TRAINING AND REGULATION COMPLIANCE IN MOTOR CYCLE TRANSPORT OPERATIONS IN KISUMU CITY

YOGO KENNETH ODHIAMBO

T51/88936/2016

A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTERS OF DEVELOPMENT STUDIES IN THE INSTITUTE FOR DEVELOPMENT STUDIES, UNIVERSITY OF NAIROBI.

DECEMBER 2018

UNIVERSITY OF NAIROBI

Declaration of Originality Form

This form must be completed and signed for all works submitted to the University for Examination

Name of student: **KENNETH ODHIAMBO YOGO**
Registration Number: **T51/87988/2016**
College: **OF HUMANITIES AND SOCIAL SCIENCES**
Faculty/School/Institute: **FOR DEVELOPMENT STUDIES**
Department: **OF DEVELOPMENT STUDIES**
Course Name: **PROJECT PAPER**
Title of the Work: **TRAINING AND REGULATION COMPLIANCE IN MOTOR CYCLE TRANSPORT OPERATIONS IN KISUMU CITY**

DECLARATION

1. I understand what Plagiarism is and I am aware of the University's policy in this regard
2. I declare that this Project (Thesis, project, essay, assignment, paper, report, etc.) is my original work and has not been submitted elsewhere for examination, award of a degree or publication. Where other people's work, or my own has been used, this has properly been acknowledged and referenced in accordance with the University of Nairobi's requirements.
3. I have not sought or used the services of any professional agencies too produce this work
4. I have not allowed, and shall not allow anyone to copy my work with the intention of passing it off as his/her own work
5. I understand that any false claim in respect of this work shall result in disciplinary action in accordance with the University Plagiarism Policy

Signature _____

Date _____

DECLARATION

I, Yogo Kenneth Odhiambo, do hereby declare that this project paper is my original work and has not been submitted for a degree to any other university or institution.

Signature..... Date.....

Yogo Kenneth Odhiambo

This research project has been submitted to the University for Examination with my approval as a university supervisor.

Signature..... Date.....

Prof. Winnie, V.

Supervisor

Institute for Development Studies

University of Nairobi

DEDICATION

To my dad and mum, Cllr. Fannuel Yogo Ajwang', and Emily Anyango Ajwang', your support and prayers throughout my education pursuit is always humbling. Dad, thank you for always believing in me.

To Eve my love, you've been my pillar, the silent voice of encouragement in the most trying moments in this journey, thank you Jaber Nyar Opiyo.

ACKNOWLEDGEMENT

My utmost gratitude goes to the Almighty God, from whom all blessings flow.

The solid support of a number of people to whom I am indebted made this work possible. My sincere appreciation goes to my supervisor Professor Winnie Mittulah of the Institute for Development Studies (IDS) who went out of her way to patiently and diligently guide me to the completion of this study.

Special thanks to Professor Dorothy McCormick, Dr. Anne Kamau, Dr. Michuki, Mr. Erick Manga for your exceptional guidance and critiques in the choice of my area of study. I thank Professor Rosemary Atieno, Professor Alila, Professor Jama, Dr. Onjala, and Dr. Upadhyaya for finding time to listen to me whenever I sought input. I am also grateful to the IDS administration family under the leadership of the Director and the Associate Director. The team and the entire IDS fraternity provided a home a-way from home for my studies. My good brother Sibota, thank you for encouraging me to keep on despite the financial challenges, your brotherly love is beyond measure. To Madam Rosemary and Mina, thanks for your encouragement and prayers.I cannot forget to mention Dr. Opiyo of the school of urban planning, Dr. Gladys Moraa Nyachieo of Kenyatta University, Mr. Joab Radak, Mr. Patrick Okoyo of the school of journalism Maseno University, David Oburu of the department of political science , Basil Paschalin and Raphael Indimuli of IDS for their guidance, encouragement and inspiration during my field study.To the pioneer Master of Development studies colleagues, may God bless you, special thanks to Amon Muchiri, Grace Muraya and George Otiep for finding time to read and critique my work. To the pentagon members - Faith Musoka, Emma Muthembwa, Rose Kavesu and Calvince Otula may God bless you for being there for me during our studies at the IDS.

To my brother Mbara Kambara, it has been a long journey but you have continued to support me – thank you. To Dr. Chi-Chi Undie of Population Council and my sister in law Viola Ochola Mbara – thank you so much for encouraging me to go back to school, Brother Robert you are the best I would have asked for from God, God bless you for checking on me often. To Nyaliech Nesbit, thank you for giving me a shelter during the period of my study at IDS. Lastly, to longtime friend and brother Henry Onyango Kissinger Adar, thank you for always believing in me, thank you also for paying part of my school fees, Faith Musoka, Isaack Okeyo and Abas Muhindi thank you so much for your financial support, God bless your kind hearts , may your families never lack.

Indeed, the man of Nazareth is forever faithful to be doubted

Grace it is, yes, the blessed grace!

Titus 2:11

TABLE OF CONTENTS

DECLARATION ..... **i**
DECLARATION ..... **ii**
DEDICATION ..... **iii**
ACKNOWLEDGEMENT ..... **iv**
TABLE OF CONTENTS ..... **v**
LIST OF TABLES ..... **ix**
LIST OF FIGURES ..... **x**
ACRONYMS ..... **xi**
ABSTRACT ..... **xii**

CHAPTER ONE **1**
1.0 Introduction 1
1.1 Background 2
1.1.1. The Increased Use of Motorcycles 5
1.1.2 Challenges in the use of motorcycle 6
1.1.3 Importance of Training Riders 7
1.2 Problem Statement 8
1.3 Research Questions 10
1.3.1 Overall Research Question 10
1.3.2 Specific research questions 10
1.4 Research Objectives 10
1.4.1. Specific Research Objectives: 10
1.5 Justification of the Study 11
1.6 Limitations of the Study 11

CHAPTER TWO: LITERATURE REVIEW **13**
2.0 Introduction 13
2.1 Empirical Review on Socio-Economic Characteristics of Boda boda Riders 13
2.1.1 Age 13
2.1.2 Level of Education 14

2.1.3 Motorcycle Ownership 15
2.2 Training and non-training of Motorcycle Riders 16
2.3 Empirical review on Compliance with Motor Cycle Safety Regulations 18
2.4 Theoretical Literature review 19
2.4.1 Rational Choice 20
2.4.2 Strain theory 21
2.5 Conceptual Framework 22

CHAPTER THREE: RESEARCH METHODOLOGY 26
3.1 Introduction 26
3.2 Research Design 26
3.3 Study Site 27
3.4 Study Population and Unit of Analysis 27
3.5 Sampling of Respondents 28
3.6 Data Sources and Collection Methods 30
3.7 Data Analysis 30

CHAPTER FOUR: FINDINGS AND DISCUSSION 31
4.1. Introduction 31
4.2. General Information 31
4.3. Demographic and Socio-economic Characteristics of the riders 32
4.3.1 Gender 32
4.3.2 Age 33
4.3.2.1 Relationship between age and compliance 34
4.3.3 Level of Education 37
4.3.4. Ownership 38
4.3.4.1 Duration of Operation 39
4.3.5. Relationship between ownership and safety compliance 40
4.4 Effect of Training on Safety Regulation Compliance 41
4.4.1 Nature of Training 42
4.4.2 Possession of valid riding license 44

4.4.3 Possession of Riding License by Ward 44
4.4.4 The Acquisition of Riding License 45
4.4.5 Challenges in Acquiring a Riding License 46
4.4.6 Training and safety compliance 47
4.4.7 How Training affect Safety Regulation Compliance 48
4.5 Safety Regulation Compliance among the Trained and Untrained boda boda Riders. 49
4.6 Operational Challenges faced by boda boda Riders 52
4.6.1. Challenges in Complying with the NTSA Safety Regulations 53
4.6.2 Chapter Summary 54

CHAPTER FIVE: SUMMARY CONCLUSIONS AND RECOMMENDATIONS 56
5.1 Introduction 56
5.2 Summary of Findings 56
5.2.1: Socio-economic characteristics of boda boda riders 56
5.2.2 Effect of training and non-training to safety regulation compliance 57
5.2.3. Extent of safety regulation compliance among the trained and untrained riders 58
5.2.3.1 Safety regulation compliance among the trained and untrained boda boda riders 58
5.2.3.2 Operational challenges faced by boda boda rider besides safety 59
5.2.3.3 Challenges in complying with the NTSA Safety Regulations 59
5.3. Conclusion 59
5.4 Recommendations 60
5.5.1 Areas for further research 61

REFERENCES 62
APPENDICES 68
Appendix 1: Qualitative Reference 68
Appendix 2: Questionnaire 69

Appendix 3 FGD/KI Checklist 76
Appendix 4: Observation Schedule checklist 79
Appendix 5: Data needs table 80

LIST OF TABLES

Table 3.1: Cluster Sampling at Ward Level 29
Table 3.2: Target Population 29
Table 4.1: Respondent's Age 33
Table 4.2: Socio Economic Characteristics of Riders and their Effects on Compliance 35
Table 4.3: Cross Tabulation of Age and Having a valid driving license 36
Table 4.4:Cross tabulation of ownership of motor cycle and having a License 41
Table 4.5: Cross tabulation of Valid License by Ward 45
Table 4.6: Cross tabulation of mode of license acquisition by Ward 45
Table 4.7: Cross tabulation of possession of riding license and knowledge on safety 46
Table 4.8: Effect of training and non training to safety compliance 48

LIST OF FIGURES

Figure 2.1: Conceptual framework..... 22
Figure 4.1 Gender..... 32
Figure 4.2. Level of Education..... 37
Figure 4.3: Motorcycle Ownership 38
Figure 4.4:Duration of Operation..... 39
Figure 4.5: Training in boda boda riding 42
Figure 4.6: Nature of Trainings..... 42
Figure 4.7: Riders training school..... 43
Figure 4.8:Possession of Valid Riding License 44
Figure 4.9: Challenegs of Acquiring Riding License..... 47

ACRONYMS

CBD:	Central Business District
CDF:	Constituency Development Fund
ECRSPR:	European Commission Road Safety and Policy Report
FGD:	Focus Group Discussion
GRSP:	Global Road Safety Partnership
ITDP:	Institute for Transportation & Development Policy
ITF:	International Transport Federation
KII:	Key Informant Interviews
KNBS:	Kenya National Bureau of Statistics
KRA:	Kenya Revenue Authority
MCIA:	Motor Cycle Industry Association
MSTPF:	Mat-Su Trails & Parks Foundation
NTSA:	National Transport and Safety Authority
NGO:	Non-Governmental Organization
OECD:	Organization for Economic Co-operation and Development
SACCO:	Savings and Credit Cooperative Organizations
SDG:	Sustainable Development Goals
TA:	Traffic Act
PTW:	Powered Two Wheelers
UN:	United Nations
UK:	United Kingdom
US:	United States of America
USAID:	United States Agency for International Development
WBCSD:	World Business Council for Sustainable Development
WHO:	World Health Organization

ABSTRACT

Training and compliance to safety regulations among boda boda riders have been key concerns in the motorcycle transport industry. This is because most riders lack the basic requisite road safety skills acquired through formal training. The result of this has been loss of lives due to accidents associated with motorcycle operation. According to the World Health Organization, (2016), 1.3 million lives are lost through crashes while 50 million injuries are recorded annually. All these, have been attributed to lack of training among the motorcycle riders. Therefore, this study sought to investigate training and regulation compliance in motorcycle industry in Kisumu Central Sub County. This was guided by the following specific research objectives; i) To establish the socio-economic characteristics of boda boda riders ii) assess the effect of training and non-training to safety regulation, iii) examine the extent of safety regulation compliance among the trained and untrained riders This study was justified by the gap in knowledge on training of motor cycle riders and the effect of training on compliance. The study adopted the use of descriptive research design. The target population for the study was all the commercial boda boda operators within the Kisumu Central Sub County, drawn from 6 wards. The study population consisted of randomly sampled boda boda riders drawn from three out of six wards with 266 operating points referred to as 'bases' with each base having an average of 15- 30 motorcycle operators and an estimated population of 5,613 riders. The study employed a multi-stage cluster sampling; mapping of the site was done in order to generate clusters for the study. The use of purposive stratified sampling was adopted and it involved the division of the population into number of groups (bases) where the members of the group or strata shared a particular characteristic (motorcycle riders). Equally, the key informants were sampled purposively based on their expertise and knowledge on the subject matter of training and compliance. Primary data was gathered from the commercial boda boda motorcycle operators within the sampled clusters while secondary data was collected from the statistics held by the traffic police department and the NTSA offices, published and unpublished reports including but not limited to the academic journals, theses among other sources, with google scholar and electronic journals being used to search for secondary literature. The data collection tools included questionnaires and check list of issues for the key informants interviews (KIIs), the Focus Group Discussions (FGDs) and observation. A Statistical Package for Social Science (SPSS) was used and the data collected analyzed using descriptive statistics by employing frequency distribution tables and percentages, and cross tabulations. From the findings, it emerged that majority of the respondents were male. The level of compliance among the riders was low; a fact that was attributed to lack of formal training, only 47 per cent had formal training. Majority of the respondents had at least some formal level of education. With regards to road safety, motorcycle ownership was significant to safety compliance as most of the motorcycle owners had received the prerequisite training. The major causes of boda boda accidents were inexperience, poor roads, and non – compliance with road rules. Motor cycle leasing was found to be a contributor to road accidents as the riders have to make many trips in order to meet the daily targets, resulting to non-compliance in most cases. The findings further revealed that most of the respondents had received training but most of the training was informal hence quite a number are operating illegally. The contributing factors of low acquisition of driving licenses include the cost and process being expensive, and corruption by Kenya Police Service Personnel. Most of the respondents held the view that lack of training on

part of boda boda riders was a major contributor to road accidents, despite there being a high level of compliance among the trained riders. Motorcycle insurance in this regard was not taken seriously as they perceived it to benefit only the owner whenever there are accidents in terms of compensation. The challenges in the motorcycle operation included; refusal by customers to comply with the road safety rules, insecurity that hinders riders operations at night, and persistent police harassment. Also, the high cost of helmets and reflector jackets as distributors do not sell the motorcycle with all safety gears as required. Lastly, they are no specific training institutions by NTSA, and the few approved driving schools are not affordable to the riders. The study therefore recommends that NTSA makes training available and affordable, pick –up and drop-off points need to be designated by the county government, need for a Sacco to enhance efficient management of the motorcycle industry.

CHAPTER ONE

1.0 Introduction

The demand to travel which defines the transport distribution system (Pardo, 2010) has led to the emergence of various modes of transport (Rodrigues, 2017). However, these demands are influenced by choice which range from availability, accessibility, affordability and flexibility of the transport mode and service (Nyachieo, 2015) hence, the rise in demand for motorcycle as a mode of transport (Kumar & Barret, 2008). Research carried out by Motor Cycle Industry Association (MCIA 2015) revealed that worldwide, only a small minority of riders take up any training after passing a test, regardless of incentives or cost. Even when offered free of charge, the uptake is low.

The use of motorcycle across the world is growing at an unprecedented rate. This is attributed to its affordability compared to other means of public transport, journey efficiency and practicality, fuel-efficiency and the fact that motorcycles offer door-to-door mobility, (Nyacheo, 2015). The increased use is further attributed to different factors, that is, increasing urbanization and the expansion of major cities (World Bank, 2007). As a result, many citizens across the world are increasingly turning to mobility modes that avoid traffic congestion, reduce journey times and are easy to park.

The increase of boda boda as a mode of transport has come along with a lot of challenges which raise concern with regards to safety. In trying to address issues of safety and compliance with road rules, it is often important to consider the specifics of each situation. In the transport sector, there are many possible reasons why road users do not comply with the rules, and more than one of them may be relevant in any particular situation. These different reasons require understanding, including different strategies which encourage greater compliance. It is in this respect that this study focuses on studying whether training and regulation enhance compliance in the boda boda operations using the case of Kisumu City.

1.1 Background

Transport is an important element in development and it enables the social, economic and political interaction that most people often take for granted (Button & Hensher, 2001). It is through transport that people access various services essential for their day to day survival such as health, education and job opportunities (World Bank, 2002). Mobility and access are functions of development (UN-Habitat, 2013), and a sustainable transport system must therefore provide mobility and accessibility to all road users in a safe mode of transport (Mohan, 2002).Transport thus plays an important role in integrating different sectors of economy globally (Nyacheo, 2015). Irrespective of the mode of transport used, the speed, efficiency, effectiveness and safety of travel is of essence in increasing access for all people irrespective of where they are (UN-Habitat, 2013). Improving road safety is a permanent and never ending process which, in order to achieve sustainable results, presupposes a change of mind amongst the population as noted by European Commission Road Safety and Policy Report of 2011.

There has been a significant growth in transport sector globally (Nyachieo, 2015).This is because transport is a component of both rural and urban development, and it is very instrumental in the achievement of the Sustainable Development Goals (World Bank, 2007). By 2008, it was estimated that there were more than 300 million powered two-wheelers world over, with a relatively uneven distribution across regions: around three quarters were found in Asia, 16 per cent in North America and Europe, 5 per cent in Latin America, 1 per cent each in Africa and the Middle East respectively (Rogers, 2008). This disparity was also characterized by the uses made of this mode of transport. In North America and Australia, the two-wheeler is primarily recreational, while in Europe, it has a more mixed function and it is increasingly used to escape the problems of urban traffic congestion. In other regions of the world, including Africa it provides public transport.

The Powered Two-Wheelers (PTWs) were a marginal mode of travel reserved for a few fans of speed and adventure. This is no longer the case, the use has grown significantly during the last decades in most parts of the world (Haworth, 2012), resulting in the PTW gradually becoming a true mobility enabler, attracting an increasingly vast and varied user

population. It has become an integral part of the traffic system, offering certain benefits over other modes of transport. The use of PTWs continues to grow remarkably world over each year with multiple economic and social factors contributing to their expansion, such as increased traffic congestion and inner-city parking problems, increases in gasoline prices, the development of leisure, as well as changes in lifestyle, (Shinar, 2012).

Globally, 1.3 million lives are lost through road crashes while 50 million injuries are recorded annually (WHO, 2016), this is more than deaths recorded from diseases such as malaria (Adeloye & Azuh, 2016; WBSCD, 2001). In spite of a remarkable improvement in traffic safety for all road users (including motorcyclists) in OECD countries, exposure to road risk has however increased to the extent that in some countries the number of motorcyclists who die in road crashes has tremendously increased over the past years (OECD, 2012). According to the 2017 Road Safety Annual Report on road fatalities trends among the International Traffic Safety Data and Analysis' 31 countries, there was an increase of 3.3 per cent in road fatalities in 2015 compared to 2014, although this was 6.5 percent down compared to 2010. The number of road deaths increased in 21 countries in 2015, of which 10 registered more road deaths for 2 consecutive years, in 2015 and 2016 with only ten countries succeeding in reducing the number of road deaths by 2015.

In United Kingdom, it was reported that the mortality rate per million vehicle kilometer is about twice that of pedal cyclists and over 16 times that of car drivers and passengers (DETR report, 2000).The report further postulates that, though, motorcyclists form a paltry 1 percent of the traffic, the riders suffer 14 percent of total road injuries and deaths in Britain. Road injury is thus a health crisis as well as major contributor to poverty (WHO, 2009). According to a motorcycle transport safety policy framework report (2016), in the UK it was estimated that in 2015, 365 motorcyclists were killed on British roads, with a further 5042 seriously injured.

Half of the world's road traffic deaths concern are "vulnerable" road users (WHO, 2013), which include pedestrians, cyclists and users of PTWs. This proportion is generally higher

in low- and middle-income than in high-income countries. According to a World Bank, (2000), report, since the turn of the new millennium, more than half a million people have died, while fifteen million people have been injured on urban roads in the third world countries, a direct economic cost of 2 percent of the world gross domestic product, with the poor being the most vulnerable road users, especially pedestrians and motorcyclists (Mumford & Bradford, 2009). Motorcycle safety is increasingly becoming a major issue world over, it is however worse in developing countries (Solagberu et al, 2006). Irrespective of the countries concerned, PTW users are confronted with an excessive risk on the road, which has been qualified as "unfair" by Elvik (2009), insofar as for the same number of kilometers driven, they have a much higher risk of being killed or severely injured than car occupants.

In the United States, motorcyclists' fatality accounts for about 15 percent share of total traffic fatality. In India and China, the share of total traffic fatality for motorcycles is estimated at about 20 percent; this value is five times higher than their share of total trips. Thus, they are described as the "most dangerous way of getting around" in these countries (Pucher, Peng, Mittal, Zhu, & Korattyswaroopam, 2007). Similarly, they are described as "the most hazardous mode in Taiwan, Malaysia and Vietnam" (Tien-Pen, Sadullah, & Dao, 2003). In Malaysia, the use of motorcycle represents 51 percent of the total vehicles registered, motorcyclists formed 49.2 percent of all the reported accidents and 67.7 percent of all road casualties in the year 1997 (Kulanthayan et al., 2000), further, 60 percent of road deaths were reported among users of motorized two wheelers while that of Thailand stood at 70-90 percent . Between the year 2008 and 2010 over 50 percent motorcycle related road accidents was recorded Malaysia (Nyachieo, 2015). Road transport has thus been the leading cause of death for people aged 15 – 29 years globally (NTSA, 2015).

In Africa, the situation has not been any different, roads which have only 4 percent of the world's motor vehicles witnesses more than 10 percent of the world total collision fatalities (Chen, 2010). A review of road fatalities in 15 countries shows an increase from 40.7 per 100,000 populations in 1990 to 92.9 per 100,000 population between 2010 and 2015

(WHO, 2015). In the year 2013, Africa had the highest rate of road fatalities globally at 26.6 per 100,000 populations, (Adeloye & Azuh, 2016). The larger percentage of these casualties is in low and middle income countries (Luchidio, 2015).

The commercialization of motorcycle services has led to serious transport safety concerns, from road accidents to traffic management problems (Kumar, 2011). The safety concerns include, over speeding by riders with inadequate knowledge on road safety rules and regulations, coupled with limited training or lack of it, which has in turn resulted to high number of accidents leading to crashes and subsequent injuries and deaths, (Ofonime & Adebayo, 2011). In Nigeria, about 50 percent of people killed in fatal road accidents in a span of ten years from 1989 in Lagos were motorcycle riders and passengers (Oyesiku, 2003), with just a paltry 3 percent of the persons involved in motorcycle related accident not having major injuries (Oyesiku, 2002). The Federal Road Commission of Nigeria working on the Highway Code opined that there is an 8:10 chance that a motorcycle accident will result in death (Ofonime & Adebayo, 2011).

In Kenya, the use of motorcycle for commercial purposes can be traced back to the 1960's and 70's when bicycles were used for transportation and smuggling of goods across the Kenya – Uganda border in Busia hence the name 'boda boda' (Chepchieng' et al, 2012). This is a corruption of the English word 'border border' (Olawo et al, 2014). In the past 10 years, the acceptance of motorcycle as a mode of transport has gradually replaced bicycles that were for a long time used in the rural parts of Western Kenya. Availability of the mode during day and night, affordability, reliability and its ability to evade traffic and navigate through narrow paths in both rural and urban areas has enhanced the demand for motorcycle use in Kenya (Odera, 2009).

1.1.1. The Increased Use of Motorcycles

The use of motorcycle as a preferred means of transport in Sub-Saharan Africa, Latin America and Asia has been on the increase over the years. This can be attributed to the many advantages to commuters such as the maneuverability and ability to travel on poor roads and demand responsiveness (Luchidio 2015). In Asia for instance, motorcycles have

for long been preferred as the main vehicle in Taiwan, Malaysia, Indonesia and Vietnam (Le & Nurhidayati, 2016). This is unlike the developed western countries where motorcycles are associated with the rich people and are normally used for leisure (Le et, al., 2016, Luchidio, 2015). In Indonesia, though unlicensed, motorcycle taxis are commonly used due to its affordability to all irrespective of societal socioeconomic status (Carvero, 2000).

Economically, the motorcycle transport is a source of employment (Owuor, 2008) for many educated and uneducated jobless youths in Kenya. The increasing joblessness among the youth, devolution and livelihood support from motorcycle investment has led to the increase in number of motorcycles on Kenyan roads (Singoro et al, 2016). This is more prevalent in towns like Kisumu City where lack of discipline and basic safety skills on the part of the boda boda riders has made their operations a safety concern, (The Star, 2013).The safety concerns in the motorcycle operation has led to a frosty relationship between the riders and the traffic police. The police have often accused the riders of flouting traffic rules especially having no licenses and protective gears for their own protection and that of the passenger, (Owuor, 2008). This nearly prompted the police in Kenya to ban boda boda motorcycle operation in 2008 following the death of 303 passengers and riders during the year (Bulema, 2008).

1.1.2 Challenges in the use of motorcycle

The increase in demand for motorcycle use is attributed to the introduction of zero import duty rating of motorcycle below 250cc by the Kenya government in 2008. Ever since this law came into effect, Kenya has witnessed a marked increase in the number of motorcycles which has in turn led to an increase in motorcycle fatalities which quadrupled from 44 in 2005 to 164 in 2009 (Singoro, Wakhungu, Obiri & Were 2016). According to NTSA, (2018), 184 motorcyclists and, 83 boda boda passengers lost their lives from motorcycle associated accidents. This was an increase from 2017 where boda boda passengers lost their lives (NTSA, 2017). This has been the same case in Kisumu where the reported cases in 2010 showed 9 lives lost, 30 seriously injured persons and 13 slightly injured. This number continued to grow and by end of 2012, 48 lives had been lost, 117 people seriously

injured and 39 slightly injured from motorcycle related accidents (Nyachieo, 2015). Kisumu County also ranks among the top 10 counties with the highest fatalities distribution in Kenya (NTSA, 2015). The significant percentage of these injuries and fatalities is made up of young people who lack proper training and do not comply with traffic rules and regulations (Edson & Tandoc, 2007).

From the foregoing, it is evident that motorcycle riders and passengers are the most vulnerable road users representing an important target group in the reduction of traffic accidents and hence fatalities/injuries (Ofonime& Adebayo, 2011). Therefore, with the poor safety record compared to other road users (Solagberu et al, 2006) motorcyclist training is seen as an essential factor in curbing the safety risks to riders and other road users (Nasongo's, 2015).

1.1.3 Importance of Training Riders

Training has been viewed as an important component in safety compliance amongst the motor cycle riders as most non-compliance leads to accident which are associated with lack of training,(Hurt et al, 1981). With proper training all riders can develop their skills and learn new techniques that will make them safer on the roads. In both rural and urban areas, motorcycle casualties are caused by a variety of factors which revolve around skills and attitudes among motorcyclists and other road users. Compared to car users, motorcyclists are particularly vulnerable mainly due to the relative exposure to the external environment. Action should therefore be taken through training to address key issues such as rider behavior; rider skills; and rider attitudes, (Motorcycle and Transport Safety Framework in UK 2016). This will in turn address the key compliance concerns in motorcycle transport safety in Kenya which are: possession of valid driving license, training in accredited institutions, having an insurance cover; being tested by traffic police, having protective gears for both the rider and the passenger and riding without undue influence of alcohol (NTSA, 2012). These issues are very significant in safety regulations as non-compliance is a precursor to motorcycle accidents (Hurt et al (1981).

It is this safety concerns on road transport that led the government of Kenya to establish the NTSA in 2012. The body in its mandate recognize motorcycle operation as a major

challenge in curbing transport related accidents in Kenya (Matheka et al, 2015).The challenge with this mode of transport is mainly attributed to lack of adherence to safety rules and regulations by the motorcycle operators (NTSA, 2015). Therefore, to mitigate this, efforts to enhance training to ensure only well trained riders with basic knowledge of safety regulation are in possession of valid license to operate on Kenya roads.

1.2 Problem Statement

Motorcycles as a means of mobility have become a major area of concern for urban transport planners, especially in developing countries. While it is an acceptable mode of transportation that enhances ease of accessibility, it was not originally intended for public transportation. There are concerns raised against motorcycle-based public transport with the major one being that of increased accidents, attributed to lack of training and compliance to road rules and regulations by the riders.

Commercial motorcycle transport has gained prominence in Kenya. This can be attributed to the zero rating of the import duty on motorcycles below 250 cc by the government in 2008.The result has not only been the increased number of motorcycle operated in the country but also accidents associated with it in most areas, including the City of Kisumu.. The city has been flooded by the use of boda boda as the main mode of transport. Unfortunately, this mode of transport has contributed to the high fatality rates due to non-compliance to road safety rules and regulations by the operators. The statistics also corroborates national study findings that while there was a 343.7 per cent increase in motorcycle related accidents nationally, Kisumu County alone recorded an increase of 236.5 percent between 2005 and 2014 (Nyachieo, 2015).

In most parts of Kenya, lack of gainful employment amongst the youth, in particular the school and college leavers has led to their engagement in boda boda business (Owuor, 2008). Working in the sector is viewed as a quick way of making money. The entry requirements are also easy since the authorities have not been keen on checking the relevant training among the riders to ensure that they are competent enough and having all the compliance requirements. This has led to the emergence of many riders who are

incompetent as they have not gone through the required steps and training to be able to comply with the road and traffic regulations.

Various trainings have been done to mitigate transport safety in Kisumu. The Car and General launched a nationwide TVS motorcycle model safety training in Kisumu and other parts of the country (Luchidio, 2015).The Road wise Network in collaboration with the traffic police department also endeavored to create safety awareness and training of boda boda operators in Kisumu City (Alal, 2013) but none has succeeded. In 2014, The National Transport and Safety Authority also formulated transport safety regulations to guide motorcycle boda boda operation in Kenya with key emphasis on formal training as a prerequisite for any rider in the country. However, none of these succeeded as the statistics on motorcycle related fatalities distribution puts Kisumu among the top ten counties nationally (NTSA 2015). Having been operationalized in January, 2016 to ensure only trained riders with license operate on Kenyan roads. This has not been effective and NTSA still reported 1,400 fatalities, 1956 serious injuries and 634 slight injuries within two years, between January 2015 and January 2017 (Lang'at, 2017).

Equally, several studies have been conducted pointing towards motorcycle transport in Kenya, Makhanu (2015) conducted a study looking at the extent of compliance of motorcycle riders to road safety regulations in Kitale, the study found 82 percent of riders not complying with safety regulations. Nyachieo (2015) also conducted a study to establish the socio cultural and economic determinants of boda boda motorcycle transport safety in Kisumu whose findings revealed that factors such as rider behavior, safety knowledge and pillion sitting style determines safety. Singoro et al (2016), conducted a study on the causes and trends of public transport motorcycles accidents in Bungoma, and human error was found as the leading cause of motorcycle accidents. In all of these studies none had touched on training and compliance except the closest being a study conducted to assess training and safety status of motorcycle transportation in Kakamega County by Fallis (2013). The study findings revealed inadequate compliance in terms of training with unlicensed riders as the main cause of boda boda related accidents. These findings never focused on training as a means of enhancing compliance as emphasized by NTSA regulations on motorcycle

transport; this creates the gap for my study, and justifies a focus on evaluating the extent to which training contributes to compliance among the boda boda riders with the safety regulations based on two assumptions; one, that formal training leads to compliance to NTSA motorcycle safety regulations, and two, lack of formal training is a major contributor to non-compliance to NTSA motorcycle safety regulation.

1.3 Research Questions

1.3.1 Overall Research Question

How does training of boda boda riders improve compliance with NTSA transport safety regulations?

1.3.2 Specific research questions

i. What are the social and economic characteristics of boda boda riders in Kisumu Central Sub County?
ii. What is the effect of training and non-training of boda boda riders to safety regulations and compliance in Kisumu Central Sub County?
iii. What is the extent of compliance among the trained and non-trained boda boda riders in Kisumu Central Sub County?

1.4 Research Objectives

The overall objective of this study was to establish how training of boda boda riders affect compliance and non-compliance with road safety rules and regulations in Kisumu Central Sub County.

1.4.1. Specific Research Objectives:

i. Establish the socio-economic characteristics of boda boda riders in Kisumu Central Sub County.
ii. Assess the effect of training and non-training to safety regulation compliance in Kisumu Central Sub County.
iii. Examine the extent of safety regulation compliance among the trained and untrained riders in Kisumu Central Sub County.

1.5 Justification of the Study

Efforts have been made to address road safety compliance to reduce the ever rising accidents especially the motorcycle related accidents. In trying to address this issue, knowledge of the riders on safety regulations rules while on the road has been a great concern to players in the transport industry. Regulations have been put in place latest being the National Transport Safety Authority regulations on motorcycle 2015. Since training is at the core of this regulation, this study set out to examine how training influence compliance and factors contributing to non-compliance with the boda boda operations with regards to safety in Kisumu City. This was in line with the findings from the literature that shows that few studies have been undertaken in regards to training and safety compliance amongst boda boda motorcycle operators, and the ever rising number of deaths associated with boda boda despite two years of the existence of NTSA regulations since it operationalization in January 2016.

This study has the potential of drawing the attention of the government through the ministry of transport, and the stakeholders involved in policy formulation and interventions especially the National Transport and Safety Authority to employ more effective ways of enhancing compliance in the motorcycle transport industry. The study will also benefit the riders in Kisumu City if the study recommendations are adopted. This will help them get access to affordable training institution which will intern improve safety compliance.

1.6 Limitations of the Study

The study mainly focused on issues of training of the riders and their compliance to road safety regulations in Kisumu Central Sub County. Whereas the Sub -County comprises of six administrative wards namely; Kondele, Market Milimani, Railway, Migosi, Kaloleni and Nyalenda B, this study was only limited to three administrative wards; Kondele, Railway and Milimani Market due to time. The study also focused on the riders due to limited time and financial constraint, and since riders were always on the run ferrying passengers, most interviews were done during off pick hours.

CHAPTER TWO
LITERATURE REVIEW

2.0 Introduction

This chapter reviews literature in the following key thematic areas: socio-economic characteristics of boda boda riders, the effect of training and none training to safety regulation compliance of boda boda riders, and safety regulation compliance among the trained and untrained boda boda riders, and relevant theories on training and compliance.

2.1 Empirical Review on Socio-Economic Characteristics of Boda boda Riders

2.1.1 Age

Age plays an important role in safety compliance. It influences the behavior of boda boda motorcycle riders on the road, an aspect which has implication on safety compliance (Nyachieo, 2015). Young riders mostly get involved in the boda boda motorcycle related accidents than the old (Beenstock & Gafni, 2000). This is because they are inexperienced (Nyachieo, 2015). Rutter & Quine (1996) argues that age plays a much greater role than inexperience in motorcycle transport safety compliance as it not only explains the dangerous driving but also the likelihood of taking risks amongst the young people than other age categories.

A study conducted on knowledge of and attitude towards road traffic codes among commercial motorcycle riders in Eastern Nigeria revealed that most commercial motorcyclist in Nigeria generally belong to the most productive age group, with an average of 30 years constituting 70 percent (Johnson & Adebayo, 2011). A similar study carried out in Yola, Adamawa State, Northern Nigeria found out that 88 percent of the motorcyclists were falling in the age between 18 and 30 years. Odumosa &Yaro (2008) also confirmed the relationship between age and boda boda operations revealing that majority of the riders were young people between the ages of 19 -36 years constituting 73 percent of the total riders. In Uganda, Kampala City, a study conducted on motorcycle found all the riders to be of the age bracket of 16-30years constituting a 90 percent of the respondents (Kisaalita & Kibalama 2007).

In Kenya, most accidents in the motorcycle industry have been attributed to reckless driving and over-speeding by teenage riders most of whom still prefer to experiment with the machine (Kahuthia et al, 2013). Makhanu (2013) established that majority of the boda boda riders were young people of the age bracket 20-29 years old. They therefore, tend to take risks while on the road, and this expose them to road crashes (Nyachieo, 2015).

2.1.2 Level of Education

The relationship that exists between education and motorcycle operation cannot be gainsaid, the operators are educated. Kumar (2011) in his study, found out that those operators with secondary education accounted for 70 percent while 14percent had higher education. In Nigeria, a study conducted showed that 73 percent of the motorcycle operators or Okada as it is popularly known had attained secondary education with only a paltry 5 percent having no formal education. A similar study conducted in Kampala City in Uganda found out that 32 and 46 percent had completed secondary school and primary school respectively.

In Kenya, a study by Makhanu (2013) in Kitale shows that the riders' level of education ranged from primary to secondary school where 43 and 37 percent had completed secondary and primary school respectively. In a study by Maina (2013), the riders who had completed secondary education constituted 75 percent while those that had completed primary education accounted for 25percent of the total population sample. Mutiso and Behrens' (2010) conducted a similar study in Kisumu and Nakuru and revealed that the riders in both towns had formal education. Nyachieo (2005) found that motorcycle business attracted those with secondary education. In her study in Kisumu East, more than half (55%) of the boda boda riders had at least secondary education, while those with primary education accounted for 43.5 percent. The study also found out that only 2.16percent of the respondents had either college or university education.

2.1.3 Motorcycle Ownership

Ownership is considered a factor that contributes to motorcycle transport safety. It is proven to lower the motorcycle related accidents by 57 percent (Dinye, 2013). It also enhances knowledge on road safety and compliance, (Akinlande & Brieger, 2003). This can be attributed to the fact that the few boda boda riders who own motorcycles have the capacity to get formal training. Furthermore, they are likely to be very careful while operating the motor cycles because this is the only source of income for many, which ought to be protected as the riders continue to service the loans taken to buy the motorcycles (Nyachieo, 2015).

Ownership of motorcycle as a means of transport in both rural and urban areas has increased exponentially overtime, this has had great implications on safety and compliance (Dinye, 2013). However, this ownership and commercial use of motorcycle has been very high in the low and middle income countries (Mohan, 2002). In the developed economies the ownership had long been a preserve of the privileged. In China for instance, the market reforms of the 1979 led to employer based subsidies giving workers opportunity to own motorcycle (Hook & Replogle, 1996).

In Calabar in Nigeria, 58.51 percent were found to own motorcycles while 41.51 percent hired motorcycles for their operation (Mahlstein, 2009). A study aimed at understanding the role of motorcycles in African Cities found Lagos, Doula and Kampala to have 65, 50, and 40 percent respectively of motorcycle ownership. In Kenya, a study in Kisumu East Sub-County found only 44 percent to be operating own motorcycles.

In terms of daily operation, owner riders work less hours compared to non-owner riders and this contributes to non-compliance among-non owners (Kumar, 2011).This is attributed to the mandatory daily fee of between ksh 300 -500 which non-owners must meet to continue using the hired motorcycles, (Nyachieo, 2015). This strenuous rider's condition makes it hard for those operating hired motorcycles to comply with traffic rules as many trips means higher earning to meet the daily target for the owners, and save some for their families and the motorcycle operation (Kumar, 2011).

2.2 Training and non-training of Motorcycle Riders

Training according to Kimotho (2014) can be described as the acquisition of knowledge, skills and competencies as a result of the teachings of practical skills and knowledge relating to specific useful competencies with the aim of imparting knowledge to improve the recipients' performance. Training and awareness creation in the boda boda sub sector is critical. Formal boda boda riders training is one of the important factors in mitigating the risk of motorcycle crashes. However, in the United States there are only 3 states (Maine, Rhode Island, and most recently, Florida) that riders need to be licensed to operate a motorcycle. One needs to have successfully completed the motorcycle training course as part of the licensing requirements. In other states they provide the rider with an exemption to the state road test for motorcycle if they successfully complete approved courses in the training thus no serious expectation of competent, safe motorcycling (Odera, 2009). Motorcycle riders training is usually conducted with the aim of reducing the rate of accidents (Walker, 2006).Training impart the rider with the needed skills to operate on public roads (Kimotho, 2014). Training has thus been viewed as important component in safety compliance amongst the motorcycle riders as non-compliance leads to accidents which are associated with lack of training (Hurt, Quallet & Thom, 1981)

According to the Traffic Act,(2009), motorcycle riders are required to have a valid license as an indicator of having attained a requisite training from a recognized training school The training is meant to provide the riders with in-depth understanding of their safety needs while on the road (Nyachieo, 2015). A study in Nigeria on knowledge and attitudes towards traffic codes among commercial riders found that two thirds of riders who took part in the study had little knowledge of road traffic codes and safety, making them prone to accidents (Johnson & Adebayo, 2011)

In Kenya, the findings of different studies reveal lack of training as the major cause of motorcycle related accidents. A study by Kimotho (2014), on factors influencing motorcycle riders' safety in Runyenjes, Embu County found out that most riders did not have any formal training from any certified riding institution. Majority of the boda boda riders having only gone through informal training and not being aware of the risks involved

in careless driving. Besides, most of them had no valid driving licenses, and hence the need for them to undergo safety training and awareness, (Kahuthia et al, 2013). As this will help curb boda boda related fatalities because most of the riders lack the class F & G driving license which is a prerequisite for their operation (Obbo, 2012). A study done on socio-cultural and economic determinants of boda boda transport safety in Kisumu East revealed that formal training among the boda boda riders was low, at only 38 percent with 68 percent having not gone through any training, (Nyachieo, 2015). While a study on the characteristics and patterns of injury among boda boda users at Kitale County Referral Hospital, by Sisimwo (2013) revealed that 80percent of patients were boda boda riders who were the main culprits of over-speeding and over-loading in Kitale, a fact attributed to lack of formal training.

From the foregoing, there is therefore need to empirically examine the issue of training as a means of enhancing compliance by looking at its effectiveness on both the trained, untrained riders and other issues thereof in regard to compliance with safety rules and regulation. This is key as there have been studies showing no significant reduction in motorcycle related fatalities among the trained and the untrained riders (Rutter & Quine, 1996). Whereas it is expected that formal training in imparting the boda boda riders with the necessary skills will enhance compliance, the literature shows in an evaluation of "Bike Safe Scotland" that some of the riders who have undergone advanced skills training are more likely to be at a higher risk while using the road (Lewis & Fred, 2009). This was after it was reported that those who undertook training rode faster in non-built-up areas after the course (Kimotho, 2014).This however, does not negate the significance of training, but calls for the need for psychological aspect of safety in more advanced training (Kimotho, 2014). Analysis of ignorance to traffic rules revealed that majority of law breakers in Kakamega were boda boda operators who had gone to driving school at 49 percent while those trained by others at 42 percent (Fallis, 2013). However, compliance has been reported in other studies on motorcycle transport safety. A study on compliance with road safety regulations among commercial motorcyclists in Nigeria found compliance with the safety requirement of valid driving license at 624.25percent (Johnson & Adebayo, 2011).

2.3 Empirical review on Compliance with Motor Cycle Safety Regulations

Compliance is a factor of transport safety in the context of this study. The gaining of prominence by motorcycle as a means of transport in most countries of Africa, South of Sahara has heralded safety challenges attributed to lack of adherence to safety regulations (Makhanu, 2015). Motorcycle rider training refers specifically to the process of preparing people for their 'careers' as drivers or riders. This entails not only mastering basic car/motorcycle control skills and a working knowledge of road rules and procedures, but the all-important skill of 'reading the road' and anticipating the actions of other road users. Compliance is an essential element in preventing motorcycle related casualties, and an improved level of compliance will not only redeem the motorcycle transport industry, but also enhance safety of both the operators and passengers (MSTPF, 2016). Compliance is determined by the knowledge of the rider on safety rules and regulations. This has been lacking due to limited training by many riders who cannot afford the requisite training (Ofonime & Adebayo, 2011). A study in Malaysia revealed that riders who did not comply with the safety rules such as acquisition of valid driving license through training had a higher chance of crushing compared to those who did comply (Kulanthayan Hariza & Nasir, 2000)

The rise in motorcycle accidents has been attributed to non-compliance by riders in Ghana (Afukaar, 2009). In a study carried out in Kampala, Uganda; only 19 percent of the riders were found to be having valid driving permits, 30 percent informally learned how to drive while 81 percent were illegally operating on the roads (Kisaalita & Kibalama, 2007). Non-compliance on the part of the riders has led to myriad of challenges to boda boda transport safety in both rural and urban Kenya. A study on transport policy and the growth of boda boda in Kitui County in Kenya revealed that compliance with traffic rules among the riders to be a paltry 2.2 percent. (Kimwetich , Kyalo & Mulwa, 2012); while in Kakamega County, the inadequate compliance in terms of invalid training and unlicensed riders was found to be the main cause of boda boda related accidents (Fallis, 2013).

Studies reveal that social norms are a strong predictor of behavior (Ajzen, 2006; Blanton, Köblitz & McCaul, 2008); therefore, non-compliance with traffic rules by motorcycle

riders/drivers may be attributed to social norms among motorcycle riders/drivers. There is need therefore, to understand social norms among motorcycle riders /drivers in order to improve compliance with road traffic rules. Traffic rules are said to be violated when drivers deliberately disobey formally prohibited or socially accepted codes of driving behavior which lead to non-compliance. The non-compliance can be attributed to social norms among the motorcycle riders /drivers (Björklund & Åberg, 2005). Social norms are a standard behavior that is acceptable within a particular group or society and consist of perceived behavioral control, injunctive norms and descriptive norms. In motorcycle riding/driving, perceived behavioral control is a result of individuals exploiting existing opportunities on the roads; injunctive norms are due to pressure from people that drivers respect; and descriptive norms result from the way other motorcycle riders/drivers behave on the road (Lee, Geisner, Lewis, Neighbors & Larimer, 2007).

According to Mwangi (2011), the National Road Safety Council of Kenya rolled out a road safety training programme for motorcycle operators countrywide which targeted more than 40,000 riders. However, despite the training, the number of accidents still increased from 2,360 in 2006 to 4,072 in the year 2009.These accidents were attributed to reckless driving and laxity in implementation of traffic laws. According to ACEM (2006), compliance through engagement should be the preferred option, but for offending behavior that falls beyond the scope of training, enforcement by the police and other security agencies will be guided by the principles of proportionality in applying the law.

2.4 Theoretical Literature review

A number of theories have been used in the past to explain non-compliance. These include: social reaction theory, system theory, structural functionalism theory, rational choice theory and strain theory. Social reaction theory postulates the tendency of majority in the society to negatively label those who tend to go against the established societal norms. The persistence of this labelling lead to conformity by those whom these labels are attached. The theory further avers that people's identity and social behavior are determined by how they are described by others in the society. The social reaction has been used to study non-compliance to the laid down safety regulations by most motorcycle riders in the transport

industry which is highly influenced by perceptions in which they are subjected to (Justin, 2015).

Secondly, system theory has also been useful in studying safety compliance since the transport industry is a system which operates within a governing structure. This theory focus on the interdependence between system and/or sub systems, it emphasizes the need of a synergy between groups of individuals, structures and process that would enable a system to function. This theory has been viewed as of significance to the identification of the interrelated components within the motorcycle transport system in explaining safety compliance (Makhanu, 2015).

Thirdly, structural functionalism that explains why the society functions the way it does has also been relevant in the study of transport safety compliance. This theory can be traced back to Herbert Spencer (1820-1903), Emile Durkheim (1858-1917), Talcott Persons (1902 – 1979) and Robert Merton (1910 – 2003).The theory focuses on the relationship between various social structures in the society, it presents a society as a complex system with different parts working together to enhance stability. To these scholars, life in the society is guided by social structures which are patterns of social behavior, where each structure performs a social function that contributes to operation of the society as a whole. This theory has thus been used to interrogate the various institutions involved in transport industry to understand their contribution and/or what contributes to safety and compliance. This study is guided by a theoretical framework bringing together rational choice theory and strain theory.

2.4.1 Rational Choice

Rational choice theory is very important in understanding the social behavior in the society. The theory stipulates that patterns of behavior in the society reflect the choices made by individuals' actions even as they try to minimize the cost (Levin & Milgron, 2004).The individual thus take cognizance of the cost and benefits of the actions to be taken. To this theory, the institutions in the society and changes are as a result of the individual actions and interactions. The theory therefore, lays emphasis on the individual as the starting point

of all the occurrences in the society or any other social institutions. Because of this focus on the individual actions, the theory helps this study in explaining the decisions and actions taken by the motorcycle riders in a bid to comply with the safety rules and regulations. The theory assists in explaining the underlying factors determining the riders' decision to enroll for training to get the requisite skills to ride the motorcycles or to individually learn to ride having considered the cost and benefit of training and non-training vis a vis safety while operating in the motorcycle industry. Safety compliance concerns are questions of attitudes and perceptions of the motorcycle riders which this theory helps explain why the actors involved cannot act rationally with a clear focus of compliance to traffic rules and regulations.

2.4.2 Strain theory

The key proponents of Strain theory are Robert Merton (1938) and Robert Agnew (1992). The theory focuses on the structures within the society and strains that emanates from the individual relations. These strains define people's relations with the set norms in the society as they result from the negative relationships which can be structural or individual. Individuals view of opportunities available to them in the society and the means of attaining them are dictated by the societal social structures and norms. That is, when the goals seem important and beneficial, individuals will strive to their attainment, means and process notwithstanding. In the contrary, when the attainment of these goals supersedes the individual goals, then a strain may occur resulting in resistance by individuals.

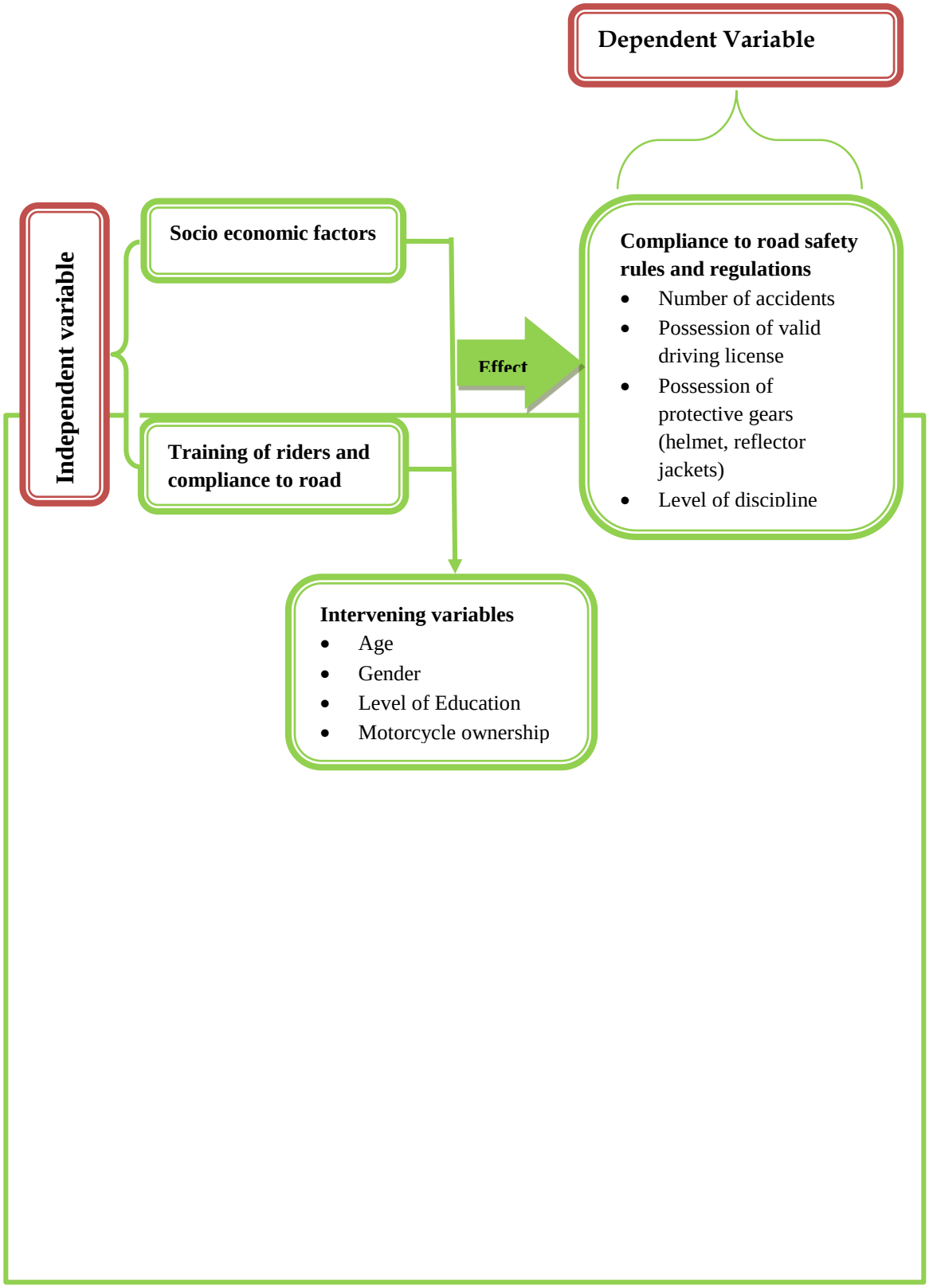
Merton (1938) explains the stain process in line with two key social structures. First are the culturally assigned aspirations and goals that are either material or non-material which should guide individuals in life. The second social structure is the acceptable means of attaining goals and individual aspirations set by the society. To Merton, for a society to function, there is need for equilibrium on the individual's aspirations and the means of attaining them since the individuals in the society are likely to adhere to norms and values set if there is a satisfaction of benefitting from them. There is need for a favorable way for all in achieving their individual desired goals; the guiding norms need to be adhered to in order to avoid resistance that may result in non-compliance with the set norms. Two

deductions can be made from this theory, one, compliance requires equilibrium on the desires and process or means of achieving them to avoid strain, secondly, personal and/or individual goals precedes compliance.

2.5 Conceptual Framework

The conceptual framework (Figure 1) highlights the linkages between the dependent and the independent variables of the study. The independent variable in this case is reduction in safety in motor cycle transport industry attributed to training and compliance which is dependent on social and economic factors, training and compliance to road safety rules and regulations.

Figure 2.1 Conceptual framework


Dependent Variable
Independent variable
Socio economic factors
Training of riders and compliance to road
Effect
Compliance to road safety rules and regulations
Number of accidents
Possession of valid driving license
Possession of protective gears (helmet, reflector jackets)
Level of discipline
Intervening variables
Age
Gender
Level of Education
Motorcycle ownership

(Source: Author's Conceptualization)

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents research methodology covering study site, population and sampling procedures, data collection and data analysis.

3.2 Research Design

This study adopted the use of descriptive survey. According to Setia, (2016), this type of design measures the characteristics of a population at one point in time and is also used to estimate the prevalence of a behavior or a risk factor useful in generating information needed for this study. The research design was relevant to this study as it enabled elicitation of large amount of data through the administration of a single data collection tool to a large number of respondents (Makhanu, 2015), and its potency of yielding rich data useful for detailed analysis (Nyachieo, 2015). This approach was considered to be valuable in assessing and collecting data for this particular study because it was suitable for an in depth study of the target population. The design provided data that enabled analysis for cause – effect relationship between the variables in question. The descriptive survey helped in understanding the explanation between variables

The research design was also used to obtain information on the current status of training. The descriptive design was concerned with the intense investigation of problem solving situations in which problems were relevant to the study. The survey design helped in exploring and describing the relationship between the training and compliance. It was ideal for the numerical data and coding of responses related to compliance among the riders from the questionnaire. The design complemented the numerical data by enhancing a more in-depth understanding of how formal training influences compliance among the boda boda riders in Kisumu Central Sub County.

3.3 Study Site

The study was carried out in Kisumu Central Sub-County of Kisumu City County. The population for the Kisumu Central Sub-County is 168,892 (GOK, 2009). The Sub-County hosts the headquarters of Kisumu City County which is the largest in the Western part of Kenya. The County also hosts two major hospitals in the western region that is Jaramogi Oginga Odinga Teaching and Referral Hospital and the Kisumu District Hospital which have dedicated special wards for boda boda accident victims (Nyachieo, 2015).

The youth unemployment rate of the City is estimated at 40 percent with the 52 percent of the population working in the informal sector (USAID, 2006). The three major informal settlements in the city are, Nyalenda, Obunga and Manyatta which host the majority of the urban population and whose monthly wage range between ksh3000-4000 (Nyachieo, 2015). Approximately 48 percent of the urban population in the city lives in absolute poverty while the average nationally is 29 percent (USAID, 2006. The lack of formal employment for the youth within the city population has made boda boda riding to be the biggest attraction and source of income and livelihood for the youth hence making the Sub-County an important site for this study.

3.4 Study Population and Unit of Analysis

Population refers to "an entire group of individuals, events or objects having a common observational characteristic" (Mugenda & Mugenda, 2008: p. 9). Population is a group of individauls or persons whose sample are taken for measurement. The unit of analysis for this study was the boda boda riders in Kisumu Central Sub County. According to Isenberg, (1998), the target population refers to those objects or individuals who can provide the required information about the area of the study. Therefore, all the commercial boda boda operators within Kisumu Central Sub County, drawn from 6 wards formed the target population. The study population consisted of purposively randomly sampled boda riders, drawn from three out of six wards with 266 operating points referred to as 'bases' with each base having an average of 15-30 motorcycle operators and a total estimated population of 5,613 riders.

3.5 Sampling of Respondents

A sample is the segment of a target population which is selected for a study or a subset of the target population (Bryman & Bell, 2003). Kothari (2004) explains that the respondents selected as part of the sample should be representative of the entire population.

Purposive stratified simple random sampling technique was adopted to obtain a sample of respondents. The study further employed a multi-stage cluster sampling ending up with three selected administrative wards of Kisumu Central Sub- County namely: Market Milimani Ward, Kondele Ward and Railway. These wards were selected based on the contrasting socio-economic profiles of the households based on the national census of 2009 (KNBS, 2010). This was based on mapping of the site aimed at generating clusters for the study. The mapping of the clusters depended on the distribution of boda boda motorcycles operating points and/or 'bases' within the Sub-County.

Kothari notes that an optimal sample is one that fulfills requirements of efficiency, representativeness, reliability and flexibility. According to Gay (1981) cited in Mugenda Mugenda, (2003) for descriptive study ten to thirty percent of the accessible population is enough for a sample size. Therefore, the sample size for this study was 30 percent of the bases in each administrative ward which added up to 45 bases comprising of 90 respondents from the three sampled wards. Two respondents from each base were selected through a purposive sampling as shown in table 3.1 in order to ensure that each base is represented by both trained and untrained riders.

Table 3.1 Cluster Sampling at Ward Level

Ward	No of Bases	Population of Riders	Sampled Bases
Railway	30	675	9
Kondele	52	1,000	16
Milimani Market	65	1,463	20
Kaloleni	69	1,350	21
Nyalenda	30	675	9
Migosi	20	450	6
Total	266	**5,613**	**81**

The study drew representative sample from each ward in terms of their percentage distribution and number of bases. This gave a final sample size of 90 respondents drawn from Milimani market, Kondele and Railway Wards as shown in table 3.2. These were representative of the entire target population.

Table 3.2 Target Population

Ward	No of Bases	Population of Riders	Sampled Bases	Sample size
Railway	30	675	9	18
Kondele	52	1,000	16	32
Milimani	65	1,463	20	40

Source: Author (2018).

The key informants were sampled purposively based on their expertise and knowledge on training and compliance. The key informants were drawn from the key stakeholder institutions dealing with public motorcycle transport safety compliance. This included a police officer representing traffic police department, an officer representing the National

Transport Safety Authority and an official of the boda boda association from each of the three sampled administrative wards. In total the study had 5 key informants.

3.6 Data Sources and Collection Methods

The study adopted the use of both primary and secondary data collection method. Secondary data was collected from the statistics held by the traffic police department and the NTSA offices, published and unpublished reports including but not limited to the academic journals, theses among other sources, with google scholar and electronic journals being used to search for secondary literature. The secondary data helped in contextualizing the research questions, and in identification of the knowledge gaps regarding training and compliance in the motorcycle industry. It contained data related to boda boda operations and the safety measures surrounding their operations. The primary data was gathered from the commercial boda boda motorcycle operators within the sampled clusters. The data collection tools included questionnaires and interview guides for both the Key informant interviews (KIIs) and the Focus Group Discussions (FGDs). The researcher also conducted five key informant interviews and two Focus Group Discussions, the study also used observation method. The primary data collection begun by a pretest of the questionnaire followed by an amendment of the questionnaire based on the pretest feedback to ensure clarity in every question

3.7 Data Analysis

The study adopted the use of both the qualitative and quantitative data analysis methods. Once data collection was done, the completed questionnaires from the quantitative data were cleaned to address any inconsistencies during data entry. The qualitative data was then coded and then keyed and information processed using the Statistical Package for Social Sciences. The information from the data collected was then analyzed using descriptive statistics by employing the frequency distribution tables and cross tabulations. The qualitative data was generated from the Key Informant interviews and the Focus Group Discussions, notes were made from both the FGD and key informant interviews, and the information grouped into themes emerging from the data. These themes were analyzed in line with each research question to complement the survey in order to generate the overall findings of this study.

CHAPTER FOUR
FINDINGS AND DISCUSSION

4.1. Introduction

This chapter presents the interpretation and discussions of the findings of the study based on the research objectives and questions. The chapter starts by presenting the demographics of the study. This is followed by findings on the socio- economic characteristics of boda boda riders; effects of training to safety compliance of the riders; level of safety regulation compliance among trained and untrained riders and operational challenges faced by the boda boda riders.

4.2. General Information

The study was conducted in three wards of Kisumu Central Sub County namely; Milimani, Railway and Kondele. These wards were purposively sampled based on incomes of households residing in the respective wards. While Milimani market ward represents a high income community, railway was sampled because it is a middle income community, while Kondele represented low income community. The response rate for this study was 100 percent with Milimani, Railway and Kondele registering 43, 27, and 30 per cent respectively.

Generally, Milimani ward being part of the CBD is likely to adhere to safety regulations due to presence of law enforcement officers, and general enlightenment of commuters within the ward. Kondele Ward on the other hand, is generally perceived to have anti-social and non-law abiding citizens who are less likely to comply with transport and safety regulations. Furthermore, being a low income residential area they are more likely to prioritize basic needs such as food rather than safety. These observations arose during the field study and also from a similar study finding (Nyachieo, 2015) on socio-cultural and economic determinants of boda boda motorcycle transport safety in Kisumu East.

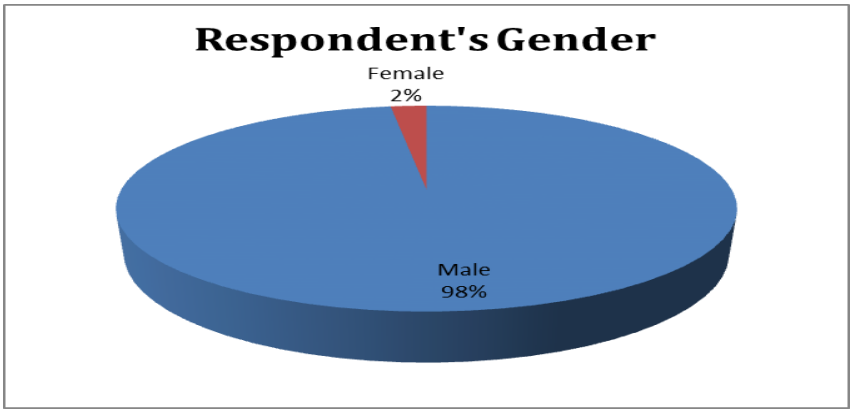
4.3. Demographic and Socio-economic Characteristics of the riders

The study used key parameters to understand the riders' population demographic characteristics. These included; gender, age, level of education, motorcycle ownership, training, and possession of a valid riding licenses. These parameters also formed part of socio-economic factors which though found outside the individual rider's personality, directly influence compliance to safety rules and regulations in the boda boda motorcycle industry.

4.3.1 Gender

The survey sought to know the gender of the riders, and from the analysis, it was established that majority (98%) who participated in the study were male, with only 2 percent being female as shown in Figure 4.1. The industry is therefore male dominated. This is not surprising as it corroborates other literature (Makhanu, 2015, Kimotho, 2014) which indicates that most riders are male. This as observed in the second focus group discussions is attributed to harsh conditions in the sector such as working very early and late hours in the night, and the insecurity that is associated with the sector. This was further supported by the KII4, a police officer who observed that the industry needs physical strength that might not be favorable for women who are culturally considered week. However, to Nyachieo (2015) the family and other responsibilities that women have, for example pregnancy is the reason why women shy off from boda boda industry. However, good employment terms that allow women to take maternity leave can attract women to the industry.

Figure 4.1 Gender



Source: Field Data, 2018

4.3.2 Age

It is argued that age plays a much greater role in motorcycle transport safety compliance. This not only explains the dangerous driving but also the likelihood of taking risks amongst the young people more than the older age categories (Rutter & Quine, 996). The study findings indicate that majority of the respondents (51%) are young aged between 25-35 years, while the middle age were only 32 per cent. This majority age fall within the required age group of driving a PSV motor vehicles which is 24 years and above according to the Traffic Act chapter 403 of 2008. The other age groups accounted for minimal percentage with age group 18 -24 and 46-52 each accounting for 5.6 percent as shown in table 4.1.

Table 4.1. Respondent's Age

Age of respondents	Frequency	Percent	Valid Percent	Cumulative Percent
18-24 years	5	5.6	5.6	5.6
25-35 years	46	51.1	51.1	56.7
36-45 years	29	32.2	32.2	88.9
39-45 years	3	3.3	3.3	92.2
46-52 years	5	5.6	5.6	97.8
53-59 years	1	1.1	1.1	98.9
60+ years	1	1.1	1.1	100.0
Total	**90**	**100.0**	**100.0**	

Source: Field Data, 2018

The study findings concurred with the literature that majority of boda boda riders in Kenya are largely young people (Makhanu, 2015; Nyachieo, 2015). This age bracket of 25-35 years (51%) is very energetic, and there is need to integrate them in the nation development by getting involved in gainful economic activities (Makhanu, 2015). The boda boda industry has thus been a reliable source of employment to the many jobless urban youths (Owuor, 2008; Singoro et al, 2016). This was also corroborated in FGD 1 where it was noted that the boda boda industry has created employment to many youth and significantly reduced the number of idlers.

4.3.2.1 Relationship between age and compliance

Age influences compliance (Nyachieo, 2015).It determines the behavior of the rider while operating on the road. Out of the respondents interviewed, the majority (51%) of the respondents were within the age bracket of 25 – 35 years. When asked the role of age in safety compliance, majority (79%) of the respondents concurred that age plays an important role in safety compliance. This was confirmed by a majority (81%) of riders who strongly held the view that young riders do not comply with safety regulations. In addition, 84 percent of respondents associated motorcycle related accidents to over speeding and reckless riding by young riders as shown in table 4.3. This was further attributed to lack of training, and inexperience among young riders who are not keen on taking boda boda riding as a career (KII4 October, 2018). Further, as found out in FGD 1, riders see no need of formal training if they can learn how to ride from friends. This finding was further supported by the literature which shows that young riders are prone to none compliance due to lack of training that imparts basic knowledge and skills to operate on the road (Nyachieo, 2015).

Table 4.2 Socio Economic Characteristics of Riders and their Effects on Compliance

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
Age of a boda boda rider plays a very important role in safety compliance.	10%	11%	-	40%	39%
Young riders mostly get involved in the boda motorcycle related accidents than the old ones.	9%	9%	1%	30%	51%
The urge for more trips to make money by most riders is the leading reason for risk taking resulting in accidents.	23%	9%	-	31%	37%
Most boda boda accidents are caused by dangerous riding by the young riders	8%	12%	-	29%	51%
Most motorcycle accidents have been attributed to reckless driving and over-speeding by teenage riders most whom still want to experiment with the machine	4%	12%	-	26%	58%
Most of the boda boda riders have formal education and are therefore able to read road signs.	23%	22%	-	31%	23%
Most of the boda boda riders do not own their motorcycles and therefore have to work extra hard to make more money to be able to pay for the lease and at least remain with reasonable amount for livelihoods.	11%	1%	-	32%	56%
The boda boda riders who own their motorcycles tend to be cautious when operating their machines and hence cause few accidents.	7%	10%	-	19%	64%
Besides road accidents there are other risks associated with motorcycle riding.	1%	6%		53%	40%

The low level of compliance among young riders according to the KII3 (ward chairman), and KII5 (NTSA official) is attributed to the fact that most of them do not have the capacity to own their own motorcycle as majority depend on leasing. This forces them to do many trips to meet daily targets (KII3 October, 2018; KII5 October, 2018). This is unlike the older folks who according to FGD 2 have been in the business for sometimes, and operate the boda boda industry as their daily source of livelihood. The older riders are thus considered more experienced as most of them are trained and qualified to operate (KII4 October, 2018), as the saying goes, old is gold. Further, they possess riding license, and the many years in operation have imparted to them life experience, including accumulated road regulation values making them more compliant (KII4 October, 2018).

Across tabulation of age and possession of valid riding license confirms that young riders do not possess valid riding license (table 4.4).This is a sign of none compliance since one has to be trained according to NTSA regulation. During FGD 2 it was observed that lack of responsibilities (having no families to provide for) on the part of the young riders make them have no sense of complying with NTSA regulations. They do not view the industry as a source of livelihood compared to their mature counterparts who largely own motor cycles. Furthermore, they see no future in the industry, and majority of them operate illegally without a riding license. This is against the NTSA regulation on motorcycle operation (KII3 October, 2018).

Table 4.3 Cross Tabulation of Age and Having a valid driving license

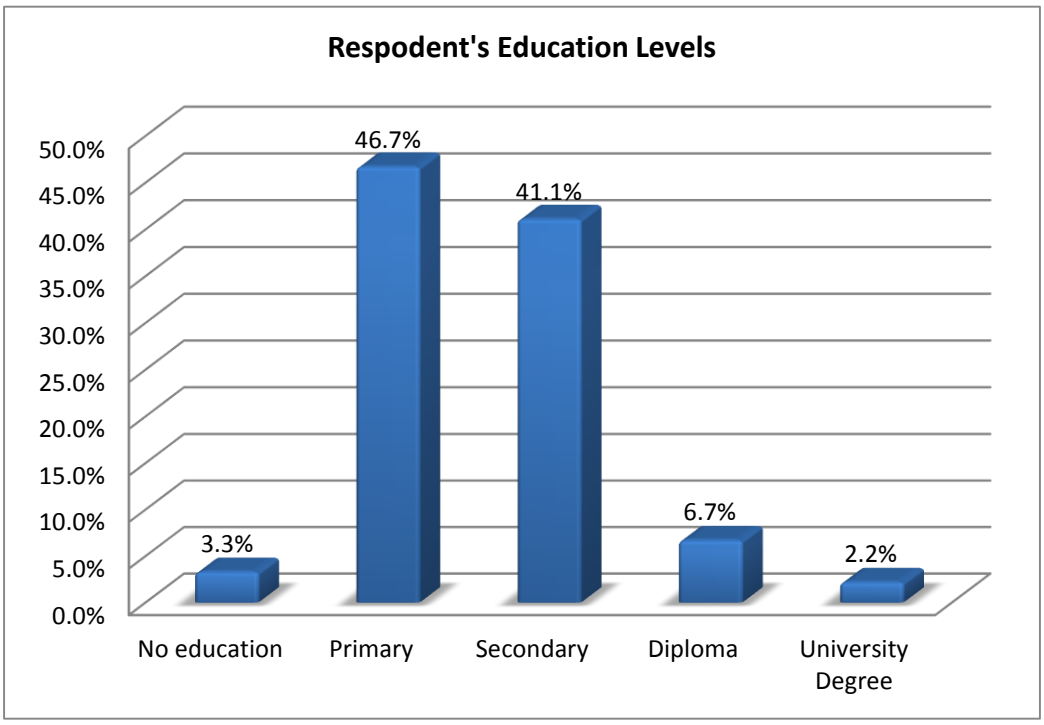
What is your age bracket in years		Do you have a valid driving license?		Total
		Yes	No	
	18-24 years	0	5	5
	25-35 years	44	2	46
	36-45 years	0	29	29
	39-45 years	0	3	3
	46-52 Years	0	5	5
	53-59 years	0	1	1
	60+ years	0	1	1
Total		44	46	90

Source: (Field Survey Data, 2018)

4.3.3 Level of Education

The rider's level of education plays a key role in safety regulation compliance, as it is associated with their knowledge of safety requirements, (Sufiyan, 2012).The more educated the rider is, the less likely that they will be involved in accidents, (Nyachieo, 2015). Education therefore, increases the ability of the rider to understand safety regulations and the need to adhere to them. From the findings of this study nearly all the respondents had been able to attain some form of formal education at 97 percent, with only a paltry 3 percent having no education. Those with primary education accounted for 47percent while secondary education accounted for 41 percent. A small proportion of respondents had diploma (7%) and university education (2%) as shown in Figure 4.5.

Figure 4.2. Level of Education



Source: Field Data, 2018

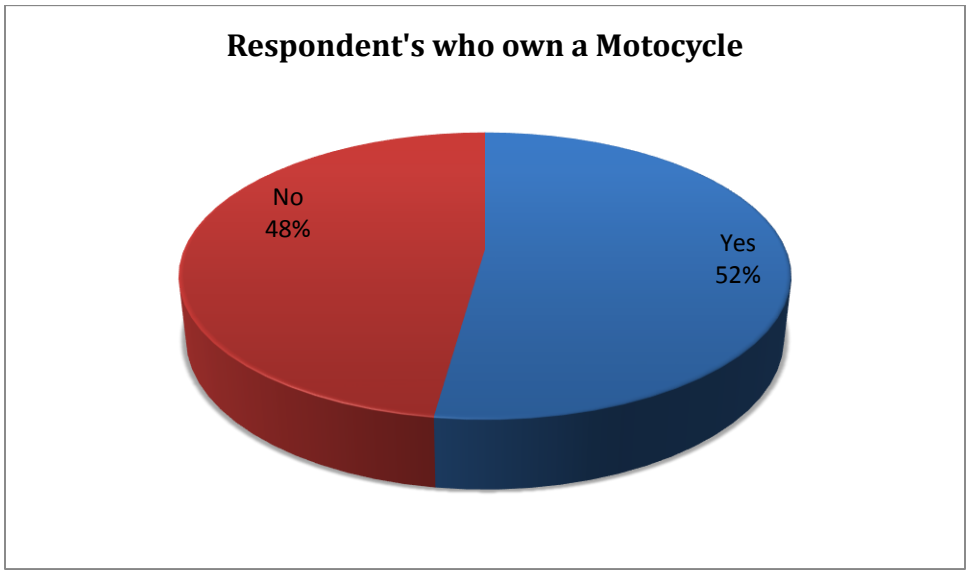
This finding implies that the boda boda industry mostly attracts those with either primary or secondary education. This concurs with other studies on commercial motorcycle operation. For instance, in Nigeria, it was found that 'okada' riders were not an illiterate

group as most people perceive them to be (Mahlstein, 2009). In Kenya, Makhanu (2013) found that the level of education among the riders was higher with primary education and secondary education accounting for 37 and 43 percent respectively. Nyachieo (2015) found out that boda boda riders with secondary and primary levels of education accounted for 50.4 and 43.3percent respectively. Mutiso and Behrens' (2010) study in Kisumu and Nakuru showed that boda boda riders had formal education. This shows that the industry is operated by reasonably educated people. This finding concurs with Kumar (2011) study which also revealed that commercial riders are not an illiterate lot.

4.3.4. Ownership

Ownership is considered a factor that contributes to motorcycle transport safety. The study findings show that slightly more than half (52%) of respondents owned the motorcycles they ride as opposed to 48 percent who either hire or lease the motorcycles they operate as shown in figure 4.6**.**

Figure 4.3: Motorcycle Ownership



Source: Field Data, 2018

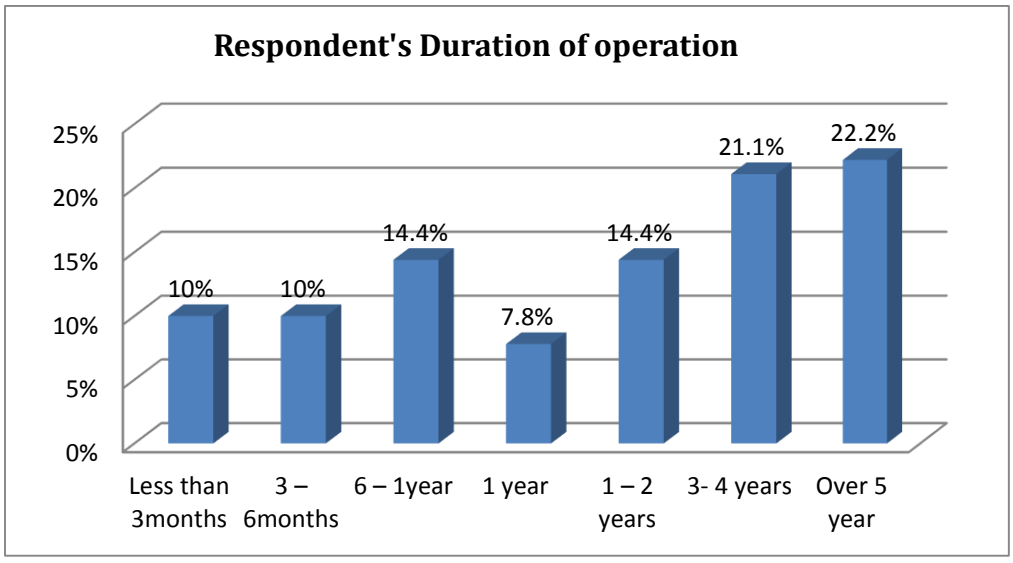
The study further revealed that out of the 48 percent who did not own motorcycle, operated on either leased or hired terms. Those that hired accounted for the majority (47%) while those who leased accounted for 4 percent of riders. Leasing or hiring meant that the rider paid the owners some agreed amount on a daily basis. The cost of leasing or hiring of a

motorcycle ranged between Ksh 300 – 400. The study also found that ownership influences compliance, according to the KII3 riders who owned motorcycles are more willing to acquire safety skills to operate on the road; this is corroborated by Akinlade & Brieger, (2004) who noted that ownership enhances knowledge on road safety and compliance. This is because riders who own motorcycles have the capacity and willing to get formal training.

4.3.4.1 Duration of Operation

Duration of operation refers to experience - this is the number of years that the riders have consistently been in the motorcycle industry, (Makhanu 2015). In terms of operation, a larger percentage (43%) had been in operation for between 1 – 4 years, with one year in operation accounting for 22 percent of respondents, 21 percent for 3-4 years, and 14 percent for 1-2 years as shown on table 4.7. This shows how important the duration of operation is to the safety regulation compliance. These findings are in agreement with the study on trends of public motorcycle accidents in Bungoma (Singoro et al 2016) where inexperience, followed by poor roads and lastly overloading was found to be the leading causes of motorcycle accidents in order of ranking.

Figure 4.4: Duration of Operation



Source: Field Data, 2018

4.3.5. Relationship between ownership and safety compliance

The study sought to investigate the relationship between motorcycle ownership and safety regulation compliance. In response to this, riders perceptions were sought on the relationship between ownership and compliance, the findings in table 4.3 show that 88 percent of those who do not own motorcycle have to work extra hard to meet the daily target for leasing, and to remain with reasonable amount for livelihood. This entails making many trips without concern to safety regulation. This is unlike those who own motorcycle they operate who tend to keep them in good shape as their only source of income, and this pushes them to comply with safety regulations (KII 5, October, 2018). Many of these riders are not able to afford to buy a motor cycle which cost between Kenya shillings 100,000 – 130,000 depending on the model (KII1, October, 2018; KII2 October, 2018). This means that for the riders who hope to one day own a motorcycle must go extra mile to accumulate more money beyond the daily target (KII4, October, 2018). This pushes them to overload and over speed. This was confirmed by the observation made during the study that noted overloading and over speeding during peak hours, more specifically in the late evening when the traffic police manning the roads and NTSA officials in operation are not on site.

Those who own motorcycles are however, very keen on safety regulations. The findings show that 83 percent of the respondents strongly hold the view that owner operated motorcycles tend to be more compliant on the road. Equally, a cross tabulation between motorcycle ownership and possession of a valid riding license in table 4.8 show that majority of the riders, who owned motorcycles have riding licenses; out of the 47 riders who own motorcycles 44 riders trained formally as required by the NTSA regulation; this accounted for 93 percent of riders who own motorcycles and 48 percent of the total population sample studied. This according to the KII5 (NTSA official) and Nyachieo, (2015) is attributed to the need to protect the only source of livelihood, and to the fact that they have the capacity to get formal training (KII5 October, 2018; Nyachieo, 2015).

Table 4.4: Cross tabulation of ownership of motor cycle and having a License

Do you own the motor cycle you ride		Do you have a valid driving license?		Total
		Yes	No	
	Yes	44	3	47
	No	0	43	43
Total		44	46	90

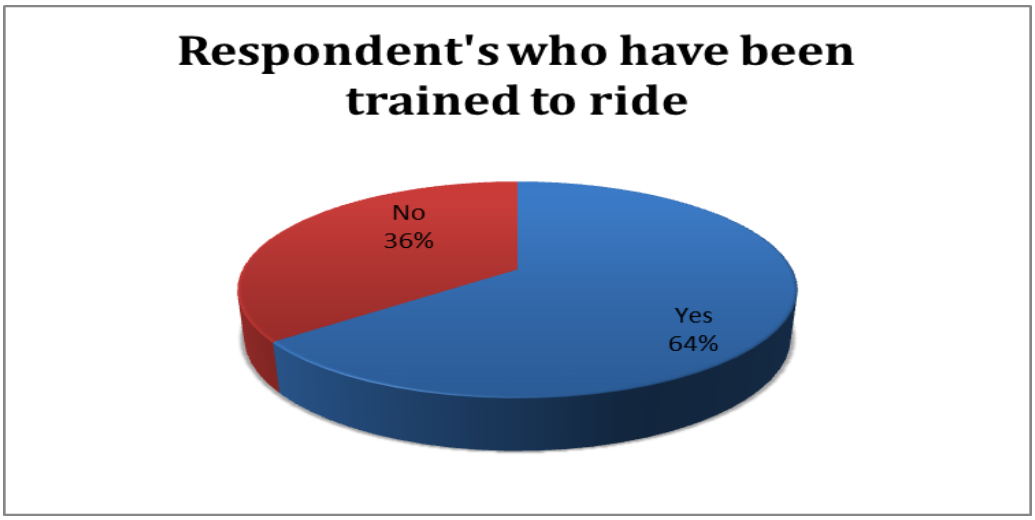
This finding was further supported by the literature where Akinlade & Brieger, (2003) study in Nigeria reported a higher level of keenness on safety regulation among the owner operated motorcycles than non-owner operated motorcycles.

4.4 Effect of Training on Safety Regulation Compliance

Training in the context of this study was formal training as envisaged in NTSA regulation 2015.The indicator for this training is the possession of a valid riding license received upon completion and testing done by the traffic police department. Training is an important element in safety compliance; it helps the operator of a motorcycle with knowledge to effectively operate (Fallis, 2013). Further, training also imparts the rider with the requisite skills to operate on the road bearing in mind safety regulations (Kimotho, 2014).Training is thus a precursor to utmost precaution while operating in the motorcycle industry (Fallis, 2013).

This study sought to investigate whether the boda boda riders received any form of training before operation. Figure 4.9 show that 64percent of the respondents had received training as opposed to 36percent who had not.

Figure 4.5: Training in boda boda riding

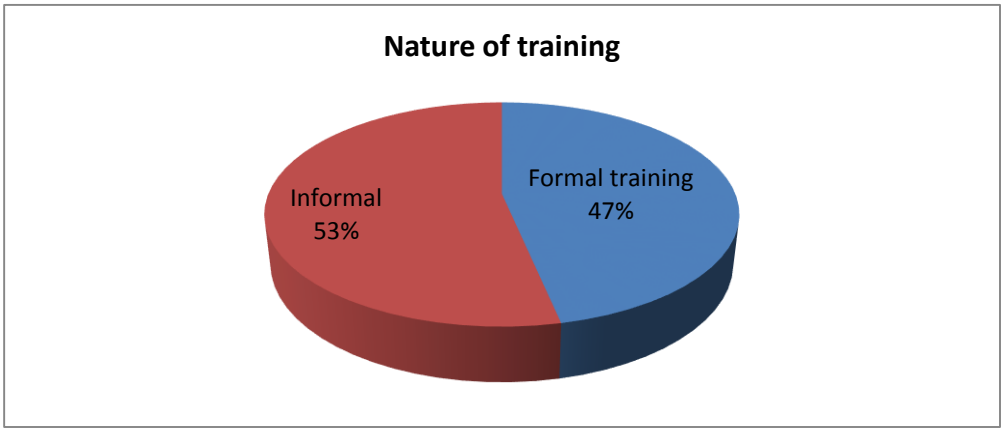


Source: Field Data, 2018

4.4.1. Nature of Training

The boda boda riders received training from various schools both formal and informal. Whereas 64 percent of riders had received training, only 47 percent had trained formally in accordance to NTSA regulation while 53 percent were trained informally as shown in figure 4.10. This explains why only 49 per cent of the riders had a valid riding license, an indicator of training as envisaged by the NTSA motorcycle safety regulations. It can thus be deduced that more than half (53%) of the riders operate illegally in Kisumu City.

Figure 4.6: Nature of Trainings



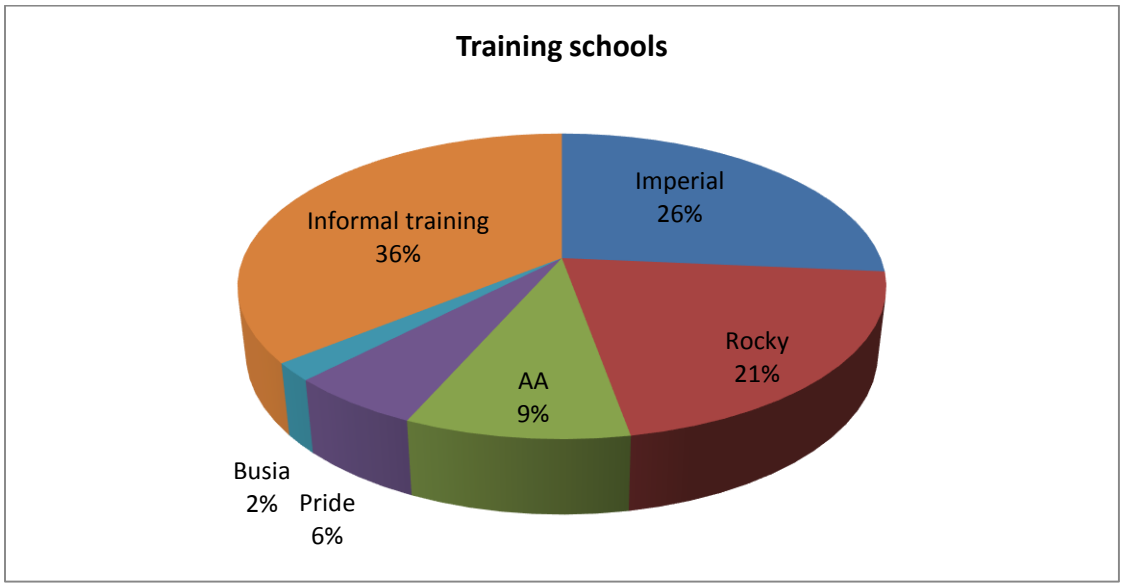
Source: Field Data, 2018

The nature of training affects compliance as revealed in the two types of training. The NTSA regulation considers only formal training which provides valid license to riders after testing is done by the traffic police. However, all riders consider themselves trained irrespective of the nature of training and where the training took place.

The reason for not complying with formal training as a requirement has been attributed to many factors by riders, however, the main factor raised in FGD 1 and further corroborated by KII4 (police officer) from the traffic department in charge of operation was the cost of training. Training cost ksh 8000 inclusive of a valid riding license (KII 4, October, 2018).This explains why only 47 percent adhered to NTSA regulation of formal training against 53 percent that trained informally.

The formal trainings were undertaken in five main training institutions; Rocky driving school, AA driving school, Pride driving school and Busia Border driving school. Of the trained riders, 26 percent received their training in Imperial driving school, 21percent in Rocky, while majority 36 percent trained informally as shown in figure 4.7

Figure 4.7: Riders training school

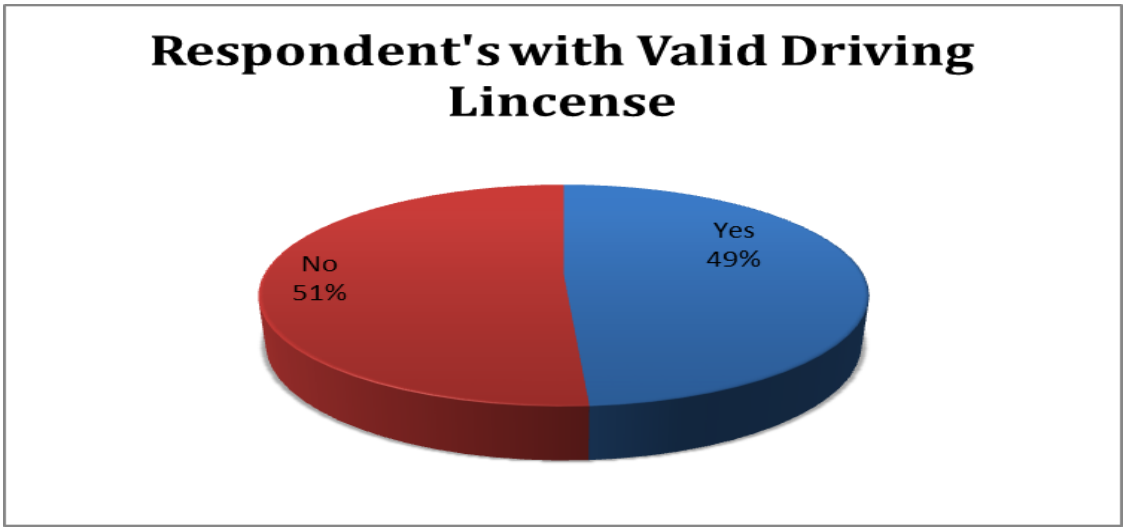


Source: (Field Survey Data, 2018)

4.4.2 Possession of valid riding license

NTSA regulations (Part 3, section 6), direct that no one should operate a motorcycle without a valid driving license. A valid driving license is acquired after one has successfully completed formal motorcycle training (Fallis, 2013). This is expected to mitigate the risk of motorcycle crashes. In trying to establish those who possessed valid driving license among the riders, slightly more than half (51%) of the respondents had no riding license as opposed to 49 percent who had license as shown in figure 4.8.

Figure 4.8: Possession of Valid Riding License



Source: Field Data, 2018

4.4.3 Possession of Riding License by Ward

Out of the 49 per cent of the respondents who were in possession of driving license 20 were from Kondele Ward, and 20 from Milimani Ward, while a very small number were from Railway as shown in table 4.13. The issue of Kondele having more riders with driving licenses yet it is a low income residential area of the city can be attributed to the fact that being a low income residential area, boda boda is the only source of income for most of the riders hence the desire to comply. The regular presence of police officers from the nearby Kondele police station is another aspect driving compliance.

Table 4.5: Cross tabulation of Valid License by Ward

Name of ward		Do you have a valid driving license?		Total
		Yes	No	
	Kondele	24	0	24
	Milimani	20	19	39
	Railway	0	27	27
Total		44	46	90

Source: Field Data, 2018

4.4.4 The Acquisition of Riding License

The riding license is acquired after training, and riders have different channels of training as shown in figure 4.11.The driving schools act as agencies that process license for riders who train with them, however, others especially the informally trained process directly from KRA after formal testing is done by the police. From the findings on the acquisition of the driving licenses, Kondele ward had the majority (23) having been tested by the police and issued with a license from Kenya Revenue Authority while in Milimani 20 riders got their license through their respective driving schools whereas in Railway ward very few had riding licenses. However, there were a few instances where riders were sponsored by the county government and the CDF office to acquire riding licenses as indicated in the table 4.6

Table 4.6 Cross tabulation of mode of license acquisition by Ward

Name of ward		If yes, how did you acquire the driving license			
		Tested by the police and issued with a License at KRA/NTSA	Riding license issued by the driving school	Sponsored by the county government and issued with a license	Sponsored by CDF and issued with a license
	Kondele	23	1	0	0
	Milimani	0	20	2	1
	Railway	0	0	0	0
Total		23	21	2	1

Those who possessed riding licenses after going through the training noted that it equipped them with the needed safety regulations in form of being able to observe traffic rules and road signs. A few others indicated that it equipped them with the ability to provide maintenance services of the motorcycles, while others noted that it enabled them to operate their business in a disciplined manner without indulging in drug abuse. To others training did not help in anyway, as indicated in table 4.15.

Table 4.7: Cross tabulation of possession of riding license and knowledge on safety

Do you have a valid driving license?	How has the training equipped you with the needed safety regulation measures			
	Observe Traffic rules and road signs	Maintenance of the Motorcycle	Discipline riding without influence of drugs	Training did not help
Yes	44	0	0	0
No	14	3	2	5
Total	58	3	2	5

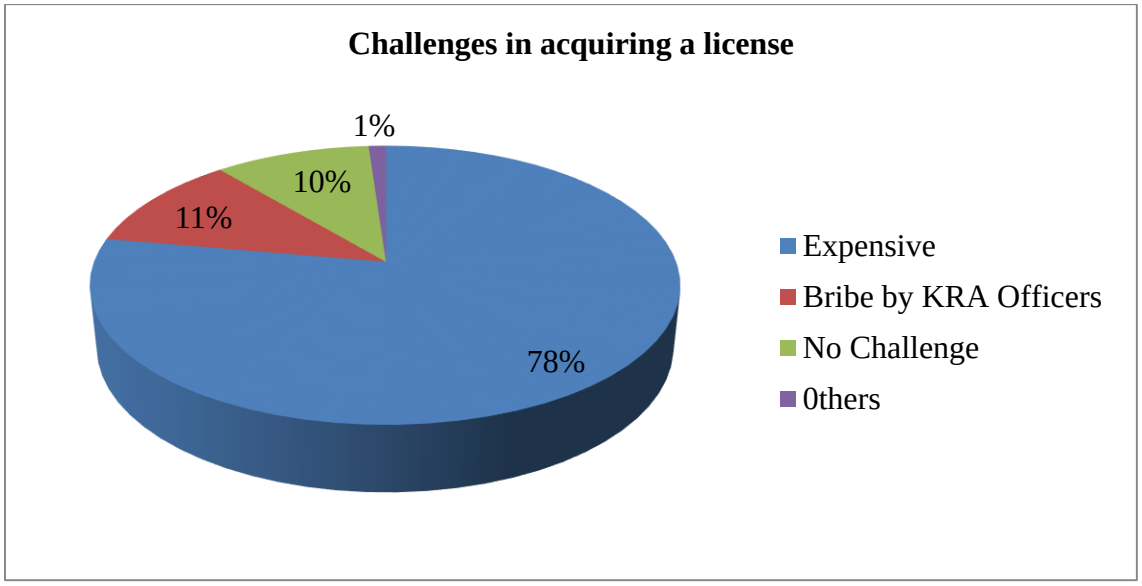
Source: Field Data, 2018

4.4.5 Challenges in Acquiring a Riding License

The acquisition of a license has a cost and processing related concerns. The findings indicate that majority (78%) of the respondents attributed their challenge in acquisition to the high cost of license, 11percent attributed it to corruption of KRA Officers, while 10 percent had no challenge in acquiring the riding license as shown in figure 4.16. According to KII5, the cost of acquiring a permanent license is ksh 3,050 which can be renewed within three years while the interim license cost ksh 750. However, due to the ongoing transition on license processing that is set to do away with the interim license; the NTSA has stopped issuing permanent license (KII5, October, 2018).This was further corroborated by the KII1 (riders ward chairman) who argued that most riders especially the non-owners find the process of the acquisition to be expensive - only those who have gone for formal training

get the license on time because the fee is inclusive (KII1 October, 2018). The informally trained and those who have trained in unregistered schools take long time to get the license, some have waited for a year, and this has made them victims of the corrupt traffic and KRA officers (KII4 October, 2018).

Figure 4.9: Challenges of Acquiring Riding License



Source: Field Data, 2018

4.4.6 Training and safety compliance

The literature provides a strong link between training and compliance. The study therefore, tried to establish the contribution of training to riders' level of compliance. The study found out that training had indeed equipped the riders with safety knowledge to operate (KII 5 October, 2018). Further, across tabulation between possession of riding license and the contribution of training to rider safety knowledge (table 4.15) shows that all the 44 riders who possessed valid riding license had been equipped with requisite knowledge to observe traffic rules and road signs. This was in line with KII2, who noted that training is the way to ensure compliance among riders (KII2 October, 2018); it was further corroborated by Kimotho, (2014) and Fallis, (2013) who found that only training equips the rider with the required knowledge to effectively operate safely on the road

4.4.7 How Training affect Safety Regulation Compliance

This objective sought to establish the effect of training and none training to safety regulation compliance among the boda boda riders. The study found out that those who had trained in accordance to NTSA regulations of 2015 accounted for 47 percent as opposed to 53percent who had not. In spite of the score being below average, it was a slight improvement from previous studies that recorded low level of training among the riders, for instance, Fallis (2013) found out low level of training among riders at 33 percent, Nyachieo(2015) noted only 38percent of riders had received formal training while Mbugua (2011) recorded 38 percent formal training.

Regarding the perception on the effect on compliance, this study found out that 90 percent of respondents agreed that formal training was an important factor in the reduction of motorcycle accidents as opposed to 10 percent of the respondents who thought otherwise (figure 4.18). This position was supported by the KII4, who noted few indiscipline cases in terms of safety regulations among the trained riders while on the road as opposed to the untrained riders (KII 4, October, 2018). This shows that although compliance is still not fully embraced by all riders, there is a direct effect of training on safety regulation compliance.

Table 4.8: Effect of training and non-training to safety compliance

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
Formal motorcycle training is one of the most important factors in the reduction of motorcycle accidents.	2%	8%		36%	54%
Most of the boda boda riders have not undergone formal training on motorcycle riding.	4%	7%		38%	51%
Lack of training is a major contributor to motorcycle related accidents.	9%	9%		34%	47%
Most of the boda boda riders do not have riding licenses and are therefore ignorant of road rules and compliance requirements.	7%	9%		33%	51%
Lack of training on the part of riders has led to the occurrence of many accidents, injuries and loss of lives.	4%	12%		37%	46%

When asked about training and its relationship with motorcycle associated accidents, a majority (83%) of the respondents held the view that lack of training on the part of boda boda riders has led to many accidents, injuries and loss of lives in Kisumu City. This is because formal training provides the rider with basic knowledge on road safety over and above just knowing how to ride. This was further corroborated by KII4, who observed that training gives the rider an opportunity not only to ensure safety of other road users, but also basic skills to ensure own safety as a rider while operating (KII 4, October, 2018).This position is also supported by literature in which Kimotho (2014) posited that training imparts the rider with requisite skills to operate on public roads. According to KII 5, lack of training has led to many fatalities and deaths in Kisumu City to the extent that a special ward for boda victims has been set at the Jaramogi Oginga Odinga Hospital in Kisumu (KII 5 October, 2018). To ensure the reduction of the motorcycle related accidents, riders must get training and pass skills tests which include observing the speed limit, maneuvering corners and also adhering to road signs (Kitimo, Cherono, Munene & Odunga, 2010). However, this is not the case as the study found out from KII5 that most riders informally train for a day by their ill trained colleagues leading to accidents (K11 5 October, 2018). Equally, majority (84%) of respondents held the view that riders who never had a riding license were ignorant of the road safety rules and compliance requirements while a majority (81%) held the view that lack of training is a precursor to motorcycle related accidents.

4.5 Safety Regulation Compliance among the Trained and Untrained boda boda Riders.

The study sought to establish the level of compliance among the trained and the untrained boda boda riders. The study found out high level of compliance among the trained riders, the majority of them possessed a valid riding license as opposed to those who had no training. A majority (83%) of the respondents strongly agreed that most of the boda boda riders often disregard traffic rules and signs and are therefore, prone to accidents. This was further supported by KII5 from the National Transport Safety Authority who attributed motorcycle associated accidents to failure by riders to uphold basic safety rules while on the road. This was noted to have eroded levels of compliance especially among the

untrained riders. A further 85 per cent of the respondents held the view that lack of training leads to ignorance of road traffic rules and signs as expected of all boda boda riders.

The research also revealed that formal training impart the relevant safety knowledge over and above knowing how to ride, and this makes the formally trained riders to be more cautious than the untrained. Across tabulation in table 4.15 showed that training instills safety skills to riders which result in high compliance and minimal motorcycle associated fatalities among the formally trained. Equally, the study found out from a key informant (KII3) who was the chairman of riders in Milimani ward that training enables riders to realize how important the use of safety gears and reflector jackets are to their health while on the road. (KII 3 October, 2018).

According to Kenya Traffic Act, both the rider and the passenger are required to wear protective helmet as one way of ensuring safety. However, the observation made during the study revealed otherwise. When asked their perception on the safety precaution regarding the protective gears, an overwhelming majority (94%) irrespective of whether trained or not often did not take safety precautions like wearing helmets seriously. Another 67 percent of riders also agreed to the assertion that most riders never took safety precautions like wearing heavy jackets as expected of them in their daily operation. These facts were further elaborated by KII3 noting that riders are beholden to serve the interest of their clients most of whom do not like using helmets due to the hot weather in Kisumu Passengers especially ladies would rather use a different rider if forced to use reflector jackets claiming it was not hygienic. The riders also cited carrying two helmets as burdensome as they have no space; this shows the level of laxity even on the part of the trained boda boda. Whereas this position by the riders has weight, helmet cannot be abandoned at the expense of safety, other ways of enforcing this regulation can be devised such as the use disposable head caps inserted in helmets.

Overloading has been viewed as a major cause of accidents among riders, however, the study found out that irrespective of the training, majority (90%) of the respondents felt that

riders more often do not take safety precaution like overloading as expected of them. This has been attributed to the need to make more money (KII4, October, 2018). The FGDs revealed that, the core business for riders is to make money to meet their daily needs; this has led riders to operate without minding safety rules, thus operating beyond one rider one passenger per trip requirement as provided in the NTSA regulations. The findings of this study show that only 47 percent of riders have been trained, this explains why overloading is an issue among majority riders because as KII4 posits formal training goes beyond knowing how to ride; it equips riders with basic safety knowledge (KII4 October, 2018).

The NTSA regulation requires all riders to have a valid riding license, put on reflector jackets, putting on headlights during the day and to insure their motorcycles. However, the study findings were to the contrary, as 97percent of the respondents agreed strongly that most of the boda boda riders did not have a riding license as opposed to 3 percent who did not agree to the same. The study also found out that more than half (58%) of the respondents held the view that most boda boda riders do not put on reflector jackets while in operation, those who thought otherwise accounted for 44percent. This finding was further corroborated by the observation made during the study where riders were riding without reflector jackets as required by the NTSA regulation. From the observation, out of the 14 motorcyclists observed at a random interval during peak and off peak hours, 50 percent had put on reflector jackets during peak hours as opposed to 31percent of the riders who did not, while 19 percent of the riders observed did not have reflector jackets during off peak hours. This can be attributed to the heavy presence of law enforcers during peak hours which force riders to comply as compared to off peak hours when enforcement officers are few or absent.

Whereas non-compliance by untrained riders can be understood in the context of lack of safety skills that come with training, that of trained riders is worrying and raises questions on the content of training. According to KII5 (NTSA official), most riders go for formal training to get a license which cushions them from police harassment (KII5 October, 2018).

On the issue of putting on headlights during the day, overwhelming majority (80%) of the respondents agreed that riders more often do not put on headlights during the day as a safety precaution while only 20 percent noted that they put on headlights. This was corroborated by findings from observation using checklist for observation. It was observed that 69 percent of the riders did put on their headlights during the day, a sign that majority were aware of the requirement as an indicator of safety.

The study also found that untrained riders do not see the need of formal training, which they see as theory, due to their assumed experience on the road. The regulation require every motorcycle to have a third party insurance cover, however, as it emerged from the FGD 2, riders argued that they do not comply to the third party insurance requirement as it was meant to benefit owners of motor cycles during accident and not riders, who largely operate leased motorcycles. This was a wrong perception, as insurance cover is meant for all users even third parties in case of an accident or theft.

4.6 Operational Challenges faced by boda boda Riders

The study also sought to establish operational challenges if any that boda boda riders face in the cause of their daily operation. The operational challenges established were; motorcycle theft, killing of the riders, and lack of mutual understanding with the matatu operators. Other challenges were; harassment by the police and poor law enforcement by the police and NTSA on non-compliance of most riders. The findings further reveal that there are too many boda boda operators in Kisumu most of whom lack formal training. The road infrastructure in Kisumu and in Kenya generally do not have designated drop off and picking points for the commercial boda boda operation. This coupled with narrow roads has created tensions between boda boda riders and the matatu drivers operating in Kisumu City as they compete for drop off and picking points.

The riders also felt the need of a designated lane for motor cycles. However, studies have shown that though this may segregate motorcycles from vehicles and reduce collusions it may not work (Institute for Transportation and Development Policy, 2009), the challenge would be how many riders would use the same lanes. According to Global Road Safety Partnership (2013), motorcycle segregated lanes reduced the rate of crashes by 39 percent

in Malaysia by allowing riders to comfortably do overtaking maneuvers. In Brazil however, it did not reduce accidents because pedestrian were not trained to cross the road in the correct places and were hit by motorcyclist often, some of motorcyclists were not keen to use these lanes during peak hours. It thus follows that segregated lanes per se cannot enhance compliance on motorcycle industry, unless there is an integrated awareness among all the road users, besides the cost of putting up segregated lanes is very expensive (ITDP, 2009) in a developing country like Kenya where motorcycle as a means of transport is increasing by the day this may not be realistic.

4.6.1. Challenges in Complying with the NTSA Safety Regulations

The National transport and Safety Authority is the institution charged with ensuring road safety and compliance in the motorcycle industry, the study therefore sought to establish the challenges that riders encounter in complying with the safety regulations in their daily operation. The study found out the following challenges; refusal by customers to comply with the laws, for instance some riders still insist on overloading, arbitrary police arrest and demand for ksh 10,000. This was confirmed by the KII2 (riders ward chairman) who further argued that no rider would want to pay the ksh 20,000 fine or spend six months in prison; this is exploited by the enforcement officers to demand as much ksh 10,000 or more to secure a rider's freedom (KII2 October, 2018).

The high cost of purchasing helmet and reflector Jackets was yet another challenge contributing to non-compliance among riders. The study further found out from the KII2(riders ward chairman) that the major distributor of motorcycles in Kisumu is a Chinese company that sells motorcycles with only one helmet, other riders put helmet to personal use while for those have two helmets are required have gone as far as selling the extra helmet. These leaves riders with one helmet only which is against the regulation that requires two helmets at any time, one for the rider and the other for a passenger in order to comply with the law. Another challenge was customers who do not like helmets citing it as is unhygienic.

In terms of training institutions for the motorcycle riders, it emerged from the FGDs that there is no training school operated by the NTSA. This has made most riders resort to self-training and non-registered training schools to learn how to ride. This was confirmed by the KII5 (NTSA official) who held the same view that NTSA is yet to have own training institutions. However, the officer further elaborated that NTSA in the mean-time has approved the driving schools that have been in existence in the City such as Imperial, AA, and Pride and Rocky driving schools; these institutions use curriculum developed by the NTSA (KII5 October, 2018).

4.6.2 Chapter Summary

This chapter has discussed the study findings in line with the study objectives, which included: establishing the socio-economic characteristics of the boda boda riders; assessing the effect of training and non-training to safety regulation and compliance, and examining the extent of safety regulation compliance among the trained and untrained riders in Kisumu Central Sub County. The socio-economic characteristics indicate that majority of riders are male aged between 25-35 years. Most of the riders had attained primary school education, followed by those with secondary education. Half of respondents owned the motorcycles with 47 per cent possessing valid riding license, while 47 percent of the riders had received formal training as compared to 53 percent who trained informally.

In respect to the effect of training and none training to safety and compliance, the study found formal training as the most important factor in the reduction of motorcycle accidents. Most of the boda boda riders were found to often disregard traffic rules and signs and being prone to accidents.

On compliance among the trained and untrained riders, the study found out that most of the trained riders comply with safety regulations. All the formally trained riders possessed a valid riding license which was an indicator of compliance. Furthermore, most of the riders were complying with traffic rules mainly during peak and not during off peak hours.
In terms of challenges, lack of formal motorcycle training was one of the major causes of motorcycle accidents. There were also operational challenges which included: motorcycle

theft and killing of the riders; lack of mutual understanding with the matatu operators, stiff competition due to numbers and harassment by police, as well as lack of drop off and picking points for riders

CHAPTER FIVE

SUMMARY CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter draws conclusions and recommendations based on the research findings in line with research objectives. The discussion nuances literature review with research findings in order to inform recommendations and further research. The study findings are significant to the riders, NTSA, and to the road users in general and are expected to play critical role in contributing to compliance to road safety rules and reduction of road accidents.

5.2 Summary of Findings

The main purpose of this study was to establish how training of boda boda riders affect compliance and non-compliance with road safety rules and regulations in Kisumu Central Sub County. The study was guided by the following research objectives: to establish the socio-economic characteristics of boda boda riders ; to assess the effect of training and non-training to safety regulation compliance ; and to examine the extent of safety regulation compliance among the trained and untrained riders in Kisumu Central Sub County.

The study used descriptive research design and targeted 90 boda boda respondents from three bases in Kisumu Central Ward namely: Railway, Kondele and Milimani. Survey questionnaire, FGDs KII, and observation tools were employed for data collection, while social science analysis software (SPSS) was used for analysing responses from questionnaires, and the data generated by SPSS presented through charts, frequency tables and cross tabulations.

5.2.1: Socio-economic characteristics of boda boda riders

In addressing the first research objective which was to to establish the socio-economic characteristics of boda boda riders in Kisumu Central Sub County.The socio economic characteristics included gender, age, education, ownership and number of years in operation.

In terms of gender, majority of riders in Kisumu are male aged between 25 - 45 years with 25 -35 years accounting for over half of the respondents interviewed. This is an indication that most of the commercial boda boda riders in the motorcycle industry are largely youth. The riders are also literate, over 80 percent had primary and secondary education. This confirms the fact that boda boda riders are not illiterate school drop-outs as often alleged by the public.

There was also a direct relationship between socio-economic characteristics and safety rules and regulations. Age of the riders plays an important role in safety compliance. Most young riders get involved in motorcycle related accidents. Reckless riding and over-speeding is also a problem among young riders who like to experiment with the machine. With regards to ownership, slightly more than half (52%) of respondents owned the motorcycles they rode as opposed to 49 percent who either hire or lease the motorcycles they are operating. Those hiring are the majority, while those leasing are a paltry 4 per cent. The cost of leasing or hiring of a motorcycle ranges between Ksh 300 – 400 per day. The owner operated motorcycles are very compliant to safety rules; nearly all the owner operated riders have valid riding license. It would be prudent to have more owner operated motorcycles as this will guarantee training thereby enhancing safety regulation compliance

5.2.2 Effect of training and non-training to safety regulation compliance

The study found out that only 49 percent of the respondents had a valid riding license as compared to the majority (51%) who did not have. The mode of license acquisition was through formal testing by the police and issuance of license by KRA. There were riders whose license were processed through the driving schools while others processed directly from KRA after testing by police following their various means of training. Slightly over half of the respondents had informal training while close to half of the respondents had formal training. Consequently, training was found to have a direct effect on the safety rules and regulations. On license acquisition, the study found the cost and process to be expensive to the rider as the permanent one cost ksh 3,050 while interim cost ksh 750,(KII5, October, 2018), However, currently the permanent license are not issued due to the ongoing transition on the license processing that is set do away with the interim license at

NTSA. The acquisition of license is therefore very fast for those who trained formally since riders pay the training fee that is inclusive of testing and licensing, the school then facilitates the license processing for their trainees in a pool. However, it is expensive for the informally trained as individual processing of license is burdensome. It takes months of waiting sometimes a year while renewal must be done yearly.

Majority of the respondents operated without a license, and their experience included; Fear of being arrested by police in case of an accident even if not on the wrong side of the law, fear of demand for bribes by the police officers and lastly the fear of missing out on the benefits set up for riders such as Sacco loans due to lack of a license

5.2.3. Extent of safety regulation compliance among the trained and untrained riders

An overwhelming majority of the respondents were in agreement that formal training is one of the most important factors in the reduction of motorcycle accidents. However, majority of the riders have not had any formal training on motorcycle riding. Equally, majority riders held the view that lack of training was a major contributor to motorcycle related accidents. Furthermore, most of the riders with no riding license were ignorant of the road safety rules and compliance requirements and persistently kept on breaking the road rules and regulations.

5.2.3.1 Safety regulation compliance among the trained and untrained boda boda riders

The findings established higher level of compliance among the trained riders. Majority of the respondents strongly agreed that most of the riders often disregard traffic rules and are prone to accidents, an outcome attributed to lack of formal training which further results in ignorance of road traffic rules and signs.

The findings further revealed that both riders whether trained or not often did not take safety precautions like wearing helmets, heavy jackets, putting on headlights during the day and also insuring their motorcycles as provided for in law and regulations. Besides,

overloading had become a norm and therefore a major contributor of accidents among riders.

5.2.3.2 Operational challenges faced by boda boda rider besides safety

Challenges in the motor cycle sector include motorcycle theft and killing of the riders; lack of understanding between the matatu and boda boda operators; harassment by traffic police officers and some customers who insist on overloading, and not willing to put on protective gears as provided by law. The riders also raised concerns with lack of designated lanes for motorcycles; however, a critical look at this concern show that it is not realistic in Kenya where motorcycle as a means of transport is increasing by the day. In developed economies like Brazil it did not reduce accident except for cases where there was an integrated awareness programme among all the road users in addition to the cost of putting up segregated lanes is very expensive (ITDP, 2009)

5.2.3.3 Challenges in complying with the NTSA Safety Regulations

The National transport and Safety Authority is the institution charged with ensuring road safety and compliance in the motorcycle industry, the study therefore sought to establish the challenges that riders encounter in complying with the safety regulations in their daily operations. The study findings brought out the challenges to include; lack of NTSA own accredited training institutions for motorcycle riders, refusal by customers to comply with the laws, for instance some insist on overloading, not putting up helmet and reflector jackets citing hygienic reasons. There is also arbitrary police arrest and demand for bribes to secure freedom outside court; insurance cover policy is also very expensive for the riders, and even if some riders comply many others do not. The high cost of purchasing helmets and reflector jackets was yet another challenge.

5.3. Conclusion

The study sought to establish compliance from three main areas, one was the social – economic characteristics of riders, training and none training among the riders and compliance among the trained and untrained. The study concludes that socio-economic factors such as age, education and ownership directly influence riders' decision about

training. This finding has a significant bearing on safety regulation compliance. The study also concludes that formal training is a precursor to safety regulation compliance. It is the only way through which sanity can be restored in motorcycle industry. However, it must be understood that safety goes beyond learning. It provides an opportunity for the rider not only to acquire the requisite skills and knowledge to operate on the road, but to also learn to uphold safety principles while in operation. The study concludes further, that riders who are formally trained and subsequently issued with valid license as provided by NTSA can fully comply with provisions of the safety regulations. Since majority of the riders' are poor young primary school leavers, the government need to build well equipped, affordable and accessible training schools for them to get training.

5.4 Recommendations

In order to improve safety regulations and compliance among the boda boda riders, the study recommends the need for the county government to designate clearly marked pick-up and drop-off points to help reduce confusion between the boda boda riders and the matatu operators. The NTSA and the traffic police should also move with speed to improve on the enforcement measure to ensure only trained riders in possession of riding license operate on public roads. This regulation enforcement must be extended to those who lease their motorcycle, and also motorists in general.

The study also recommends that police oversight authority to apply its powers under Article 244 of the Constitution of enhancing professionalism and discipline in promoting transparency and accountability in the police service to reign on corrupt officers. This will help address wanton extortion in the motorcycle transport industry. There is need for awareness creation among the riders on the benefit of compliance. The riders need to understand that compliance is not only meant to secure the safety of road users but also the riders themselves. In the developed countries, the NoSweat Helmet Absorbing Liners have been used by golf players, and mountain climbers, though they may be expensive, the NTSA can devise such disposable helmet liners which are affordable, or the anti-bacterial helmet cleaner be made available to all motorcycle riders, this will not only encourage

adherence to regulations but will also address the hygienic concerns raised by the public for not complying.

On the cost of training, the NTSA need to liaise with the approved training schools to make the cost affordable since riders only train for just three weeks. The study further recommends NTSA to build accredited training schools, and make them accessible and affordable for riders to formally train as required by law. The county government of Kisumu should liaise with the national government to provide security to help protect the riders and to reduce motorcycle theft. The county government needs to put street lights in all corners of the city to ensure the security for both the passengers and riders operating at night. Lastly, to streamline the motorcycle industry, there is need to strengthen the use of SACCOS which is very passive at the moment, the riders only use bases as their management unit while many operators are not registered in any base. The use of SACCOS, as it is in the matatu industry, if well managed can assist in efficient management of the industry.

5.5.1 Areas for further research

The findings show that passengers who are the public forces riders to over speed to reach their destination on time, some also refuse to put on helmet and safety jackets, the study recommends further research to be undertaken to establish the role of the public (read passengers) on safety compliance in the boda boda motorcycle industry.

The study also found low compliance amongst the riders who leased or hired motorcycle they operated with regard to third party insurance policy regulation requirement, the study therefore, recommend a further research on owners who lease their motorcycles to help unravel the reason for non-compliance with regards to third party insurance policy.

REFERENCES

ACEM (2006). Motorcycle Industry in Europe Report

Adedamola et al (2013).Central European Journal of Engineering Urban transport safety assessment in Akure based on corresponding performance indicators Research Article. (2013), *3*(1), 113–114. https://doi.org/10.2478/s13531-012-0043-z

Afukaar, F. (2009). Motorcycle Safety in Ghana: Efforts, Experiences and Challenges.Retrieved http://www.rtirn.net/PDFs/Motorcycle on 20/03/2013

Agnew, R. (1992). Foundation for a general strain theory of crime and delinquency. Criminology, 30, 47-87. Retrieved from: http://web.b.ebscohost.com/ehost/detail/detail?vid=25&sid=ff0e22b2-18df-49fa-b810
7798352a5bc%40sessionmgr198&hid=118&bdata=JnNpdGU9ZWhvc3QtbGl2ZQ%3d %3d#db=a9h&AN=9203301138

Ajzen, I. (2006). Constructing a TpB questionnaire: Conceptual and methodological considerations: brief description of the theory of planned behavior. Available http://www. people.umass.edu/aizen/pdf/tpb.measurement.pdf

Alai, M. The Star, July 15, 2013

Akilande & Brieger (2003). Motorcycle Taxis & road safety in South West Nigeria

Beenstock & Gafni, 2000

Björklund, G. & Åberg, L. (2005). Driver behaviour in intersections: Formal and informal traffic rules. Transportation research Part F. Traffic Psychology and Behaviour, 8(3): 239–53.

Blanton, H., Köblitz, A. & McCaul, K. (2008). Misperceptions about norm misperceptions: Descriptive, injunctive, and affective 'social norming' efforts to change health behaviors. Journal of Social and Personality Psychology Compass, 2(3): 1379–99.

Bryman, A. and Bell, E. (2003) Business Research Methods. Oxford University Press, Oxford.

Chepchieng', Dorothy & Sabina (2012).The influence of urban transport policy on the growth of motorcycle and tricycle in Kenya

Chitere, P. O. (2006). Public Service Vehicle Drivers in Kenya; Their Characteristics and Compliance with Traffic Regulations and Prospects for the Future.IPAR Discussion

paper no-081/2006. Nairobi: Institute of Policy Analysis and Research

Cervero, R. (2000). Informal transport in the developing world, Kenya, Nairobi: UNCHS.

Clarke. D, Ward. P, Bartle. C. and Truman.W. (2004). Road Safety Research Report No. 54. In-depth Study of Motorcycle Accidents. School of Psychology University of Nottingham. Department for Transport: London

DETR (2000).Tomorrow's Roads- Safer for Everyone: The Government's road safety strategy and casualty reduction target for 2010. DETR re- port 2000. London: HMSO.

Dey, I (1993).Qualitative data analysis.A user – friendly guide for social scientists. Routledge.

Elvik, R. (2004), "To what extent can theory account for the findings of road safety? Accident Analysis & Prevention, 36, 841-849.

European Commission (2011), Towards a European road safety area, Policy orientations on road safety, 2011-2020, European Commission, Brussels.

Fallis, A. . (2013). Assessing the Training and Safety Status of Motorcycle Transportation in Kakamega County in Kenya Theobald. *Journal of Chemical Information and Modeling*, *53*(9), 1689–1699. https://doi.org/10.1017/CBO9781107415324.004

Germeni, E., Lionis, C., Davou, B., & Petridou, E. (2009). Understanding reasons for Non-Compliance in Motorcycle Helmet use among Adolescents in Greece. 4th Feb 2009 Retrieved from: Injuryprevention.bmj.com

Global status report on road safety 2016. Geneva: World Health Organization; 2016.

Haworth, N. (2012), "Powered two-wheelers in a changing world: challenges and opportunities, Accident Analysis & Prevention, 44(1), 12-18.

Hurt, H. H., Quellet, J. V., & Thom, D. R. (1981). Motorcycle Accident Cause Factors and Identification of Countermeasures, Vol 1: technical Report. Contact No DOT HS-5-01160. Los Angeles: Traffic Safety Centre, University of Southern California.

ITF (2017), Road Safety Annual Report 2017, OECD Publishing, Paris.http://dx.doi.org/10.1787/irtad-2017-en

Kayi, C. (2007). An analysis of road traffic accidents using Geographic Information Systems (GIS): A case of Nairobi city, Kenya, Verlag publishers. Hamburg.

Kimwetich, C. J., Kyalo, D.N &Mulwa A. S. (2012) The influence of urban transport policy on the growth of motorcycles and tricycles in Kenya. University of Nairobi

Kimotho, S. (2014). Factors Influencing Safety of Motorcycle Riders in Kenya; A Case of Runyenjes Municipality. *Journal of Humanities*, *2*(1), 84–95.

Kisaalita W. and Kibalama J.S, 2007. Delivery of urban Transport in developing countries: the case for the motorcycle taxi service ("boda boda") operators in Kampala. Development Bank Southern Africa vol.24, No.2 June 2007.

Kitimo, Cherono,Odunga, Munene & Mulanda(2010). Boda Boda Carnage. Daily Nation, Sunday, October, 3,2010

Kothari,C.R. (2007).Research Methodology: Methods and techniques. New Delhi: New age international publishers.

Kulanthayan, S., Umar R. S., Hariza H. A., & Nasir M. T, Harwant S., (2000). Compliance of proper safety helmet usage in motorcyclists.Medical Journal of Malaysia. 55(1), 40–44.

Lacroix & Silrock, D. (n.d.). Urban Road Safety. *Intelligent Transport Systems*. Retrieved from http://www.sutp.org/index.php/component/phocadownload/category/49-5b?download=97:5b-urs-en

Lang'at, P.(2017). NTSA Blames Boda Boda Accidents on impunity. Daily Nation, Tuesday, February, 28,2017

Levin & Milgrom (2004). Introduction to choice theory.

Le & Nurhidayati (2016). A study of motorcycle lane design in Some Asian countries. *Procedia Engineering*, *142*, 291–297. https://doi.org/10.1016/j.proeng.2016.02.044.

Lee, C., Geisner, I., Lewis, M., Neighbors, C. & Larimer, M. 2007. Social motives and the interaction between descriptive and injunctive norms in college student drinking. Journal of Studies on Alcohol and Drugs, 68(5): 714–21.

Lewis, D. and Fred W. (2009).Policy and planning as public choice; Mass transit in the United States. U.S.A: Brookfield, Ashgate

Luchidio, M. (2015). Assessing the training and safety status of motorcycle transportation in Kakamega County in Kenya.

Mahlstein, M. (2009). Shaping and being shaped. The regulation of commercial motorcycle operation and social change in Calabar, Nigeria. MA Thesis, Basel, Univ. of Basel, Institute of Social Anthropology

Matheka, D. M., Omar, F. A., Kipsaina, C., & Witte, J. (2015). Road traffic injuries in

Kenya: A survey of commercial motorcycle drivers. *Pan African Medical Journal*, *21*. https://doi.org/10.11604/pamj.2015.21.17.5646

Merton, R. K. (1938). Social Structure and Anomie. American Sociological Review, 3, 672-682.Retrievedfrom:http://web.b.ebscohost.com/ehost/detail?sid=fa75ec09-d429-47a4 88220b570effe4ad%40sessionmgr115&vid=0&hid=118&bdata=JnNpdGU9ZWhvc3QtbGI2Z%3d#db=sin&AN=12781867.

Moraa, G., & Nyachieo, M. (2015). No Title, (June).

Motorcycle Safety and Transport Policy Framework (2016). Third edition,

Mugenda, O., & Mugenda, A. (2003).*Research Methods:* Qualitative and Quantitative Approaches. Nairobi: Acts Press

Nyachieo, G. M. M. (2012). Creating employment through transport; the youth and motorcycle (boda boda) in Kitengela, Kajiado county Kenya. Research journal in organizational psychology and educational studies (RJOPE) volume 2 number 4: 154-157

OECD/ITF (2008), Towards Zero – Ambitious Road Safety Targets and the Safe System Approach, Paris: OECD Publishing, Paris, http://dx.doi.org/10.1787/9789282101964-en.

Oyesiku, O. K. (n.d.). Policy framework for urban motorcycle public transport system in Nigerian cities, 1–7.

Obbo O.Daily Nation, 2012

Odera, W (2009). Motorcycle Injuries in East Africa, RTIRN Regional Workshop, Accra, Ghana.

Oduor, A. (2011). Road safety training plan to help curb accidents among motorcycles riders and passengers, The Standard, Saturday February5

Oster, C.V. and Strong, J.S. (2013). Analyzing Road Safety in the United States, Research in transport economics 43, 2013, pp.98-111

Pachalin, M (2016). Pedestrian Demographic and Perception of road traffic injury Risk on Thika Highway.

Pardo, Carlos F, 2010; Shanghai Manual: A Guide for Sustainable Urban Development in the 21st Century.

Pucher, J. Peng, Z. Mittal, N. Zhu, Y. and Korattyswaroopam, N. (2007). Urban Transport Trends and Policies in China and India: Impact of Rapid Economic Growth, Transport Reviews, (27)4, 2007, pp.379-410

Rutter, D.R. & Quine, L. (1996); Age and experience in motorcycle safety. Accident Analysis and Prevention, 28 (1), 15–21.

Scale, T. H. E., & The, O. F. (2000). Urban transport safety and security, (Gomez), 65–76.

Shinar, D. (2012), "Safety and mobility of vulnerable road users: pedestrians, bicyclists, and motorcyclists, Accident Analysis & Prevention, 44(1), 1-2.

Singoro, B. W., Wakhungu, J., Obiri, J., & Were, E. (2016). Causes and trends of public transport motorcycle accidents in bungoma county, kenya, *4*(1), 36–42.

Solagberu, Ofoegbu& O gundi (2006). Motorcycle injuries in a developing country and the vulnerability of riders, passengers and pedestrians. Injury Prevention; 12:266- 268.

Sisimwo, Peter (2013) Crash Characteristics and Injury Patterns among Commercial Motorcycle Users Attending Kitale County Referral Hospital, Kenya.

Suriyawongpausal (2003).Road traffic injuries in Thailand: trends, selected underlying determinants and status of intervention. Injury Control and Safety Promotion; 10:95-104.

Tien-Pen, H. Sadullah, A.F.M. and Dao, N.X. (2003). A comparison study on motorcycle traffic development in some Asian countries – case of Taiwan, Malaysia, and Vietnam, 2003: http://www.easts.info/activities/icra/2001/ICRAComparisonStudyMotorcycleDevelopment.pdf

Walker M. (2006). Motorcycle Evolution design Tunde, Taiwo & Matami (2012) Compliance with road safety regulations 43 among commercial motorcyclists in Nigeria. Canadian Social Sciences Vol.8, No 1:92-100.and passion: (http://books.google.com)

WBCSD (2001).Mobility 2001-World mobility at the end of the Twentieth Century and its sustainability, World business council for sustainable development, Massachusetts Institute of Technology and Charles River Associated.

Wegman, F.C.M. and Aarts, L.T. (eds.) (2006), Advancing sustainable safety: national road safety outlook for 2005-2020, Leidschendam, The Netherlands: SWOV Institute

for Road Safety Research.

Wong, T. W., Phoon, W. O., & Lee, J., (1990b). Motorcyclist traffic accidents and risk factors: a Singapore study. Asia-Pacific Journal of Public Health 4 (1), 34–38.

World Health Organization. (2013). Motorcycle –related road traffic crashes in Kenya Facts.

World Health Organization (2013), Global Status Report on Road Safety: supporting a decade of action, World Health Organization.

APPENDICES

Appendix 1: Qualitative Reference

KII 1 October, 2018	Boda Boda Riders Chairman for Kondele Ward
KII 2 October, 2018	Boda Boda Riders Chairman for Market Milimani Ward
KII 3 October , 2018	Boda Boda Riders Chairman for Kondele Ward
KII 4 October, 2018	Police Officer - Traffic department
KII 5 October, 2018	NTSA Officer

Appendix 2: Questionnaire

Introduction

My name is Yogo Kenneth, currently a postgraduate student at the Institute for Development Studies (IDS) of the University of Nairobi. I am undertaking a study on training and regulation compliance in motorcycle transport operation in Kisumu City, Kenya. I would appreciate if you accord me about 30 minutes of your time to answer few questions on this subject. Your identity and the information you give will be treated with high level of confidentiality as it will be used specifically for academic purpose.

A: GENERAL INFORMATION

1a) Name (optional)

b) Ward

1. Kondele [ ]
2. Milimani [ ]
3. Railway [ ]

c) Base

d) Contact (Optional)

c) Date of the interview

2. Gender

1. Male [ ] 2. Female [ ]

3. Level of formal

1. No education [ ] 2. Primary [ ] 3.Secondary [ ] 4. Diploma

5. [ ] University Degree 6. Others (specify).....

4. What is your age bracket in years?

1. <18years [ ] **2**.18-24 years [ ] **3**.25-35 years [ ] 4. 36-45 years [ ]

5. 39-45 years [ ] **6.**46-52 [ ] **7**.53-59 [ ] **8.** 60+ years [ ]

5. Do you own the motor cycle you ride?

Yes [ ] No [ ]

(a) If yes, to question 4, for how long have you been operating it?

Less than 3months [ ] 3 – 6months [ ] 6 – 1year [ ] 1 year [ ] 1 – 2 years [ ] 3- 4 years Over 5 year [ ]

(b) If no, how did you acquire the motorcycle you are operating?.....

……
…..

6. Is the motorcycle you are operating leased or hired?

1. Leased (Longer period) [ ] 2. Hired (Shorter period) [ ]

(a) If yes in question 5, what is the cost of leasing/hiring?

7. Have you been trained on riding a motorcycle?

Yes [ ] No [ ]

(a) If yes to question 6, where did you train?.....

(b) What was the nature of training undertaken:

Formal training (Registered school) [ ]

Informal training (Unregistered school) [ ]

……

(**b)** How has the training equipped you with the needed safety regulation measures?…….....

……...

8. Do you have a valid driving license?

Yes [ ] No [ ]

(a) If yes, how did you acquire the driving license?

……

(b) If no, why haven't acquired one? .....

……

(c) What challenges are there in getting a riding license?.....

……

9. Have you ever operated without a riding license?

Yes [ ] No [ ]

(a) If yes, how was the experience in terms of safety?.....

……

(b) If no, why not?.....

B: SOCIO ECONOMIC CHARACTERISTICS OF THE BODA BODA RIDERS

1. Kindly rate the following statements with regards to socio economic characteristics of boda boda riders?

On a scale of one to five, where; 5 = Strongly Agree, 4 =Agree, 3 = Neutral, 2 = Disagree and 1 = strongly Disagree, please indicate your level of Agreement OR not to the statements below;

Statement	Strongly Disagree	Disagree	Neutral	Agree	Strongly agree
Age of a boda boda rider plays a very important role in safety compliance.					
Young riders mostly get involved in the boda motorcycle related accidents than the old ones.					
The urge for more trips to make money by most riders is the leading reason for risk taking hence accidents.					
Most boda boda accidents are caused by dangerous riding by the young riders					
Most motorcycle accidents have been attributed to reckless driving and over-speeding by teenage riders most whom still want to experiment with the machine					
Most of the boda boda riders have formal education and are therefore able to read road signs.					
Most of the boda boda riders do not own their motorcycles and therefore have to work extra hard to make more money to be able to pay for the lease and at least remain with reasonable amount for livelihoods.					
The boda boda riders who own their motorcycles tend to be cautious when operating their machines and hence cause few accidents.					
Besides road accidents there are other risks associated with motorcycle riding.					

C. ASSESS THE EFFECT OF TRAINING AND NONE TRAINING TO SAFETY REGULATION COMPLIANCE OF BODA BODA RIDERS.

1. Kindly rate the following statements with regards to the effect of training and non-training to safety regulation compliance among boda boda riders?

On a scale of one to five, where; 5 = Strongly Agree, 4 =Agree, 3 = Neutral, 2 = Disagree and 1 = strongly Disagree, please indicate your level of Agreement OR not to the statements below;

Statement	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly agree**
Formal motorcycle training is one of the most important factors in the reduction of motorcycle accidents.					
Most of the boda boda riders have not undergone formal training on motorcycle riding.					
Lack of training is a major contributor to motorcycle related accidents.					
Most of the boda boda riders do not have riding licenses and are therefore ignorant of road rules and compliance requirements.					
Lack of training on the part of riders has led to the occurrence of many accidents, injuries and loss of lives.					

D: SAFETY REGULATION COMPLIANCE AMONG THE TRAINED AND UN TRAINED BODA BODARIDERS.

1. Kindly rate the following statements with regards to the extent of safety regulation compliance among trained and un trained boda boda riders in Kisumu City County.

On a scale of one to five, where; 5 = Strongly Agree, 4 =Agree, 3 = Neutral, 2 = Disagree and 1 = strongly Disagree, please indicate your level of Agreement OR not to the statements below;

Statement	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly agree**
Most of the boda boda riders often disregard traffic rules and signs and are therefore prone to accidents.					
Most of the boda boda riders lack formal training are therefore ignorant of the road traffic rules and signs as is expected of them and hence the increase in road accidents.					
Most of the boda boda riders more often do not take safety precautions like wearing helmets					
Most of the boda boda riders more often do not take safety precautions like wearing heavy jackets					
Most of the boda boda riders more often do not take safety precautions like overloading					
Most of the boda boda riders more often do not take safety precautions like servicing their machines,					
Most of the boda boda riders more often do not take safety precautions like putting on reflector jackets					
Most of the boda boda riders more often do not take safety precautions like putting on headlights during the day					
Most of the boda boda riders do not have riding license.					
Most of the boda boda motorcycles are not insured and therefore whenever an accident happens there is no compensation.					
Most of the boda boda riders are not customer friendly.					

2. What are some of the operational challenges you are facing as boda boda rider besides safety?.....

3. What challenges are you facing in complying with the NTSA safety regulations?

……

……

4. What ways can these challenges be addressed?.....

……

5. What other steps besides training can be taken to improve safety in your operations?.....

.....

6. In your opinion what steps can be taken to overcome these challenges so as to improve the boda boda transport industry?.....

……

THANK YOU FOR YOUR COOPERATION.

Appendix 3 FGD/KI Checklist

Focus Group Discussion /Key Informant check list

Introduction

My name is Yogo Kenneth, a postgraduate student at the Institute for Development Studies (IDS) of the University of Nairobi. I am undertaking a study on training and regulation compliance in motorcycle transport operation in Kisumu City, Kenya. I would appreciate if you accord me about 1 hour of your time to discuss few issues on this subject. Your identity and the information you give will be treated with high level of confidentiality as it will be used specifically for academic purpose.

NAME
(Optional)……...

ORGANIZATION……

WARD ……..……

POSITION……

CONTACT……

GENERAL ISSUES

1. Provide an overview of boda boda operations in Kisumu City County
    - Numbers, usage and nature of operations
    - Provision of infrastructure and facilities
    - Compliance to road safety rules
    - Overall perception of the boda boda operators

- Relationship of boda boda operators with other public transport operators, city county and enforcement officers

NTSA/POLICE TRAFFIC DEPARTMENT

2. Training of boda boda operators in line with NTSA regulations
   - Form of training offered
   - Agencies undertaking training
   - Location of training
   - Content of training
   - Competence of those offering training
   - The approved/recommended training institution

3. Challenges of training affecting smooth boda boda operations in Kisumu
   - Cost of acquiring training
   - License Acquisition
   - Road discipline
   - Serviceability of the motorcycle
   - Background socio-economic status as a hindrance to acquisition of license (Age, Education, Ownership of the motorcycle)

3b.How do these challenges affect the smooth operations of boda boda in Kisumu Central Sub County.

4. Major contributing factors to motorcycle riders ignoring NTSA safety rules and regulations
   - Overloading
   - Possession of two helmets
   - Reflector jackets
   - Over speeding
   - `Riding under influence of alcohol and drugs

5. Challenges that face the enforcement of NTSA road safety rules and regulations that touch on boda boda riders

- Infrastructure(parking areas, pick up and drop of points)
- Road indiscipline

6. Addressing challenges by the regulator.

Thanks for your valuable time and cooperation

Appendix 4: Observation Schedule checklist

Observation schedule checklist

My name is Yogo Kenneth, a postgraduate student at the Institute for Development Studies (IDS) of the University of Nairobi. I am undertaking a study on training and regulation compliance in motorcycle transport operation in Kisumu City, Kenya. I would appreciate if you accord me about 1 hour of your time to discuss few issues on this subject. Your identity and the information you give will be treated with high level of confidentiality as it will be used specifically for academic purpose.

WARD……

CORRIDOR…….

TIME…….

OBSERVABLE ATTRIBUTES	**YES**	**NO**	**PICK/OFF PICK**
1. Condition of the motorcycle			
• Side mirrors	**1**	**2**	
• Reflectors(rare reflectors)	**1**	**2**	
• Main light	**1**	**2**	
• Tyre condition	**1**	**2**	
2. Protective Gears			
• Two helmets	**1**	**2**	
• Reflector jackets	**1**	**2**	
• Personal protective gear	**1**	**2**	
3. Road discipline			
• Riding on the right side of the road	**1**	**2**	
• Speed (over speeding)	**1**	**2**	
• Careless overtaking	**1**	**2**	
• Riding on the pavements	**1**	**2**	
4. State of mind			
• Are they presentable – how about customer relations	**1**	**2**	
• Do they look intoxicated	**1**	**2**	

Appendix 5: Data needs table

Research Question	Data Needs	Source(s)	Instrument	Data Analysis
i. What are the socio-economic characteristics of boda boda riders in Kisumu)	a) Age b) Gender c) Level of education d) Ownership	Respondents Key informants	Survey questionnaire Key informant guide	SPSS analysis Thematic Analysis
i. What is the effect of training and non-training of boda boda riders to safety regulations and compliance in Kisumu City?	a) Rate of compliance b) Number accidents involved in. c) Level of discipline on the road	Respondents Key informants Focus Group Discussion	Survey questionnaire Key informant guide Focus Group guide Observation Schedule.	SPSS Analysis Thematic analysis
i. What is the number of the trained boda boda riders in Kisumu and where was the training taken?	a) Valid driving license b) Source of training.	Respondents Key informants	Survey questionnaire Key informant guide	SPSS Analysis
v. What is the extent of compliance among the trained and non-trained boda boda riders in Kisumu City?	a) Number of accidents involved in. b) Possession of the insurance sticker c) Possession of the requisite protective gears d) No of passengers carried	Respondents Key informants Focus Group Discussion	Survey questionnaire Key informant guide Focus Group Guide Observation Schedule	SPSS Analysis Thematic Analysis