form of bar graphs and pie charts.

5.2 Involvement in motorcycle *(boda boda)* accidents

This study sought to find out if the respondents had in any instance involved in motorcycle related accidents. The study found out that motorcycle accidents were a common occurrence as 93 % had at one point in time involved in motorcycle related accidents as shown.

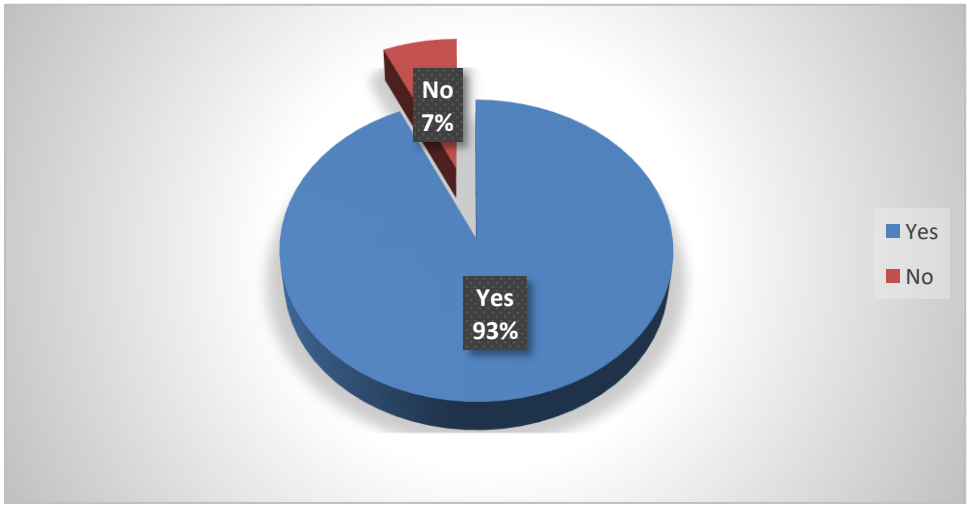


Fig.11.0: Rider Involvement in motorcycle *(boda boda)* accidents

Source: Field data, (2019)

The figure in the previous page illustrates the level of involvement in motorcycle related accidents. Out of the total sampled frame,93% of the respondents had involved in motorcycle related accidents. This means that most riders had been involved in motorcycle accidents.

5.2.1 Number of times involved in motorcycle related accidents

Out of the total number of respondents who had been involved in accidents, this study sought to find out the number of times that they had been involved in accidents. The analysed data showed that most riders who had been involved in accidents had been involved once in their life time. This is showed as follows:

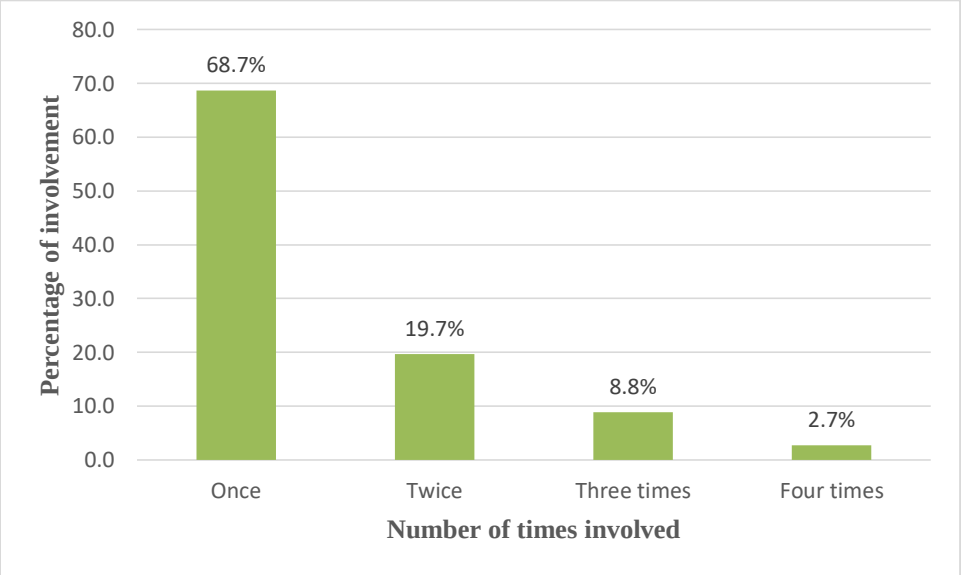


Fig.12.0: Number of times involved in motorcycle related accidents

Source: Field data, (2019)

From the figure above,68.7% of the respondents had in one time involved in accidents. Another 19.7% had been involved twice while 8.8% had been involved three times. Further, 2.7% of the respondents had been involved in accidents four times. Accidents are a common occurrence with many more riders likely to get involved. Kumar et al

(2008) confirms that motorcycle accidents are common and fatal. There is need therefore to ensure that motorcycle rules and regulations are strictly adhered to.

5.3 Causes of Motorcycle *(boda boda)* Accidents

Accidents involving motorcyclists are a common occurrence in most urban and rural areas of Kenya. Motorcycle accidents occur majorly as a result of human error, defective motorcycles and poor road networks. This study analyzed the possible explanation for the causes of safety policies on motorcycle industry objectively and presented them as explained.

5.3.1 Human Error

5.3.1.1 Negligence as a cause of motorcycle *(boda boda)* accidents

Negligence is the lack of care, concern or failure to do something. This study sought to find out if negligence was a cause of motorcycle accidents. Analysis of the data collected from Kisumu East constituency indicates that 70% of the respondents strongly agreed that negligence was the reason behind the increased rates of fatalities as shown below:

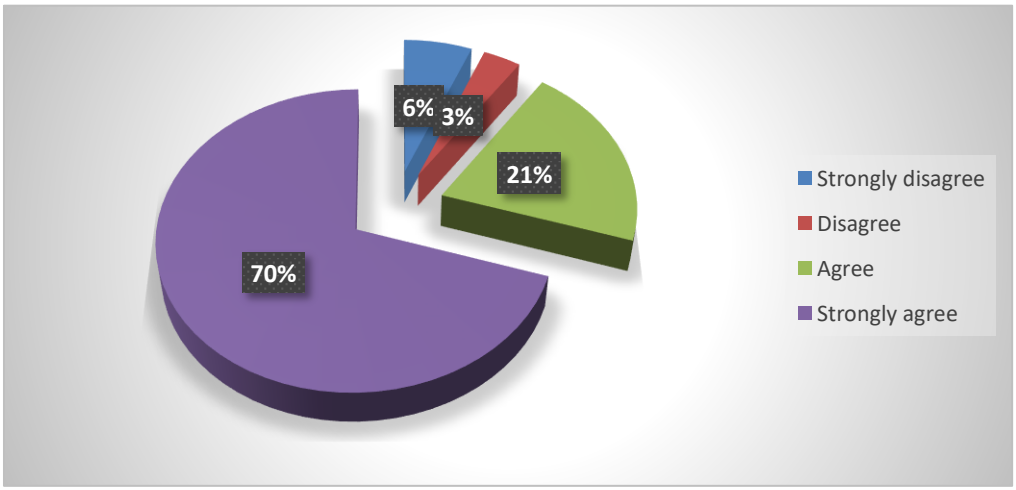


Fig. 13.0: Negligence as a cause of motorcycle accidents

Source: Field data, (2019)

Significantly, most riders strongly agreed that negligence resulted into accidents. Another 21% agreed while 6% strongly disagreed. Further,3% of the respondents disagreed that negligence caused motorcycle accidents. Matheka et al (2015), states that most riders are negligent as they ride without any protective equipment. This is evidenced by the *'I don't care attitude'* which in eventuality results into fatal accidents.

5.3.1.2 Inexperienced riders as a cause of motorcycle *(boda boda)* accidents

Inexperience refers to the lack of skills regarding a given phenomenon. It results from inadequate or improper training. Most studies indicate that most riders acquired skills through apprenticeship. Chitere (2004) notes that majority of motorcycle riders have learnt the art without undergoing any formal training. As a result of this little informal training, Odero (2009) states that most riders flout traffic rules thereby exposing themselves to danger. This study therefore sought to establish whether inexperienced riding caused motorcycle accidents. The results obtained have been presented as follows:

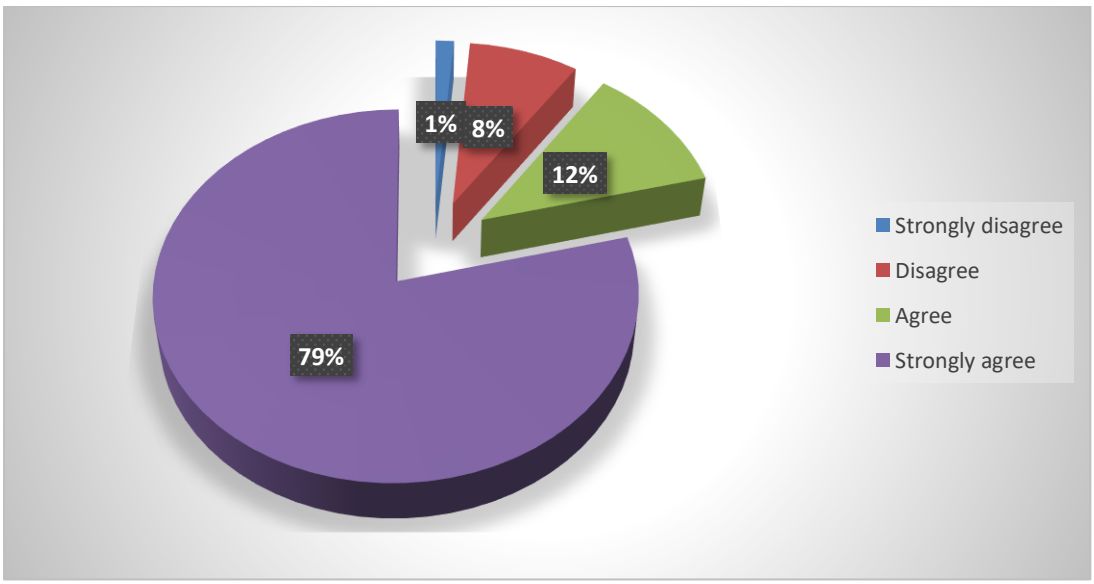


Fig.14.0 Inexperience as a cause of motorcycle accidents

Source: Field data, (2019)

From the figure above,79% of the respondents strongly agreed that inexperience led to accidents. Further, 12% agreed while 8% disagreed. In addition to this, 1% strongly disagreed that inexperience was a cause of motorcycle related accidents. In Kisumu East constituency, most riders do not attain any formal training regarding motorcycle operation. Riders obtain a one or two day training from friends and relatives at a cost of 200 shillings after which they *'deem fit to go.'* Most opt for this form of training as the riding schools are quite expensive for them to afford. Majority of training institutions are located in towns and do charge a minimum of Ksh.5, 500 for the required class A. As a result, most riders opt for the informal trainings which in the end render them incompetent as they lack the proper skills concerning motorcycle operations.

5.3.1.3 Traffic indiscipline as a cause of motorcycle *(boda boda)* accidents

Traffic indiscipline refers to violation of traffic rules. Traffic safety discipline entails observing traffic lights and strictly adhering to the set traffic rules. This study therefore sought to find out the relationship between traffic indiscipline and accidents. The findings obtained from the field were analysed and presented as follows:

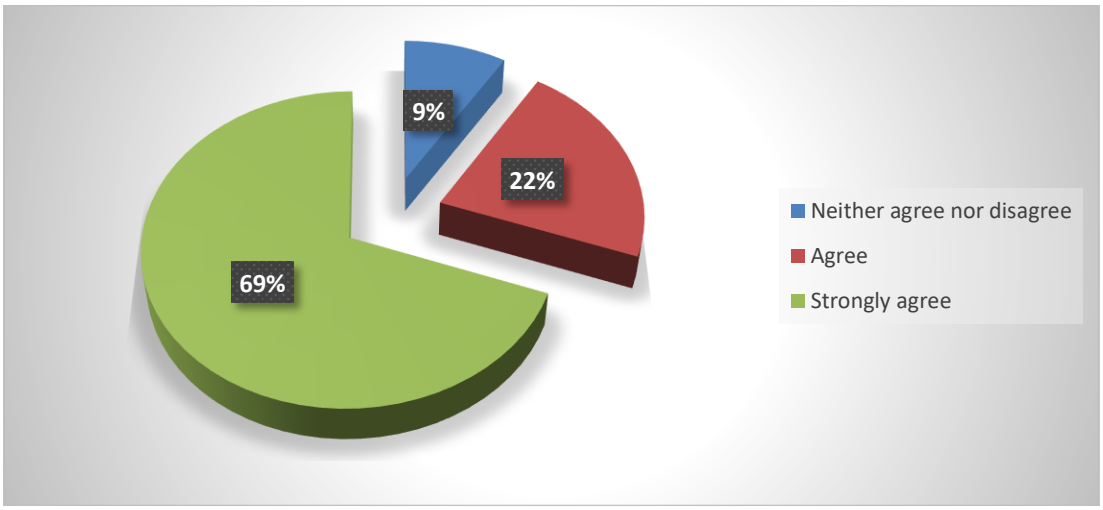


Fig.15.0: Traffic indiscipline as a cause of motorcycle *(boda boda)* accidents
Source: Field data, (2019)

Out of the total sampled population, 69% strongly agreed that traffic indiscipline majorly resulted into motorcycle related accidents. Another 22% of them agreed whereas 9% neither agreed nor disagreed. As a result, this study concluded that traffic indiscipline contributed into accidents. In the study area, riders in most cases operated against the traffic. Having not attended a formal institution and attained the required class A training, these riders fail to understand the traffic rules. As a result, they end up causing accidents.

5.3.1.4 Lane splitting as a cause of motorcycle *(boda boda)* accidents

Lane splitting refers to riding between two lanes on the same highway at one particular time. Indeed, lane splitting is a common cause of motorcycle accidents amongst motorcyclists. The results obtained from this study are represented as follows:

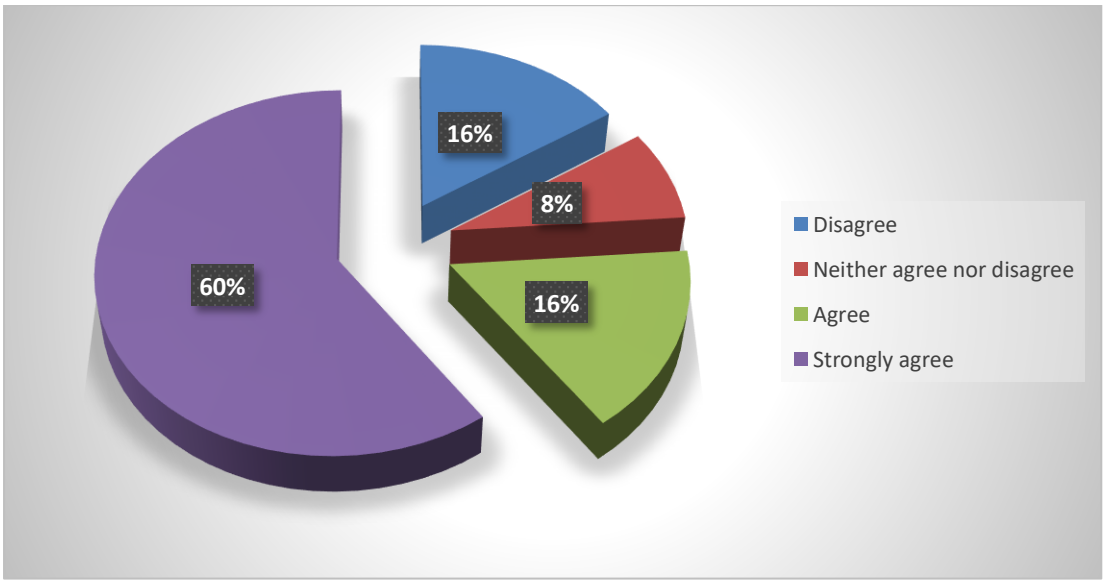


Fig.16.0: Lane splitting as a cause of motorcycle accidents
Source: Field data, (2019)

From the above analysis,60% of the sampled respondents strongly agreed that lane splitting was a cause of *boda boda* accidents. Further, 16% agreed while another 16% disagreed and 8% neither agreed nor disagreed. This implies that lane splitting is a cause of motorcycle accidents as majority of the respondents concur. In Kisumu East

constituency lane splitting also does exist. It is common to find motorcyclists swerving between two lanes especially on Fridays when major highways like (Kisumu-Nairobi and Kisumu-Kakamega) are congested. The resultant effect is that they end causing accidents.

5.3.1.5 Overloading as a cause of motorcycle *(boda boda)* accidents

In Kenya, motorcyclists are advised not to carry loads exceeding 30 kgs for motorcycles whose carrying capacity does not exceed 50 cc and 60 kgs for motorcycles whose carrying capacity does not exceed 400cc.This study therefore sought to find out if overloading resulted into accidents. Analyses from the data collected are represented in the form of a pie chart as follows:

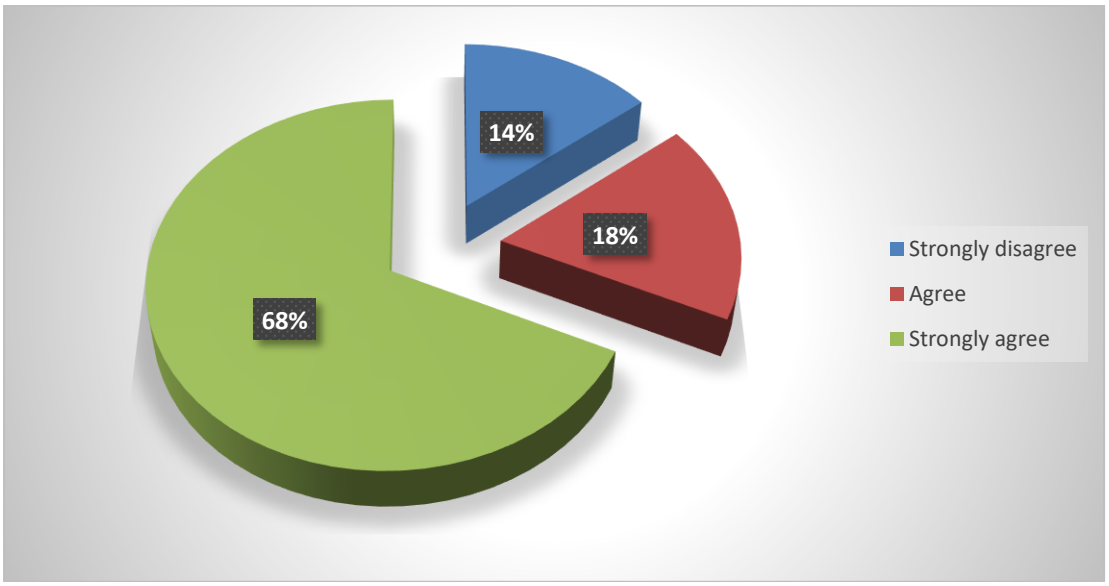


Fig.17.0: Overloading as a cause of motorcycle accidents
Source: Field data, (2019)

Statistics from the pie chart above show that 68% of all respondents sampled strongly agreed that overloading resulted into accidents. Besides, 18% agreed whereas 14% strongly disagreed that overloading did not result into accidents. This implies that majority of the respondents concurred that overloading resulted into motorcycle accidents. Overloading is much common within the area of

study. It is common to find four or three pillion passengers each with their luggage sharing a ride. As a result of imbalance, the motorcycle loses its stability hence leading to an accident.

5.3.1.6 Speeding as a cause of motorcycle *(boda boda)* accidents

Speeding has always been viewed as a major cause of accidents world over. This study sought to confirm whether speeding results into motorcycle related accidents. The data obtained was presented in the form of pie chart as shown below.

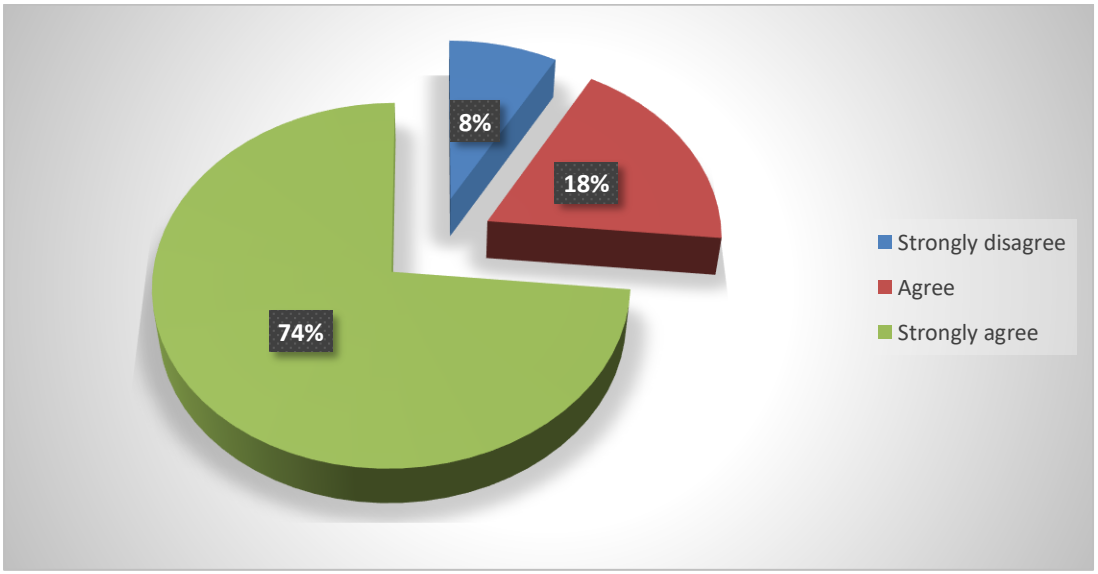


Fig.18.0: Speeding as a cause of motorcycle related accident
Source: Field data, (2019)

This study agrees that speeding contributed to motorcycle accidents as 74% of the respondents strongly agreed that speeding was a cause of motorcycle related accidents. Further, 18% of the respondents agreed whereas 8% strongly disagreed. Lawton et al., (1997) confirms that riding beyond speed limits ultimately causes accidents. This study established that speeding is relative to the age of the rider. Riders of age below 30 years in most cases are always on speed while operating their motorcycles. Adult riders are characterised by stability and riding at recommended speed in most cases. Young riders

always operate while on speed which in eventuality, they end up getting involved in accidents.

5.3.1.7 Recklessness as a cause of motorcycle *(boda boda)* accidents

Recklessness refers to some form of carelessness often heedless of the consequences in place. Most studies in Kenya conclude that riders were reckless and that they lack control. This study sought therefore to establish whether recklessness led to motorcycle related accidents. The results obtained were presented as shown below:

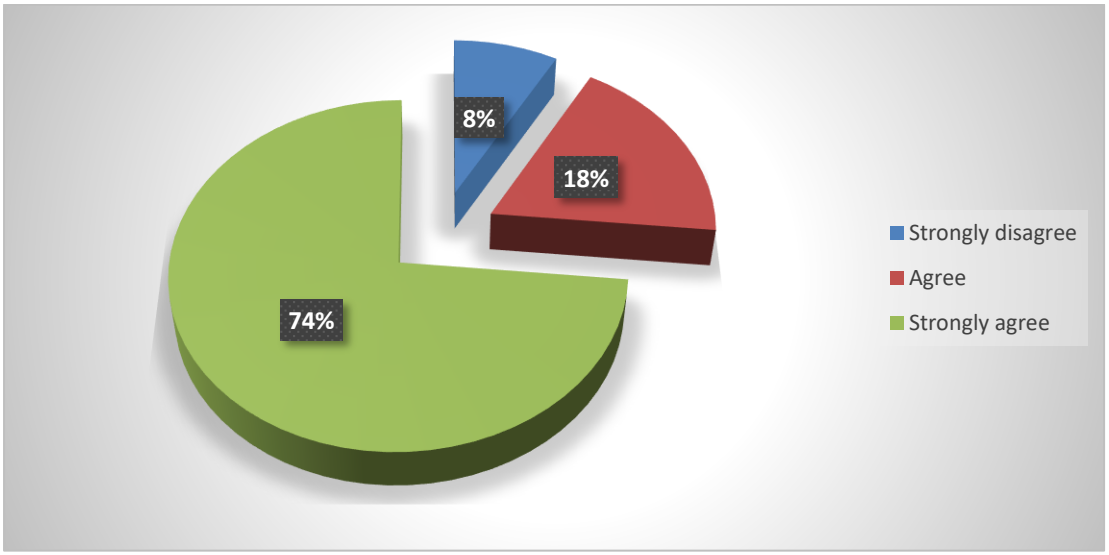


Fig.19.0: Recklessness as a cause of motorcycle accidents

Source: Field data, (2019)

From the pie chart above,74% of the total respondents sampled strongly agreed that recklessness majorly resulted into motorcycle related accidents. The respondents who agreed that recklessness was a cause of accidents were 18% whereas 8% strongly disagreed. According to a press release by NTSA in 2015, most riders aged between 19-39 years were reckless and unprofessionally trained. This study concurs with these findings as lack of proper training results into reckless behavior and attitude. In Kisumu East constituency, most riders are beneficiaries of informal one or two-day training as

they find the formal recommended training schools expensive. As a result of this, they end up being reckless in their attitudes and behavior.

5.3.1.8 Impaired riding as a cause of motorcycle *(boda boda)* accidents

Impaired riding refers to the operation of a motorcycle while under the influence alcohol and other related drugs. Globally, concerns have been made over drug trafficking which is a great enemy to our young generation. In this industry, alcohol and other drugs impairment has encroached. This study sought to find out the relationship between impaired riding and motorcycle accidents. The findings of this study have been represented as shown below:

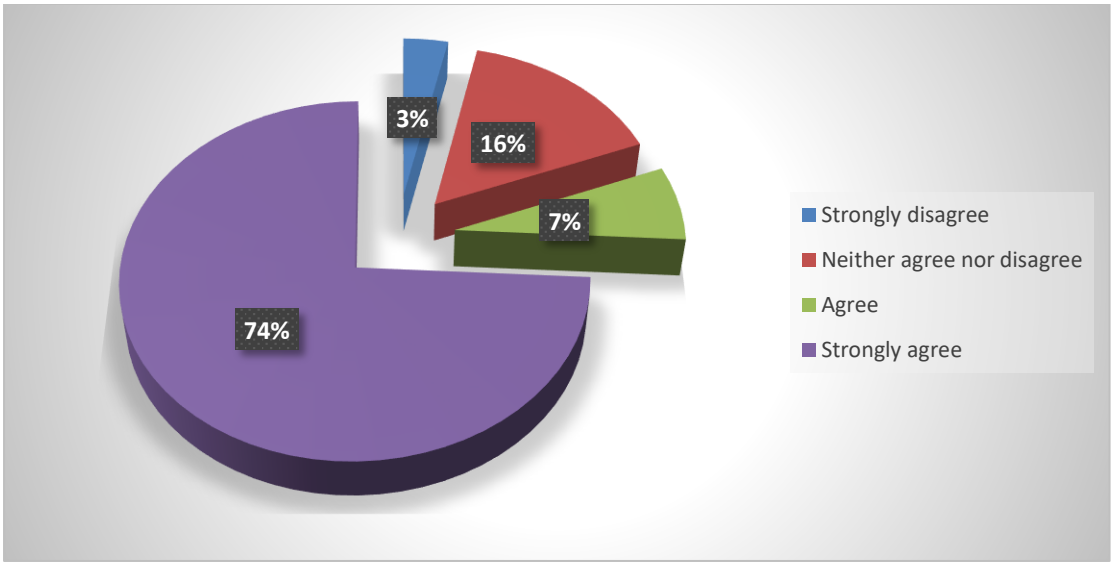


Fig.20.0: Impaired riding as a cause of motorcycle (boda boda) accidents

Source: Field data, (2019)

Out of the total sampled population,74% of the respondents strongly agreed that impaired riding caused motorcycle accidents. Another 7% agreed while 16% neither agreed nor disagreed. Further 3% strongly disagreed that impaired riding resulted into motorcycle accidents. The use of alcohol and other related drugs was rampant amongst the young riders. This of course results into serious fatalities (Clarke et al., (2004.)

5.3.1.9 Qualitative analysis on human error as a cause of motorcycle accidents

Based on the data collected from the key informants and analysis, a qualitative analysis was conducted based on themes and narrations. Human error emerged as a major cause of motorcycle accidents in the study area. Most key informants reiterated that had it not been that had it not been for their recklessness and that of the riders they boarded, they would have not been recuperating in hospital wards. The interviewees also affirmed that negligence, speeding, recklessness, improper training, overloading and impaired riding all resulted into accidents. These causes are controllable only that the riders lack safety discipline thus leading to irresponsible behavior.

5.3.2 Defective motorcycles as a cause of motorcycle *(boda boda)* accidents

Another major cause of motorcycle accident in Kenya is as a result of the use of defective motorcycles. In most cases, these motorcycles are un-roadworthy. This study therefore sought to determine if these defective motorcycles resulted into accidents. Results obtained have been presented in the form of pie charts for easy presentation as shown below:

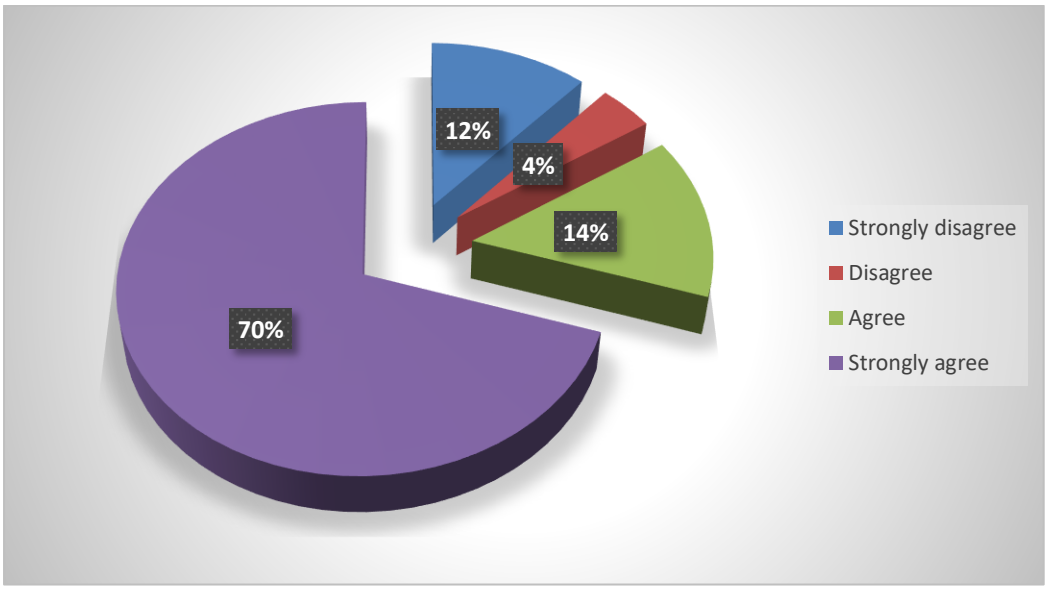


Fig.21.0: Defective motorcycles as a cause of motorcycle accidents

Source: Field data, (2019)

Results from the pie chart in the previous page indicate that majority of the respondents strongly agreed that defective motorcycles resulted into motorcycle accidents as 70% strongly agreed. In addition to this, 14% agreed, whereas 12% strongly disagreed. Another 4% disagreed that defective motorcycles resulted into accidents. A qualitative analysis indicates that most *boda boda* riders possessed defective motorcycles in the form loose brake systems, improper foot rests for pillion passengers, defective engines and even broken side mirrors. These motorcycles in most cases break in the middle of the ride after which the occurrence of an accident becomes inevitable.

5.3.3 Poor road network as a cause of motorcycle *(boda boda)* accidents

Rural areas are in most cases characterised by poor road networks. In Kisumu East constituency for instance areas like Wathorego and Chiga have some of the most deplorable road networks within the country. Bearing these pathetic roads, accidents are likely to occur. Bearing their deplorable situations, this study sought to find out if these poor road networks caused motorcycle accidents. Based on the data collected from the field, an analysis was conducted and presented as follows:

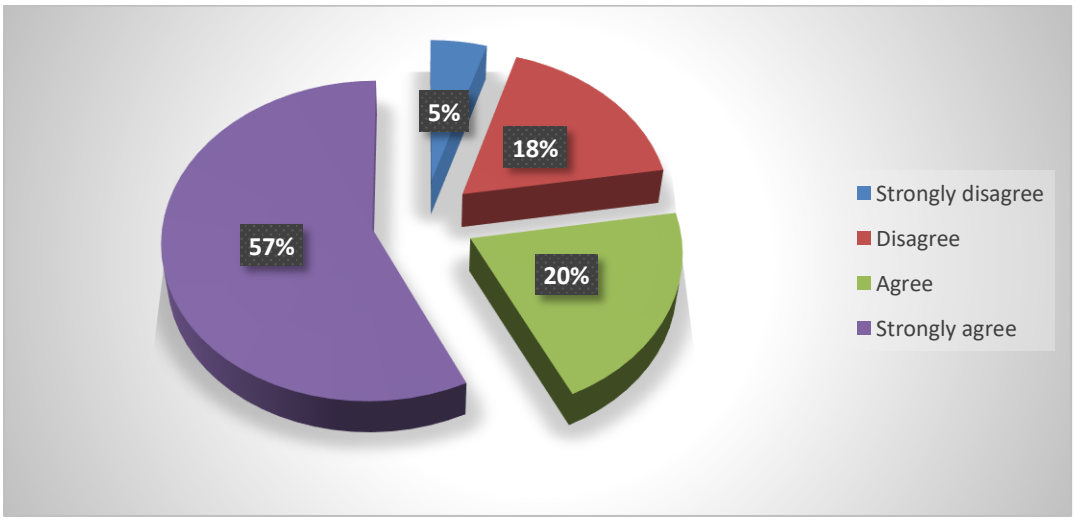


Fig.22.0: Poor road network as a cause of motorcycle accidents
Source: Field data, (2019)

In this study,57% of the respondents strongly agreed that the poor conditions on most roads led to motorcycle related accidents. Another 20% agreed that poor road conditions led to motorcycle accidents. Further,18% disagreed while another 5% strongly disagreed. Consequently, Nyatundo (2014) confirms that "The poor state of most roads in Kenya to a large extent cause accidents" (p.21). Most highways are characterised by pot holes. In the rural areas, the roads are slippery and covered with a lot of debris. Most roads and highways in Kenya are narrow and cannot accommodate all users at a go. As a result, a simple act like overtaking in the narrow highways is risky as it causes accidents.

5.4 Conclusion

This chapter has presented the causes of motorcycle *(boda boda)* accidents. It has looked at whether the respondents had at one point in time involved in motorcycle accidents. This chapter has also analysed and categorised these causes of accidents into human error, defective motorcycles and the poor road networks. Motorcycle related accidents are a common occurrence within the study area. In most cases, riders have been involved in accidents at once at one point in time while others have also been involved either twice, thrice or even four times. This study also found out that human error majorly resulted into motorcycle accidents. Other causes of motorcycle accidents were not limited to defective motorcycles and poor road networks. Analysis of qualitative data concluded that these causes of motorcycle accidents were controllable. The next chapter presents the challenges facing the implementation of transport safety policies on motorcycle *(boda boda)* industry.

CHAPTER SIX

CHALLENGES FACING THE IMPLEMENTATION OF *BODA BODA* TRANSPORT SAFETY POLICIES AND MEASURES IN PLACE

6.1 Introduction

This chapter analyses the challenges facing the implementation of the transport safety policies on motorcycle *(boda boda)* industry and measures in place to mitigate the challenges. Data collected from the field has been divided into qualitative and the quantitative data. Quantitative data was analyzed descriptively using SPSS Version 24 and Microsoft Excel version 2016 whereas qualitative data analysis was categorised into themes and narrations based on the study objectives. Quantitative data was then interpreted and presented in the form of bar graphs and pie charts whereas qualitative data was organised objectively and thematically.

6.2 The Challenges Facing the Implementation of Transport Safety Policies on Motorcycle *(boda boda)* Industry

Motorcycle transport safety policies were established in 2014 to regulate the motorcycle industry in the country. Since then, motorcycle accidents have been on the rise even with the policies in function. This study therefore sought to find out the factors that have disabled motorcycle safety policies from achieving the intended goal. An analysis on the challenges facing the implementation of the transport safety policies was carried out. There are several challenges facing the implementation of the transport safety policies. These include bribery, ignorance and poor implementation as discussed in the subsequent pages of this chapter.

6.2.1 Bribery as a challenge facing the implementation of motorcycle transport safety policies

Bribery, a cancer in the Kenyan government is a form of corruption where cash rewards and hand outs are received in return for favour. Motorcycle transport sector is also not left behind as bribery does exist. This study sought to establish whether bribery was a challenge facing the implementation of transport safety policies on motorcycle industry. The findings were analysed and represented in the form of a pie chart as shown:

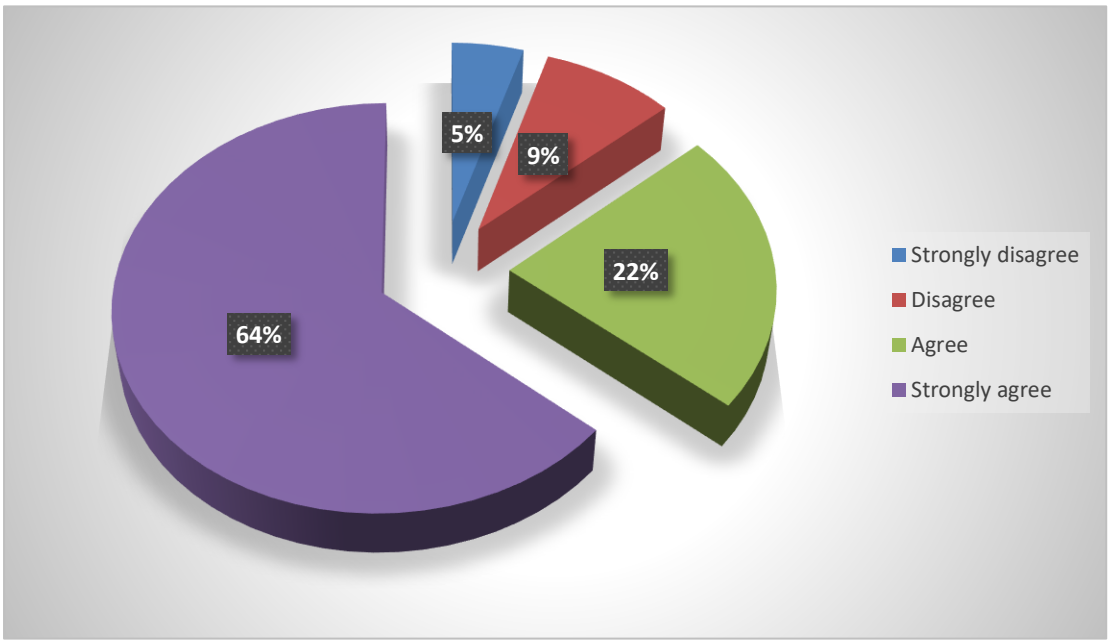


Fig.23.0: Bribery as a challenge facing the implementation of transport safety policies

Source: Field data, (2019)

From the figure above, 64% of the total sampled respondents strongly agreed that bribery was a challenge. Further,22% also agreed that bribery was actually a challenge in the implementation of the transport safety policies. Another,9% disagreed that bribery was not a challenge while 5% strongly disagreed. Moss (2000) agrees with the findings of this study when he asserts that the traffic police mostly collect bribes while

ignoring defiant riders. Thus, the policy enforcers act as impetus to motorcycle accidents.

6.2.2 Poor implementation as a challenge facing the motorcycle transport safety policies

The National Transport and Safety Authority (Motorcycle Operations) Regulations, 2014 was established to regulate motorcycle industry which has been characterised by numerous accidents. This policy is still in operation up to date with the NTSA and the Traffic Police being key implementers. Despite its establishment, it has been faced by several challenges. This study therefore sought to find out whether poor implementation was one of these challenges. These findings have been represented as shown below:

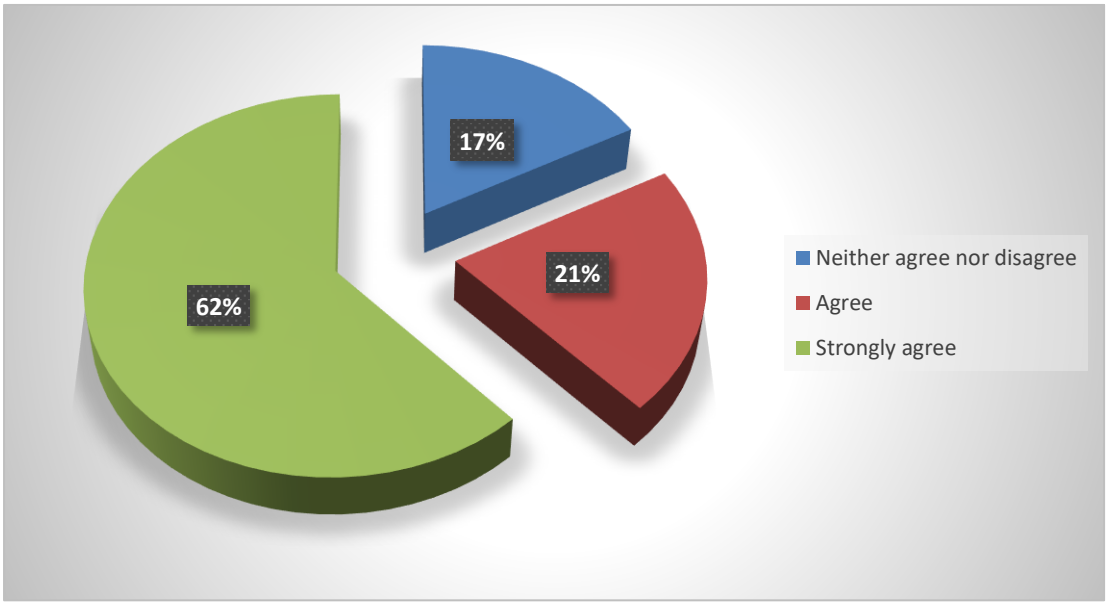


Fig.24.0: Poor implementation as a cause of motorcycle accidents

Source: Field data, (2019)

Out of the total number of respondents sampled,62% strongly agree that poor implementation was a challenge on motorcycle transport safety policies. Those who agreed were 21% agreed while 17% neither agreed nor disagreed. As a result, poor implementation poses as a challenge facing the motorcycle transport safety policies. Kipngetich (2017) confirms that attempts to enhance transport safety have been futile due to limited authority, responsibility, lack of resources, qualified personnel and logistical support. This study sharply contradicts this notion as there are more than enough qualified personnel and resources. Full authority and responsibility has also been vested both to the enforcers and the implementers. As a result, both the Traffic Police and the NTSA are to blame as they have failed to carry on their duties.

6.2.3 Ignorance as a challenge facing the implementation of the motorcycle transport safety policy

Ignorance refers to a state of being without knowledge or information regarding a given phenomenon. Studies show that ignorance is a major cause of motorcycle accidents. As a result, the researcher sought to establish whether ignorance emerged as a challenge facing the implementation of transport safety policies. The results obtained have been presented as shown:

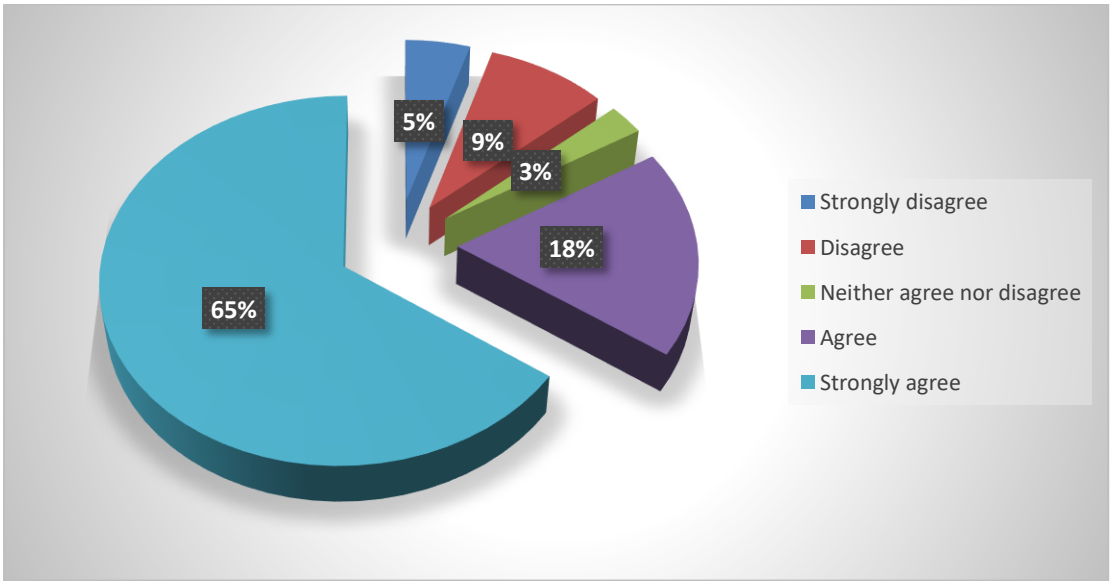


Fig.25.0: Ignorance as a challenge facing the implementation of motorcycle transport safety policies

Source: Field data, (2019)

From the pie chart above, ignorance is a challenge facing the implementation of transport safety policies. Out of the total number of the sampled respondents, 65% of the total respondents strongly agreed and another 18% agreed. Further,3% neither agreed nor disagreed while 9% disagreed. Another 5% strongly disagreed that ignorance had negative effects on motorcycle industry. Most riders are generally ignorant of the safety policies. As a result, they end up flouting traffic rules thereby exposing themselves to accidents. Analysis of qualitative data obtained from the key informants and the interviewees indicated that blatant disregard for the law by the riders and corrupt practices exhibited by the policy enforcers were key challenges affecting *boda boda* industry. Most riders are aware of the motorcycle safety policies but they intentionally flout these policies. The policy enforcers on the other hand receive bribes in exchange of permitting the riders to continuously flout the policies in place.

6.3 Measures in Place to Mitigate the Motorcycle Transport Safety Challenges

Transport safety policies within motorcycle industry have faced several challenges which have all led to its failure. As a result, the government through its line ministry and other stakeholders has established measures to solve these challenges. One of these measures includes sanctions in the form of penalties and fines. The National Transport and Safety Authority Act 2014 has established sanctions as a way of deterring riders from flouting the safety policies in place. Riders and passengers who happen to ride without putting on protective gears risk being fined one thousand Kenyan shilling. This is according to Section 103 B (1) and (7) of the NTSA traffic offences Act. Similarly, section 60(1) and 60(2) prohibit riders from carrying more than one pillion passenger failure to which they risk paying a similar fine of one thousand Kenyan shilling.

Another measure that has been put in place is awareness creation. This initiative was put in place to sensitise the public on the importance of adhering to the transport safety policies. This is done through the use of flyers and advertisements on media, public bill boards and educational centers.

Unfortunately, much focus has been on public service vehicles like *matatus*. As a result, motorcycle sector has been largely ignored yet it is the most disadvantaged due to its poor safety record. As a result, motorcycle related accidents will continuously be on the rise.

In addition, trainings have also been initiated as one of the measures regulating motorcycle industry. There are several organizations, associations and governments that have been able to train the riders on the importance of their safety. At one point in time, the county government in Kisumu trained 60 riders in Rwanda on motorcycle safety. Others include KURA in partnership with NTSA and Yamaha association has

also been on record for training motorcycle riders. As a result, trainings in the form of workshops help foster a culture of safety compliance which will eventually reverse the increasing statistics on motorcycle accidents.

A qualitative analysis on the measures in place to mitigate the existing challenges was conducted. Most participants felt that awareness creation initiatives were not carried out correctly. In most cases, sensitisations were majorly on other modes of transport like the Public Service Vehicles despite the increasing trends in the number of motorcycle fatalities being witnessed. It is true that motorcyclists have a poor safety record in comparison to other road users. This is because the motorcycle itself is open and generally lacks a protective cover unlike other vehicles like cars and *matatus.* As a result, emphasis should be put on the riders than the drivers but this has not been the case. Due to this assumption, increase in motorcycle accidents is inevitable.

As a way of reducing motorcycle related accidents, the Ministry of Transport should consider incorporating separate motorcycle lanes. In Kenya, the roads have been constructed in such a way that they are narrow and lack room for expansion. Motorcyclists therefore find it hard to operate within the highways and in most cases; they end up getting knocked by other vehicles. Construction of separate lanes could ease traffic congestions and, in the end, reduce motorcycle accidents.

Another measure that needs to be incorporated is the use of alcohol-blow for riders. Githinji (2011) acknowledges that drunk riding is common amongst riders. Hurt et al., (1981) observed that drinking and riding was more dangerous than drinking and driving. In the area of study, most riders suffered impairment. As a result, they were not able to avoid crashes. In Kenya, alcohol -blow initiative exists but it is dominant

amongst drivers. The government ought to extend this to the riders to help reduce crashes.

The government should enforce the installation of speed governors on all commercial motorcycles and initiate mandatory refresher trainings before renewal of licenses. Besides, they should subsidise riding school fees for motorcyclists and decentralise the training schools in the rural areas. In areas like Wathorego no formal motorcycle training school exists. Prospective riders are therefore forced to travel all the way to the urban areas in which they hardly go. The end result then becomes training through apprenticeship. Given this casual manner in which motorcycle training is conducted, riders therefore emerge as the major cause of motorcycle related accidents. All in all, there has been poor policy enforcement and implementation. The Traffic Police and the National Transport and Safety Authority have comprehensively failed as corruption has assumed this role. Most riders lack licenses and are unskilled. In most cases, motorcyclists break rules intentionally as the traffic police watch helplessly. In order to end corruption, the government ought to introduce digitisation in the payment of fines and penalties for instance mobile banking.

These measures in place have not in deed helped achieve the overall objective of the policies in place. In fact, a sharp increase in motorcycle related accidents has been witnessed over the years. This therefore implies that the motorcycle safety policies initiated in 2014 have achieved little despite the measures established to help it realise its achievement.

6.4 Conclusion

This chapter has presented the challenges facing the implementation of motorcycle transport safety policies and the measures in place. It concludes that bribery, poor

implementation and ignorance are challenges facing the motorcycle transport sector. There are measures already in place however motorcycle accidents are still on the increase. As a result, poor implementation and enforcement has largely led to the failure of the safety policies. The next chapter will discuss the summary of the findings, conclusions and recommendations for further research.

CHAPTER SEVEN

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

7.1 Introduction

The main objective of this study was to examine the Impact of Transport Safety Policies on Motorcycle *(Boda boda)* Industry in Kisumu East Constituency. The study objectives were divided as follows: The main objective was to examine the impact of transport safety policies on motorcycles *(boda boda)* industry. Other objectives were to find out the causes of motorcycle *(boda boda)* accidents, to explain the challenges facing the implementation of transport safety policies and to examine the measures in place to mitigate the challenges facing the motorcycle transport safety policies. This study was based on the idea that motorcycle fatalities were still on the rise even despite the fact that there has been a functional safety policy regulating this industry. Research has shown that in deed motorcycle accidents have now turned out to be normal occurrences even with the implementation of the safety policies. This study generated both the quantitative and qualitative data. Qualitative data was organised, coded and categorised into themes and narrations based on the study objectives. SPSS was used in quantitative data to compute frequencies while Microsoft Office Excel was used to construct pie charts and bar charts for data presentation.

7.2 Summary of Findings

In response to the research objectives, the main findings were as follows:

7.2.1 The existing transport safety policies on motorcycle *(boda boda)* industry

This study sought to find out whether the respondents were aware of the transport safety policies regulating *boda boda* industry. It established that riders were aware of the existing motorcycle transport safety policies. In addition, this study found out that despite the high awareness levels of the existing transport safety policies, the

compliance levels were very low. Riders ignored the safety policies even in the presence of the Traffic Police.

7.2.2 Influence of transport safety policies on motorcycle *(boda boda)* industry

This study sought to find out the influence of motorcycle transport safety policies. It found out that the transport safety policies had achieved little. Motorcycle transport safety policies was initiated to reduce the increasing commercial motorcycle accidents that were witnessed country wide. Other intended objectives that it could have brought along include reduction in traffic congestions and also the recognition of *boda boda* as an industry of its own. All in all, the transport safety policies have achieved little because motorcycle accidents are still on the rise. Besides, the continuous increase in the purchase of motorcycles for commercial purposes has relatively increased traffic congestions in urban areas. To a large extent, motorcycle transport safety policies have achieved little in reducing accidents.

7.2.3 Involvement in accidents

In trying to find out the levels of rider involvement in motorcycle accidents in Kisumu East constituency, the study established that most commercial riders had been involved in accidents either once or multiple times. In most cases the riders had been involved in motorcycle related accidents once in their life time. Other cases were twice, thrice and even four times with many sustaining serious injuries. In addition, the study established that most riders who had involved in accidents were youths suffering from impairment. Thus, motorcycle accidents emerged to be a ‘normal’ occurrence within the study area.

7.2.4 Causes of motorcycle *(boda boda)* accidents

This study found out that motorcycle accidents were largely caused by human error. Human error entailed negligence on the part of riders, inexperienced riding, traffic indiscipline, lane splitting, overloading, speeding, recklessness and impaired riding. Other causes of motorcycle accidents included defective motorcycles and poor road networks. This study also established that these causes of motorcycle accidents were controllable.

7.2.5 Challenges faced in the implementation of motorcycle transport safety policies

This study established that bribery, ignorance and poor implementation strategies were the challenges facing the implementation of motorcycle transport safety policies. It found out that corruption had reinstated implementation. Besides, riders would bribe the policy enforcers who would then ignore the riders as they openly flouted the regulations. Thus, defective motorcycles which could break at any time in the course of the ride were in operation, riders operated without riding gear and even under the influence of alcohol and other related drugs. The end result then would be a series of fatalities that could otherwise be avoided.

7.2.6 Measures in place to mitigate the challenges

This study established that the measures in place had achieved little in mitigating the transport safety policy challenges. This is because of poor implementation and enforcement practices alongside friendly fines and penalties. All in all, there is laxity in the enforcement of the measures.

7.3 Conclusion

An analysis on the influence of transport safety policies on motorcycle *(boda boda)* industry concluded that there could be factors that could have inhibited the safety policies from achieving success. These factors include human error, poor road networks, defective motorcycles, bribery, ignorance and poor implementation of the policy. Human error includes recklessness, impaired riding, speeding, overloading, traffic indiscipline, lane splitting, negligence and in experienced riding. These, together with defective motorcycles and poor road networks have largely increased the number of accidents witnessed within the study area. It is unfortunate that there is no positive impact associated with the motorcycle transport safety policies in place in relation to accident reduction. Even though the policy enforcers exist, no great outcome has been achieved. Instead, bribery has overruled policy implementation. The riders often bribe in order to continuously operate in defective motorcycles with loose brake systems and without the protective gears. In addition, some ferry two pillion passengers while drunk as the enforcers watch helplessly.

The emerging conclusion of this study is that policy implementation and enforcement are key in achieving the impact of transport safety policies. Thus, the government and all stakeholders should come on board and ensure proper policy enforcement and implementation is carried out.

7.4 Recommendations

This study sought to examine the influence of transport safety policies on motorcycle *(boda boda)* industry. Based on the study findings, the study recommends the following issues to ensure safer roads for all users. Consequently, these recommendations are presented as per the objectives stated in Chapter one of this study.

7.4.1 Influence of Transport Safety Policies on Motorcycle *(boda boda)* Industry

This study has shown that the motorcycle transport safety policies established in 2014 have achieved little in reducing motorcycle related accidents due to poor implementation. This study therefore suggests the following:

Transport safety education as a potent tool for the reduction in accidents, sensitisations is important. Sensitisation on the significance of observing safety should be carried out with the help of all stakeholders through mass media, road campaigns and even in educational institutions. These stakeholders in this case include the National Transport and Safety Authority, the Ministry of Transport, the motorcycle riding schools, the insurance regulatory authority and the non-governmental organisations. Safety is a personal initiative and because of the ignorance exhibited by the users, proper sensitisations on the importance of correctly putting on the riding gears especially helmets and obeying traffic rules ought to be carried out. This will espouse the significance of the transport safety policies and thus increase the compliance levels. Besides, motorcycle transport safety programs ought to be inculcated right from the primary schools as part of the life skills for children and youths. This will also help inculcate a culture of safety. This study also established that most riders were not licensed as required by the National Transport and Safety Authority (Motorcycle Operations) Regulations, 2014.the study therefore calls for a mandatory rider testing and licencing. It is only after the riders have been tested from the test units that they can be licensed. This study noted that most motorcycle riding schools enrolled riders only to impose them to riding tests without completing the recommended course. Such should be terminated by the NTSA by holding periodic impromptu inspections.

To ensure the problem of inadequate training that mostly results into accidents is solved, the NTSA should establish a standardised training manual that should be implemented and audited periodically. Besides, there is need to subsidise training fee in motorcycle schools and that the motorcycle training institutions and testing centres be decentralised to enhance accessibility within the rural areas

Another recommendation is the need to incorporate motorcycle lanes into infrastructural plans. Kenyan roads are congested thus lacking room for expansion. Infrastructural plans ought to be initiated to include cycle lanes. This will minimize the traffic conflicts that often result into accidents. Besides, the County Governments ought to complement the National Transport and Safety Authority by designing parking points, motorcycle traffic signs and lanes.

7.4.2 Causes of motorcycle *(boda boda)* accidents

The causes of motorcycle accidents include human error, poor road networks and defective motorcycles. This study therefore suggests the following:

As a way of reducing motorcycle related accidents, speed governors should be mounted on all commercial motorcycles in relation to the type of roads. This study observed that alcohol-blow was only effective on public service vehicles. Motorcycle accidents are numerous and fatal and, in most cases, they occur as a result of impaired riding. As a result, there is need for the re-introduction of alcohol-blow on motorcyclists.

In addition, the government should work together with the insurance regulatory authority and the licensing boards to subsidise the costs for obtaining licenses and insurances. This will enable the riders acquire licenses and insurances; for themselves, their motorcycles and also third-party insurance.

Another recommendation is that motorcycle dealers ought to register, license, insure and provide protective gears in relation to the National Transport and Safety Authority Act 2014.

This study also established that impaired riding had a strong relationship with accident occurrence. Thus, the government should amend the BACs for riders. The current 0.08 g/dl appears to be the highest against the recommended 0.05g/dl. If enforced, this would help reduce *boda boda* accidents caused by impaired riding.

7.4.3 Challenges facing the implementation of motorcycle transport safety policies

The transport safety policies regulating the motorcycle industry in Kenya have failed to achieve their intended objectives due to number of challenges. These include bribery, ignorance and poor implementation of these policies. This study therefore recommends that:

There should be leverage of information and technology through the payment of fines electronically to avoid corruption.

To ensure effective implementation, the government should properly train the traffic police officers and also motivate them in form of cash rewards. This is of importance as the transport safety policies will soon lack significance as a result of improper enforcement and implementation.

7.5 Suggestions for Further Research

Basing on the findings of this study suggested the following areas for further research.

First, based on the existing studies, more studies should be carried out to assess the role of education on the levels of motorcycle safety compliance.

Secondly, since this study was only limited to Kisumu East Constituency, there is need to expand the sample and cover other towns within Kenya

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APPENDICES

Appendix 1: The National Transport and Safety Authority (Motorcycle Operations) Regulations 2014

LEGAL NOTICE No.

THE NATIONAL TRANSPORT AND SAFETY AUTHORITY ACT
(No. 33 of 2012)

IN EXERCISE of the powers conferred by section 54 of the National Transport and Safely
Authority Act, the Cabinet Secretary for Transport and Infrastructure in consultation with the Board makes the following Regulations: —

THE PROPOSED NATIONAL TRANSPORT AND SAFETY AUTHORITY (OPERATION OF
MOTORCYCLES) REGULATIONS, 2014

PART I-PRELIMINARY

Citation

1. These Regulations may be cited as the National Transport and Safety Authority Operation of motorcycles) Regulations, 2014.

2. In these Regulations, unless the context otherwise requires—

"Act" means the National 'Transport and Safety Authority Act, 2012;

"Authority" means the National Transport and Safety Authority established under section 3 of the Act;
"Cabinet Secretary" has the meaning assigned to it under the Act;

“Corporate body” means a limited liability company registered under the Companies Act and includes a cooperative society registered under the Cooperative Societies Act and a society registered under the Societies Act;
"Licence" means a driving licence issued by the Authority under the Act.

“Two wheeled motorcycle” means any mechanically propelled vehicle with two wheels the weight of which unladen does not exceed eight hundred kilograms;

“Three wheeled motorcycle” means any mechanically propelled vehicle with three wheels the weight of which unladen does not exceed eight hundred kilograms;

“Two wheeled Motorcycle Taxi” means a two wheeled motorcycle used for the purpose of carrying or ferrying of a passenger for reward or hire.

“Three wheeled Motorcycle Taxi” means a three wheeled motorcycle used for the purpose of carrying or ferrying of a passenger for reward or hire.

“Motorcycle” means any mechanically propelled vehicle with less than four wheels the weight of which unladen does not exceed eight hundred kilograms;

"Owner" means the registered owner of a motorcycle;

“Ride” means to operate, manage or to be in control of a motor cycle.

“Rider” means the person operating or person in control of a motorcycle”.

"Third Party Motor Vehicle Insurance" means an insurance policy by that name issued in respect to a motorcycle pursuant to the provisions of the Third-Party Motor Vehicle Insurance Act;

"Third Party Public Service Vehicle Insurance" means an insurance policy by that name issued in respect to a motorcycle pursuant to the provisions of the Third-Party Motor Vehicle Insurance Act;

Application of the Regulations

3. These Regulations shall apply to all motorcycles operating on a public road in Kenya.

PART 2 –TWO WHEELED MOTORCYCLES.

Protective Gear.

4. (1) No motorcycle shall be sold or transferred by any person without the following protective gear: -

(a) two helmets which comply with the standards established by the Kenya Bureau of Standards and which shall have the registration number indelibly printed in letters not less than three inches in height on both sides of the helmet.

(b) two reflective jackets which shall have the registration number of the motorcycle indelibly printed in letters not less than four inches in height on the back of the jacket.

(2) A person desirous of transferring a motorcycle must present physical proof of compliance with Regulation 4(1) to the Authority.

(3) No supplier, distributor or person involved in the business of selling motorcycles in Kenya shall sell, distribute or otherwise convey a motorcycle without the protective gear described in Regulation 4.

For Purposes of Regulation 4 the term reflective jacket shall also mean a reflective vest.

Responsibilities of Owners.

5. (1) Every owner of a two wheeled motorcycle shall –

a. Provide the rider and passenger with the protective gear stipulated in Regulation 4(1).

b. Not cause or permit any person to ride their motorcycle unless such person is the holder of a valid driving license or a valid provisional license endorsed in respect of that class of motorcycle.

c. For private motorcycles, ensure that the motorcycle is at the very minimum insured against third party risks in accordance with the Motor Vehicle (Third Party) Insurance Act.

d. For two wheeled motorcycle taxi, ensure that motorcycle has a Third Party Public Service Vehicle Insurance.

e. Ensure that no structural modifications to the motorcycle are undertaken that may affect the safe operation of the motorcycle.

f. Ensure that no structural modifications to the motorcycle are undertaken that may obstruct the visibility of the rear number plates.

g. Ensure that no modifications to the exhaust system or any other noise abatement device of a motorcycle are done so as to cause the noise emitted by the motorcycle to be above that emitted by the motorcycle as originally manufactured.

Responsibilities of a Rider

6. (1) Every rider of a motorcycle shall –

a. Have a valid driving license issued by the Authority.
b. Ensure that they shall not ride or carry a person on a motor cycle without the prescribed protective gear properly fastened.
c. Not carry more than one person at a time.
d. Ensure that passengers are carried on a proper seat with foot rests securely fixed to the motor cycle behind the rider’s seat.
e. Ensure that a passenger sits astride the motor cycle.
f. Ensure that the headlights of the motorcycle are on at all times when riding.
g. Ensure that loads and passengers are not carried at the same time.

h. Keep the protective gear in a clean, dry and generally wearable condition.

i. Ensure that the rear number plates are visible at all times.

j. To overtake on the right-hand side and not to overtake in the same lane occupied by vehicle being overtaken.

k. To observe traffic lights.

l. To observe all traffic rules.

m. Not park in undesignated areas.

(2) For the purposes of these Regulations: -

a. A child less who is less than 12 years old maybe carried together with an adult provided the child is seated between the rider and the adult and wears a helmet designed for children.

b. Persons with disabilities will be exempted from the requirement to sit astride while being carried on a motorcycle.

Responsibilities of a Passenger

7. Every passenger in a motorcycle shall: -

a. Properly wear a helmet and reflective jacket whenever being carried on a motorcycle.

b. Not board or be carried on a motorcycle that already has a passenger except as provided by Regulation 6(2).

c. Not board or be carried on a motorcycle that is carrying any load.

d. Sit astride in the seat fixed behind the rider's seat.

Carriage of Loads

8. (1) No load shall be carried on a motorcycle: -

a. Whose width projects more than fifteen (15) centimeters beyond the outside end of the handle bars.

b. Whose height is more than two (2) meters from the ground.

c. Whose weight is more than thirty (30) kilograms for a motorcycle whose carrying capacity does not exceed fifty (50) cc and 60 kilograms for a motorcycle whose carrying capacity does not exceed Four hundred (400) cc.

d. Which projects to the rear beyond the maximum overall length of the motorcycle by more than sixty (60) centimeters. The rear extremity of the load must be plainly indicated by a conspicuous red marker during the day and by a red light at night.

(2) The rider of a motorcycle carrying loads shall ensure that no part of the load carried drags on the road.

(3) For the purpose of this regulation the term" load" excludes luggage carried by a passenger provided such luggage does not exceed ten (10) kilograms in weight and does not project more than fifteen (15) centimeters beyond the outside end of the handle bars. Such luggage may be carried together with the passenger provided the luggage is properly secured between the rider and the passenger.

PART 3 – TWO WHEELED MOTORCYCLES TAXIS.

9 All two wheeled taxis must have their helmets painted yellow.

10 Any person engaging in business of motorcycle taxis services shall be a member of a body corporate which shall have a minimum of one hundred (100) motorcycle taxis.

11 For two-wheeler motorcycle taxis, the name of the group or sacco which they are members of must be indelibly printed in letters not less than four inches in height on the back of both jackets.

PART 4 - THREE WHEELED MOTORCYCLES.
Construction and Equipment.

12 (1) Every three wheeled motorcycle taxi shall: -

a. Be fitted with a seat belt for the rider and a seat belt per seating position for passengers.

b. Have a covered body.

c. Have painted on both sides and on the rear, a broken horizontal yellow band having a width of 150 millimeters and of a consistency sufficient to enable such band to be clearly visible by day at a distance of 275 meters.

d. No part of the motorcycle, whether unladen or laden, other than the driving mirror or direction indicators, shall project more than 15 centimeters, beyond the outside wall of the outmost rear tyre.

e. Have at the minimum a motor commercial public service vehicle insurance cover.

Responsibility of owners.

13 (1)Every owner of a three wheeled motorcycle taxi shall –

a. Not cause or permit any person to ride their motorcycle unless such person is the holder of a valid driving licence or a valid provisional licence endorsed in respect of that class of motorcycle.

b. Ensure that all three wheeled motorcycle taxi owned have at the minimum a Third Party Public Service Vehicle Insurance

Responsibilities of a Rider

14 (1) Every rider of a three wheeled motorcycle shall –

a. Not ride a motorcycle unless that person has a valid driving licence issued by the Authority.
b. Not ride a motor cycle without properly wearing a seat belt or carry passengers who have not properly worn their seat belts.
c. Not carry more than passengers in excess of the seating positions provided.
d. Ensure that the headlights of the motorcycle are on at all times when riding.
e. To overtake on the right hand side and not to overtake in the same lane occupied by vehicle being overtaken.
f. To observe traffic lights.
g. Not to ride or operate a motorcycle between lanes of traffic or between adjacent lines or rows of vehicles.
h. Keep the seat belts in a clean, dry and generally wearable condition.
i. To observe all traffic rules.

Responsibilities of a Passenger.

15 (1) Every passenger in a three wheeled motorcycle shall: -

a. Wear seatbelt whenever being carried on a motorcycle.
b. Not board or be carried on a motorcycle that already has the maximum number of passengers allowed.

PART 4 – AREAS OF OPERATION

15. The Authority in consultation with the relevant county government shall designate the areas of operation of motorcycle taxis as per the schedule.

PART 5 - OFFENCES AND TRANSITIONAL PROVISIONS.

16. A person who contravenes any provision of these regulations and whose penalty is not provided for in the Traffic Act, commits an offence and is liable on conviction to a fine not exceeding Twenty Thousand Shillings or to imprisonment for a term not exceeding six months or, both.

17. Regulation 9, 10 and 17 shall come into operation on 1st March 2015.

18. Regulation 25A of Legal Notice 173 is hereby revoked.

Schedule

COUNTY	**ROADS NOT PERMITTED**
Nairobi	

Dated the …….. day of …….2014.

MICHAEL S.M. KAMAU,
Cabinet Secretary for Transport and infrastructure.

Appendix 2: Questionnaire

Good Morning/Afternoon, my name is Phoebe Akoth Ojal. I am a MA student from Moi University. I am doing a research on the impact *of bodaboda* motorcycle safety policies in Kisumu Town East Constituency, Kisumu County. I have chosen you as one of my respondents. I will ask you some questions concerning *boda boda* motorcycle safety policies. Kindly help to answer the following questions as objectively as possible. Please note that the information you share with me will be treated with utmost confidentiality and will be used only for the purposes of this study. Participation is voluntary. You should therefore feel free to participate and if you wish to discontinue the interview at any time, you are free to do so. Would you like to continue?

SECTION A: PROFILE OF THE RESPONDENT

Instruction: Write or tick the appropriate response to each question.

1. a) Gender: Male ( ) Female ( )

b) Please indicate your age bracket:

( ) Below 18 years

( ) 18-29 years

( ) 30-45years

( ) above 45 years

SECTION B: TRANSPORT SAFETY POLICIES WITHIN THE MOTORCYCLE (*BODABODA*) INDUSTRY

2. a) Are you aware of the safety policies within the motorcycle (*bodaboda)* industry?

Yes ( ) No ( )

b) If yes, please mention some of these policies:

……

……

……

……

……

……

c) Do you always comply with these safety policies? *(Please tick as appropriate).*

TRANSPORTSAFETY POLICIES	**YES**	**NO**
Carriage of one passenger at a time		
Designated hours of operation		
Operators insurance		
Passenger insurance		

Passengers riding gear(helmet and reflector jacket) in compliance with the Kenya Bureau of Statistics		
Operator riding gear(helmet and reflector jacket) in compliance with the Kenya Bureau of Statistics		
Traffic Safety Discipline(Inspection, training, licensing and color identification of motor cycle *bodabodas*		

3 a) Have you ever been involved in any motorcycle (*bodaboda)* related accident?

Yes ( ) No ( )

b) If yes, how many times? .....

SECTION C: CAUSES OF MOTORCYCLE *(BODABODA)* RELATED ACCIDENTS

4. Please rate your extent of agreement to the following statements relating to the factors that often do contribute to or result to motorcycle related accidents on a scale of 1(strongly disagree) to a scale of 5(strongly agree).

	Strongly Disagree	**Disagree**	**Neither Agree nor Disagree**	**Agree**	**Strongly Agree**
	1	**2**	**3**	**4**	**5**
Negligence on the part of the users often leads to *bodaboda* motorcycle accidents?					
Obstruction often leads to *bodaboda* motorcycle accidents?					
Inexperienced or incompetent motorcyclists often lead to *bodaboda* motorcycle accidents?					
Driving under the influence alcohol and other drugs often leads to *bodaboda* motorcycle accidents?					
Poor road network often leads to *bodaboda* motorcycle accidents?					

Lane splitting (driving between two lanes) often leads to *bodaboda* motorcycle accidents?					
Over speeding often leads to *bodaboda* motorcycle accidents?					
Overloading often leads to *bodaboda* motorcycle accidents?					
Recklessness often leads to *bodaboda* motorcycle accidents?					
Violation of traffic rules often leads to *bodaboda* motorcycle accidents?					
Poor conditions of motorcycles often lead to *bodaboda* motorcycle accidents?					

SECTION D: IMPACTS OF MOTORCYCLE TRANSPORT SAFETY POLICIES.

5. Please rate the extent of agreement on the following premises relating to the impacts that the transport safety policies in place have brought on a scale of 1(strongly disagree) to 5(strongly agree.)

	Strongly Disagree	**Disagree**	**Neither Disagree nor Agree**	**Agree**	**Strongly Agree**
	1	**2**	**3**	**4**	**5**
Reduced traffic congestions in urban areas?					
Led to the recognition of *bodaboda* as an industry of its own?					
Failed to reduce *bodaboda* related accidents?					

SECTION E: CHALLENGES FACED IN THE IMPLEMENTATION OF SAFETY POLICIES.

Please rate the extent of agreement on the following premises relating to the challenges faced in the implementation of safety policies on a scale of 1(strongly disagree) to 5(strongly agree)

	Strongly Disagree	**Disagree**	**Neither Disagree nor Agree**	**Agree**	**Strongly agree**
	1	**2**	**3**	**4**	**5**
Ignorance by all users is one of the key challenges facing the implementation of safety policies.					
Bribery is one of the key challenges facing the implementation of safety policies.					
Poor implementation of safety policies is one of the key challenges facing the implementation of safety policies.					

SECTION F:

7. What are some of the measures that should be put in place to mitigate the existing challenges?

……

……

……

……

……

……

……

……

……..

Thank you for your cooperation.

Appendix 3: Interview Guide

Good Morning/Afternoon, my name is Phoebe Akoth Ojal. I am a MA student from Moi University. I am doing a research on the impact *of boda boda* motorcycle safety policies in Kisumu Town East Constituency, Kisumu County. I have chosen you as one of my interviewees. I will ask you some questions concerning *boda boda* motorcycle safety policies. Kindly help to answer the following questions as objectively as possible. Please note that the information you share will be treated with utmost confidentiality and will be used only for the purposes of this study. Participation is voluntary. You should therefore feel free to participate and if you wish to discontinue the interview at any time, you are free to do so. Would you like to continue?

1a.) What's your view about the safety policies on motorcycle (*bodaboda)* industry?

1b.) Please gauge their effectiveness.

2.What impact have these policies brought on motorcycle industry?

3a.) Have you ever witnessed or experienced a motorcycle related accident?

3b.) If Yes, how many times? In that case, who was to blame?

4a.) Are there challenges faced in the implementation of the safety policies? Please highlight.

5.Are there measures in place to solve these challenges? Please explain.

6.What is your way forward?

Thank you for your cooperation.

Appendix 4: Focus Group Discussion Guide

Good Morning/Afternoon, my name is Phoebe Akoth Ojal. I am a MA student from Moi University. I am doing a research on the impact *of boda boda* motorcycle safety policies in Kisumu Town East Constituency, Kisumu County. I have chosen you as one of my interviewees. I will ask you some questions concerning *boda boda* motorcycle safety policies. Kindly help to answer the following questions as objectively as possible. Please note that the information you share will be treated with utmost confidentiality and will be used only for the purposes of this study. Participation is voluntary. You should therefore feel free to participate and if you wish to discontinue the interview at any time, you are free to do so. Would you like to continue?

1. What are your thoughts concerning motorcycle *(bodaboda)* transport sector?
2. How many times have you experienced a motorcycle related accident?
3. What caused it?
4. Are you satisfied with the current safety situation? Why?
5. What would you like to see happen?
6. What is your way forward?

Thank you for your cooperation

Appendix 5: Consent Form

Hello, my name is Phoebe Akoth Ojal. I am a MA student from Moi University. We are contacting you because we are conducting a research on the impact of safety policies on *bodaboda* industry. We will also be contacting other relevant institutions and individuals. By speaking to you, we will be able to learn more about the safety policies in place: the impact, challenges and way forward. All responses will be kept as confidential as possible, and we do not anticipate any risks whatsoever, associated with participating in this survey. Any information that identifies you will be separated from your other responses. Do you agree to participate in the study? **YES ( ) NO ( )**

Respondents Name: …….

Signature of Respondent: ……...

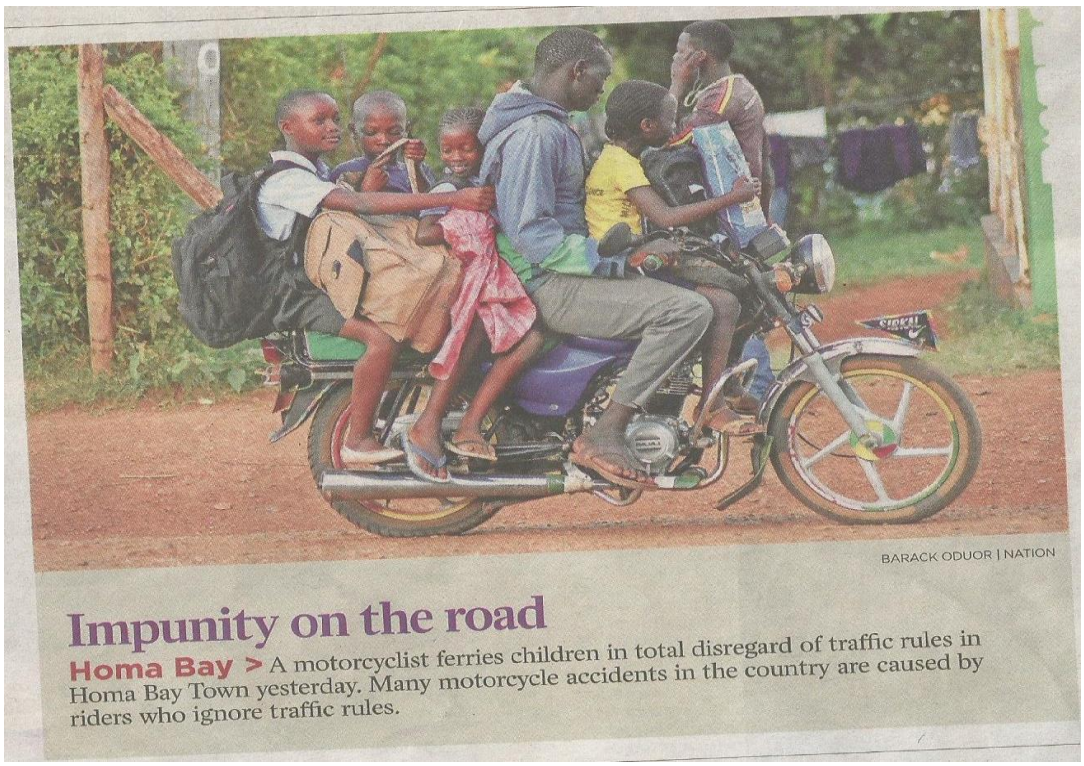
Date Signed: …….....

Appendix 6: Yamane Table

Sample size for ±3%, ±5%, ±7% and ±10% Precision Levels Where Confidence Level is 95% and P=.5.				
Size of		**Sample Size (n) for Precision (e) of:**		
Population	**±3%**	**±5%**	**±7%**	**±10%**
500	A	222	145	83
600	A	240	152	86
700	A	255	158	88
800	A	267	163	89
900	A	277	166	90
1,000	A	286	169	91
2,000	714	333	185	95
3,000	811	353	191	97
4,000	870	364	194	98
5,000	909	370	196	98
6,000	938	375	197	98
7,000	959	378	198	99
8,000	976	381	199	99
9,000	989	383	200	99
10,000	1,000	385	200	99
15,000	1,034	390	201	99
20,000	1,053	392	204	100
25,000	1,064	394	204	100
50,000	1,087	397	204	100
100,000	1,099	398	204	100
>100,000	1,111	400	204	100
(Yamane, 1967)				

Appendix 7: Pictures of Motorcycle Riders in Total Disregard of the Traffic Rules

Source: Daily Nation, September 24th 2015



BARACK ODUOR | NATION

Impunity on the road

Homa Bay > A motorcyclist ferries children in total disregard of traffic rules in Homa Bay Town yesterday. Many motorcycle accidents in the country are caused by riders who ignore traffic rules.

Source: Daily Nation, July 9th 2016

Source: Daily Nation, August 10th,2014

Appendix 8: Research Authorisation Letters

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

ephone: +254-20-2213471,
41349, 310571, 2219420
c:+254-20-318245, 318249
ail: secretary@nacosti.go.ke
ebsite: www.nacosti.go.ke
nen replying please quote

9th Floor, Utalii House
Uhuru Highway
P.O. Box 30623-00100
NAIROBI-KENYA

f: No. **NACOSTI/P/16/18145/10280**

Date: **6th April, 2016**

Phoebe Akoth Ojal
Moi University
P.O Box 3900-30100
ELDORET.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on ***"Transport safety policies and its impacts on motorcycle (bodaboda) industry: A case of Kisumu Town East Constituency, Kenya,"*** I am pleased to inform you that you have been authorized to undertake research in **Kisumu County** for a period ending **2nd April, 2017.**

You are advised to report to **the County Commissioner and the County Director of Education, Kisumu County** before embarking on the research project.

On completion of the research, you are expected to submit **two hard copies and one soft copy in pdf** of the research report/thesis to our office.

BONIFACE WANYAMA
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
Kisumu County.

The County Director of Education
Kisumu County.

MINISTRY OF HEALTH

Telegrams: "MEDICAL", Kisumu
Telephone: 057-2020801/2020803/2020321
Fax: 057-2024337
E-mail: ercjootrh@gmail.com
When replying please quote

JARAMOGI OGINGA ODINGA TEACHING & REFERRAL HOSPITAL
P.O. BOX 849
KISUMU

Ref: ERC.1B/VOL.I/273

Date July 7th 2016

OJAL PHOEBE
MOI UNIVERSITY

Dear Phoebe,

RE: FORMAL APPROVAL TO CONDUCT RESEARCH ENTITLED: "TRANSPORT SAFETY POLICIES AND ITS IMPACT ON MOTOCYCLE(BODABODA) INDUSTRY . A CASE OF KISUMU TOWN EAST CONSTITUENCY-KENYA.

, KISUMU COUNTY".

The JOOTRH ERC (ACCREDITATION NO. 01713) has reviewed your protocol and found it ethically satisfactory. You are therefore, permitted to commence your study immediately. Note that this approval is granted for a period of one year (7TH July, 2016 to 7TH July, 2017). If it is necessary to proceed with this research beyond the approved period, you will be required to apply for further extension to the committee.

Also note that you will be required to notify the committee of any protocol amendment(s), serious or unexpected outcomes related to the conduct of the study or termination for any reason.

Finally, note that you will also be required to share the findings of the study in both hard and soft copies upon completion.

The JOOTRH ERC takes this opportunity to thank you for choosing the institution and wishes you the best in your endeavours.

Yours sincerely,

JOOTRH ETHICS & REVIEW COMMITTEE
P. O. Box 849 - 40100
KISUMU

WILBRODA N. MAKUNDA
For: **SECRETARY - ERC,**
JOOTRH – KISUMU.