

**ACCIDENT PREDESPOSING FACTORS ON OPERATIONAL
PERFORMANCE OF BODA BODA PROJECTS: A CASE OF
LURAMBI SUBCOUTY, KAKAMEGA COUNTY, KENYA**

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DECLARATION AND RECOMMENDATION

Declaration

This research project is my own work and has not been presented anywhere for any award and that all sources of information have been acknowledged by means of references

Sign.....Date.....

Adm No: L/50/66011/2010

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Recommendation

This research project has been submitted with my approval as the university supervisor.

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Sign.....Date.....

DEDICATION

I wish to dedicate this research project to my Mother Ms. Julie Nichesa Lugonzo and my children Karl, Lenin and Maya who encouraged and were patient with me when I was writing this project.

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I would like to acknowledge a number of people who played a big role in ensuring the success of this research project. First and foremost, my supervisor, Dr. Stephen Luketero, for his expert advice and guidance on this proposal for research and all my lecturers who have taken me through my training. I also appreciate the whole staff of the University who ensured that there is a conducive learning environment. I am grateful to my family and friends for their unfailing moral and financial support, understanding and appreciation of the time and resources required during my studies. My classmates, who have a positive influence on my life and inspire me all through my studies, cannot be forgotten.

ABSTRACT

The purpose of this study was to analyze the accident predisposing factors on operational performance of boda boda projects in Lurambi Sub county, Kakamega town. The objectives of the study were: to determine the influence of drug and substance abuse on operational performance of boda boda projects in Lurambi Sub County, to establish the influence of personal demographic characteristic on operational performance of boda boda projects in Lurambi sub County, to explore the influence of training on operational performance of boda boda projects in Lurambi Sub County and to determine the influence of awareness and compliance with government regulations on operational performance of boda boda projects in Lurambi Sub county. The study was supported by structural functionalism theory and Marxist theory of class structures. The study adopted descriptive survey research design. The study area was Lurambi Sub County which is located in Kakamega County. The target population was 632 respondents. The target population was drawn from registered boda boda riders who are 630, Traffic commander 1 and medical superintendent 1 making a total of 632 respondents. The sample size was calculated by use of Taro Yamane's formula giving a sample size of 247 respondents and proportionally allocated to the strata's. The data collection instrument was questionnaire which was designed using 5 point Likert scale. The questionnaires were administered using a drop and pick method. After data collection, the researcher conducted data cleaning, which involved identification of incomplete or inaccurate responses and correct to improve the quality of the responses. The data collection instruments were tested for validity to enhance credibility of data by consulting the supervisor. Reliability was achieved by Pre-testing of the instrument. Data was analyzed by use of both inferential and descriptive statistics using SPSS version 20. The study made recommendations and conclusions based on the findings which are of great significance in refuting or supporting existing theories thus bridging knowledge gaps in the broad area of study. The study found out that accident predisposing factors affects operational performance of boda boda projects ($R^2 = .834$) shows that all the predictors account for 83.4% variation in operational performance. The β value for alcohol and drug abuse (.633), personal demographic characteristic (.151) training (.183) and awareness and compliance with government regulations (.173) were positive. The positive β values indicate the direction of relationship between predictors and outcome. The study recommends stringent measures on drunk driving, Boda boda operators should be trained by qualified personnel and registered driving schools and given licenses and operators should comply with government regulations.

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CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

As a result of travel demand and modernization, there has been a global increase in motorization particularly in the middle and low income countries. This has been accompanied by a high increase in road accidents (Peden, McGee, & Sharma, 2012). It is estimated that road crashes killed 1.2million people worldwide and injured about 20 - 50 million in 2002 (WHO, 2004). In the year 2004 road traffic injuries were ranked 9th globally among leading causes of disease burden, in terms of disability adjusted live years lost (Odero, 2013). It is feared that if this trend continues the annual number of deaths and disabilities from road traffic injuries will rise to 60% by 2020, to be the third leading cause of premature death and disability, ahead of malaria, tuberculosis and HIV/AIDS (WHO, 2004). In Malaysia, more than 50% of road accidents involve motorcyclists. In Thailand, in the period 2008 to 2010, the number of injuries as a result of motorcycle accidents was about 70-80% of all accidents (Malaysian Institute of Road Safety Research, 2010). In Taiwan and other parts of Asia, motorcycle transport has drawn public attention due to the high numbers of injuries and deaths. In Taiwan, for example, between 1996 -1997, about 1,153 people were killed in motorcycle related accidents (Chang, 2012). This shows that motorcycle accidents in Kenya if not timely curbed, may raise to such proportions as those experienced in Malaysia, Taiwan and Thailand.

The increase in the use of motorcycles as a form of road transport for commercial or public transport in Africa is a relatively recent phenomenon. The Federal Road Safety Commission (FRSC) of Nigeria in 2009 revealed that between 2004 and 2005, 52% of all motor vehicle license plates were for motorcycles. Statistically, there were 259,757 registered motorcycles in 2004 and this rose to 263,163 in 2005 (Federal Road Safety, & Commission ,2009). In Tanzania 181 lives were claimed due to motorcycle accidents during the first quarter of 2010 (Nkwame, 2010). This is partly due to the rapidly increasing number of motorcycles from 6,700 in 2007 to 85,000 in 2009, a 13fold increase in the period of 2 years (Nkwame, 2010). The reason behind the reported increase in number of commercial motorcycles is the fact that motorcycles are sold at relatively cheaper prices than other vehicles and good earnings from the

motorcycle taxi business which encourages more people especially youths to join this business (Solagberu, Adekanye, & Abdur-Rahman, 2012).

According to the then Acting Chairman for Road Safety Committee, Dares Salaam alone, in the period from January to June 2010, has witnessed 64 deaths and 615 casualties due to motorcycle related accidents, involving both drivers and passengers (Mustapha, 2010). Motorcycle accidents have drawn great attention from the Tanzanian government authorities. For example, 2010 Road Safety Week had a theme of “Discourage High Speed; Cyclists Wear Helmets; Accidents Kill, Injure Safety Week had a theme of “Discourage High Speed; Cyclists Wear Helmets; Accidents Kill, Injure” (Mustapha, 2010).

In the last five years, motorcycles have flooded Kenyan roads both in cities and villages (Chepchieng, 2011). This is partly due to the zero rating of all motorcycles below 250cc in 2008, an expensive and chaotic motor vehicle transport system, and poor road networks. Also, due to rapid urbanization, the demand for transport has increased prompting the use of various modes of transport like motorcycles. In Kenya, boda boda motorcycles are visible in many urban centers as well as rural areas. Kakamega town in particular is known for its large number of boda boda motorcycles. The town being in the Western region of Kenya has a long history of the use of boda boda. All the advantages of boda boda motorcycles notwithstanding, the safety of motorcycle users has become a major concern to all road users, the government and non-governmental organizations concerned with transport safety. This is due to the increase in road accidents involving boda boda motorcycles. In some towns, for instance Naivasha, there were reported deaths of up to 40 people per month. Additionally, some hospital wards are set aside specifically for boda boda motorcycle victims (Bachani & Koradia, 2012).

Researches on road safety have been done in Kenya, most of which have concentrated on motor vehicles like matatus, buses, minibuses and non-motorized means of transport. For instance, Khayesi, (2012) carried out a study on the regional patterns of pedestrian road traffic accidents. (Khayesi ,1999) also conducted another study on the analysis of pattern of road traffic accidents in relation to selected economic dynamics and intervention measures. Kayi, (2011) analyzed road traffic accidents using

Geographic Information Systems (GIS) in Nairobi. Moraa (2010) focused on the road safety among public service vehicle drivers in Kenya.

The few studies done in Kenya on road transport safety have not focused on determinants of motorcycle accidents in Lurambi Sub County. Mbugua, (2011) studied the effects of motorcycle transport revolution on economic growth in Kenya. He found that, compared to their earlier sources of income, motorcycle taxis had improved the livelihoods of about 95.7% of the respondents. Chepchieng' (2011) focused on tricycles and motorbikes in Kitui town, he studied factors influencing growth of motorcycle-propelled urban public transport. He found that urban policy had greatly influenced the growth of boda boda and tricycles public transport in Kitui. Nyachieo, (2012) studied how the youth in Kitengela-Kenya were using boda boda motorcycles transport to create employment. She found that boda boda motorcycle was a source of employment for many youths in Kitengela.

In Kenya, deaths and injuries related to motorcycle accidents have increased by a factor of 4.4, from 451 in 2005 to 1,991 in 2013 (KNBS, 2012). The increase in the number of motorcycles must not necessarily translate to the increase in motorcycle accidents if necessary road safety measures accompany this growth (WHO, 2006). In 2010, a total of 3,055 road traffic deaths were reported by the Kenya Traffic Police of these, approximately 7% were motorcyclists (WHO, 2013a). If nothing is done about the increasing motorcycle accidents, the percentage could increase. None of the above studies has specifically dealt with accident pre disposing factors on operational performance of boda boda projects in Kakamega county despite it being among the leading users of motorcycle accidents hence the existing gap to be filled. Therefore, the current study will shed light on accident predisposing factors on operational performance of boda boda projects in Lurambi sub county, Kakamega County Kenya.

1.2 Statement of the Problem

In the Sub-Saharan African states, Latin America and Asia there is substantial increase in the use of Motorcycles Boda Boda as a means of public commercial transport (ITDP, 2009). In Kenya, after a null rating of motorcycles below 150cc by the government in 2008, the industry flourished considerably as part of the improvement of rural and urban transport and youth employment (KNBS, 2010). However, the growth in commercial motorcycle services has also led to an increase in

road accidents and road management problems while providing certain transport advantages in the form of easy maneuverability, ability to travel along poor routes and reaction to demand. Statistics show that 13,50% of all fatality is due to Boda Bodas as a significant cause of traffic accident deaths in Kenya (NTSA, 2014).

However, due to the increase in the number of accidents recorded in the industry, the situation appears to worsen. Whereas the number of road accidents reported decreased by 20.44% between January and September 2014, the number of motorcyclists' accidents rose from 7.96% in 2013 to 10.61% in 2014. (NTSA, 2014). This has resulted to high numbers of accidents and grave effects as a result, which the statistics do not include, having the cost of medicine, handicap, losses of parents and guardians and loss of life for affected families (WHO, 2012). (WHO, 2012). The group most affected were young people who are looked at as the pillars of the current economy.

Government efforts to regulate the market were also ineffective due to the company's nature. Moreover, there is little investigation into the accident pre disposing factors on the operational performance of boda boda projects in Kenya, in particular Kakamega County though it is an important transport source. This study therefore endeavored to analyze the accident predisposing factors on operational performance of boda boda projects in Lurambi Sub county, Kakamega town.

1.3 Purpose of the Study

The purpose of this study was to analyze the accident predisposing factors on operational performance of boda boda projects in Lurambi Sub county, Kakamega town.

1.4 Research Objectives

The study was guided by the following objectives:

- i. To determine the influence of drug and substance abuse on operational performance of boda boda projects in Lurambi Sub County
- ii. To establish the influence of personal demographic characteristic on operational performance of boda boda projects in Lurambi sub County
- iii. To explore the influence of training on operational performance of boda boda projects in Lurambi Sub County

- iv. To determine the influence of awareness and compliance with government regulations on operational performance of boda boda projects in Lurambi Sub county

1.5 Research Hypotheses

The study was guided by the following hypothesis

- Ho₁: There is no significant effect between alcohol and drug abuse and operational performance of boda boda projects in Lurambi Sub county.
- Ho₂: There is no significant effect between personal demographic characteristic and operational performance in Lurambi Sub county
- Ho₃: There is no significant effect between training and operational performance of boda boda projects in Lurambi Sub county.
- Ho₄: There is no significant effect between awareness and compliance to government regulation and operational performance of boda boda projects in Lurambi Sub county.

1.6 Significance of the Study

This study is of significance to government, policy makers, traffic police, boda boda riders and future researchers. The findings of the study were important in helping the policy makers come up with a plan for the development and implementation of effective and efficient strategies that lead to improved road safety for boda boda riders. It can be used by traffic officers and boda boda riders to develop solid ideas that enhance road safety for all users in the way they interact with each other. The students intending to conduct read or write more about this subject are guided and referenced by this research. Those conducting a study can find it helpful in achieving their objectives in future. The study provided recommendations which government and NGOs can adopt to remedy all deficiencies experienced in connection with travel accidents related to boda boda.

1.7 Basic assumptions of the study

It was assumed that the respondents were cooperative and answered questions correctly and truthfully and that the research tools that were used gave consistent and valid results.

1.8 Limitation to the Study

Information considered confidential was difficult for the researcher to obtain, so this prevented the researcher from collecting sufficient information for the study. The researcher therefore clarified for the interviewees the purpose and importance of the study. The study was conducted during the routine work of the respondents and therefore it was difficult for the respondents to find time to fill in the questionnaires. This challenge was overcome through constant communication with respondents so that free time could be found to fill in the questionnaire. Also the researcher used drop and pick methods so that the respondents can fill in the questionnaires at their free time.

1.8 Delimitations of the study

The study was based on the accident predisposing factors on operational performance of boda boda projects in Lurambi Sub County, whereby alcohol and drug abuse, personal demographic characteristic, training and awareness and compliance with government regulations were looked at. The study was conducted in the boda boda industry, Lurambi Sub County, Kakamega County. The study included all boda boda in Lurambi Sub County. The study was carried out in the month of May and August 2019.

1.10 Definitions of significant terms used in the study

Drug and alcohol abuse: is a patterned use by boda boda operators of a medicine or alcohol in which the users consume the substance or alcohol in amounts or using methods that are harmful to him / her or others.

Personal Demographic Characteristic: These statistic data are useful in determining whether a motorcycle rider is vulnerable or not to accidents with regard to his age, sex, educational level and marital status.

Training: Refers to the development of skills and knowledge related to the use of the road in themselves or others. Training aims to improve your capacity, capacity, productivity and road performance.

Awareness and Compliance to government regulation: Is an awareness campaign aimed at making boda boda riders and other road users comply by the government regulation on issues like licensing etc.

1.11 Organization of the study

This research project is organized in five chapters. Chapter one includes; background to the study, statement of the problem, purpose of the study, research objectives of the study, research questions, significance of the study, limitations of the study, delimitations of the study, basic assumptions of the study and definition of significant terms as used in the study.

Chapter two will include literature review organized in themes such as the analysis of the existing literature work on the same area of research and the empirical study. The key variables discussed in the chapter are; drug and substance abuse, personal demographic characteristic, training awareness and compliance with government regulations. Besides, the theoretical framework, conceptual framework, and knowledge gaps in the literature. Chapter three contains research methodology, highlighting the research design, the target population, sampling procedure and methods of data collection. Equally, it features validity and reliability of the research instruments, methods of data collection and ethical issues in research. Chapter four entails presentation and interpretation of analyzed data, response rate, demographic information about respondents, analysis of data about variables, correlations, anova on operational performance and multiple regression models. Chapter five consists of summary, discussions, conclusion and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introductions

This is the second chapter of this research proposal and it reviewed past research previously conducted on the determinants of accident predisposing factors on operation performance. The purpose of the chapter was to enable the researcher understand what other researchers have done and the methodologies they adopted in conducting their studies in related or same area of the study. Among the key issues addressed include the theories, upon which this study is anchored, determinants of motorcycle accidents and empirical literature.

2.2 The Concept of Motor Cycle Accidents

There has been a growing concern with the significant increase of accidents involving motorcycles number of countries in the recent years (Ogunmodede, 2016). In some countries, motorcycles are regarded as a high-risk mode of transport despite the increase in use of motorcycles (Nunn 2014). Since they don't have security devices for the entire body (Albalate & Fernàndez-Villadangos, 2014).

In 2004, approximately 1.2 million deaths (2.2 percent of all deaths) were reported by the World Health Organization and another 50 million wounded in vehicle accidents. This means two lives lost per minute. In particular, developing countries are at a disadvantage, as 70% of these accidents take place in these countries. By 1990, the 9th major cause of death was road accident and this is projected to increase enormously by 2020, And it was the third leading death cause. Road accidents are also the leading cause of injury and road crashes are higher than job injuries. This has resulted in numerous studies to identify causes and effects of motorcycle accidents in different countries (Federal Road Safety Commission, 2010).

Motorcycles are the second most important vehicle fleet in Brazil, but they represent the highest death rate due to accidents in traffic. Motorbikes make up approximately 19% of all vehicles in Singapore; however, they account for only 36% of total crashes (Haquea M, Chinb HC, & H., 2015). Motorcycles account for less than 1% of vehicles in Great Britain, but drivers suffer 14% of total road deaths and serious road injury (Info, 2016). Although widely used, they are also affected by many accidents

that are susceptible to low stability compared with other road users and increased motorcyclists body exposure (Muhumuza, 2016). Disruption of traffic, inspection failure, poor maintenance, reckless cycling and driver impunity all contribute to the development of motorcycle accidents. (Peden, 2013). However, consumption of alcohol is considered to be very common among Brazilian traffic accident cyclists (Bacchieri & Barros, 2011). This means that alcoholism is, among other factors, the main cause of motorcycle accidents in Brazil.

Most motorcycle traffic accidents happen in Thailand. Thailand's factors include alcohol consumption, unregulated drivers' licenses, inexperience and the age of drivers, since they are common in motorcycle accidents compared to in automobile accidents. (Switzerland, 2014). The traffic safety status has not been properly addressed in Indonesia yet. This is because there are still highway accidents in Indonesia. 26,211 people died of traffic accidents in Indonesia in 2003, according to the Directorate of Land Transport Safety (2006). The increasing population of motorcycle proprietors in Indonesia is the cause of the increasing motorcycle accidents.

This should not, however, be considered as the only cause of such accidents. In fact, a number of interacting factors can cause this. The volume of traffic, speed, road situation, number of highways and conditions are affected by motorcycle accidents according to Suraji and Sulistio (2016). The Government of Indonesia has developed safety measures, strategies, action plans and other programs to enhance every road user's safety. The Road Safety Agency "Road Safety for All" is one of the many flagship programs to reduce accidents by sensitizing motorcycle operators and other carriers on road safety measures."(Nunn, 2014).

In the Philippines it is believed that a lack of a comprehensive road Safety Program led to the continuing increase of road accidents. As a result of the motor bike operators' laxity and absence of comprehensive safety measures in the area of speed and lack of awareness about the rules of road safety, the Philippian government remained among the main drivers of road accident (Sufiyan & Ahmad, 2017).

In Australia the crashes also grew in 2001-2005 in Queensland, coinciding with higher sales and motorcycle registrations (Blackman, Ross, Haworth & Narelle 2013). Motorcycle growth in most urban areas has been caused by the increasing traffic

congestion. "Comparing the crash of the motorcycle, scooter and motorcycle is more prevalent among younger motor cyclists, with potentially accidental consequences. The main causes of motorcycle accidents in Queensland Australia are the risk of collision in a study by riders who have unlicensed driving and holding foreign driving licenses, unable to use helmets, men's sex, rider's age (young or older), inexperienced drivers and recreational driving. Despite licensing requirements, driver training and training have always been considered important for improving driver safety. (Saint-Louisie, June 2011). Many studies on the use of motorcycles for public transport were carried out in Nigeria. Factors have been identified in Nigeria that influence high trade accident rates. in Ogunmodede, (2016). Speed, incorrect overtaking, bad roads, sudden mechanical defects and alcohol consumption were the important factors. They also found that motorcyclists ' trading does not conform to road safety codes. Nigeria has proven that motorcycles are called exposed road users because they have a higher rate of fatality per unit of distance than other cars.

Siskind (2014) indicated that most drivers take for granted that their cars can handle minor road hazards, such as pot holes or railway lanes, because these smaller road hazards may require sudden changes in lane and direction (Haquea & Chin, 2015). Motorcycling accidents, especially in developing countries such as Nigeria, are increasing annually, because motorcyclists do not follow the rules of traffic and think that they are the "King on the Road" in their mentality (FRSC 2007). FRSC (2007) further stated that motorcycle accidents occur most likely during certain rainy seasons, especially in Nigeria because of filled water pot holes and slip surfaces on the roads, and motorcycle accidents.

One cause of motorcycle accidents has been the state of the road, which can lead to a loss of control of motorcycles and collisions with incoming vehicles due to the various pot holes and motions on deformed roads. Often responsible factors as identified by FRSC (2007) are the breakage; motorcycle control is lost when the brake is unsuccessful and thus an accident has occurred. In developing countries such as Nigeria and Tanzania, road accidents are increasing while in developed countries such as Australia, there has been a decrease (Ogunmodede, 2016).

To overcome speeding on a curve by excess speed or under cornering, driving with the effect of alcohol that affects the judgment of riders, riding bike with worn-out

tyres, brake failure due to a driving accident, lack of equipment like the rear mirror, functional horn and head lamp, road violation: in front of the vehicles driving again (Ogunmodede, 2016). The Nigerian government has made various laws adopted by the government of the Federal Republic, the state and the local authorities in order to curb riders' excesses, including the 2004 national road traffic regulation and the FRSC Road and Safety Act 2007 (Otuya, 2015).

As in many developing countries, road accidents in Tanzania are on the rise over time with most cases involving motorcycles. In Tanzania, the number of all forms of motor vehicles on the roads has increased significantly due to the liberalization of public policy, according to "The National Council for Traffic Safety and Security Annual 2013. Unfortunately, there has been no corresponding increase in road maintenance, driver instruction, and vehicle maintenance and traffic regulations. Ironically, despite the ever increasing accidents involving road accidents, few studies have investigated how this can be prevented. In this scenario, developed countries need to make greater efforts to monitor and prevent road accidents, and the results of such accidents. This scenario requires developing countries to make greater efforts to control and prevent road accidents and their results. This can be achieved with a multidisciplinary approach and research aimed at identifying the underlying factors for road accidents involving various road users.

In Kenya, the motorcycle rate in Kenya is estimated as being below the 250cc tax in 2008, rising from 3,759 units in 2005 to 91,151 by 2009 (Daily Nation 3rd October 2018). The landmark exemption from tax reduced the price of a Chinese model from 70 000 to 30 000 on average. According to Odero, (2013), Almost 3,000 deaths per 10,000 registered motorcycles occur on the streets of Kenya annually. Like Western Kenya, boda boda are often used for short-distance transport, revolutionizing people's movements and once driving away popular bicycles (Kisia, 2017). However, as its number increases day by day, the new transport mode comes with its share of accidents (RTIRN, 2010). Many hospitals are so often required to create special wards for victims of boda boda and relevant stakeholders to carry out safety campaigns. Many of the reported accidents are due to poor training and knowledge among young people and people involved in the boda boda industry. Motorcycle accidents are also a common occurrence in Kakamega County. Such accidents include speed,

consumption, poor road conditions, lack of formation and experience, among other factors.

2.3 Empirical Review

This subsection presents empirical review of literature based on the fore stated objectives.

2.3.1 Drug and Substance Abuse and operational Performance of Motor Cycle Projects

In Australia, there is evidence to suggest that motorcyclists drink riding, like drink-driving, remains a serious problem for motorcycle safety as operating a vehicle under the influence of alcohol increases a person's risk of having a serious crash (National Health and Medical Research Council, 2001). A Victorian analysis of killed or seriously injured riders and drivers concluded that, over the 10-year period from 1984 to 1993, motorcyclists were less likely to be over the legal BAC limit than other road users. Queensland data from 1997 to 2002 suggests that motorcycle fatalities are no more likely than other road users to have a positive BAC reading (Queensland Department of Transport, 2003). Impairment by alcohol and other drugs is potentially riskier for motorcyclists than for car drivers due to the balance and awareness required to ride in the traffic environment. Adverse effects of alcohol at legal BACs have been found for obstacle avoidance for motorcyclists (NHTSA, 2008). In Europe, drink driving is the second greatest contributory factor of road deaths after speeding. Drunk driving accounts for approximately 25% of all road accidents in the EU and for 30-40% of driver deaths (SARTRE 2004).

To overcome drug and substance abuse among the motorcyclists, some countries such as the Netherlands, Belgium, Finland, and Estonia try to measure the distribution of alcohol levels among the driver population. To establish this performance indicator, random breath testing actions are repeated regularly at selected times and locations. The Netherlands use the data from these surveys also to estimate the yearly number of accidents from drunk driving (Anderson, P. 2007). In Belgium, bi-annual measurements were started in 2003. The European Commission set itself the target of a 50% reduction in road deaths by 2010 which was adopted in the third Road Safety Programme in 2003. This provided the appropriate framework for road safety policy planning in Europe. The programme identified three areas of action namely: the

behavior of road users, vehicle safety and improvements of road infrastructure. Concerning drink driving it also included four specific measures which are: Participating in awareness campaigns including drink driving, encourage the take up of the BAC recommendation and continue its work on alcohol, propose measures to strengthen checks and ensure the police enforcement of the most important safety rules including drink driving, and lastly examine driver impairment detection devices. In addition, the EU is also active in promoting best practice via its research Programmes.

Currently it is supporting a variety of alcohol and driving related research projects including; Analysis of Driver Rehabilitation Programs (ANDREA), Road Safety Performance Indicators (RSPI 2004-2008), Police Enforcement Policy and Programs on European Roads (PEPPER 2006-2008), Driving Impairments due to alcohol, drugs and medicine (DRUID 2006-2009), and Campaigns and Awareness-raising strategies in Traffic Safety (CAST 2006-2008). Alcohol consumption is well known to impair driving and riding performance and is implicated more frequently in fatal crashes than non -fatal crashes (Siskind et al. 2011). Additionally, motorcyclists are involved in crashes more often at lower BAC than car drivers (Sun, Kahn, & Swan 1998). Several studies have shown impairment at motorcycle riding under the influence of low dose ($\leq 0.08\%$) blood alcohol concentration (BAC). According to N. Haworth et al., (2008) the factors contributing to crash occurrence and injury related to motorcycle accidents include: Being young, Inexperience, riding a borrowed motorcycle, Consumption of alcohol, curves, Slippery or uneven surfaces In Nigeria, motorcycle accidents are said to be caused by over speeding, wrong overtaking, bad roads, sudden mechanical defects and alcohol intake as major factors (Ogunmodede et al., 2012). They also discovered that commercial motorcycle riders do not comply with Road Safety Highway Codes.

2.3.2 Personal Demographic Characteristics of Motorcycle riders and Operational Performance of Motorcycle Projects

An individual person integrates a number of demographic variables; he is a man or a woman in a certain age with a specific educational background. This person may have specific experiences regarding driving, he/she may belong to a specific social status. In addition, he/she could be a member of an informal social group with distinctive

behaviour patterns that may have a unique part in the production of the accident (Darido, 2010). Mallikarjuna and Krishnappa, (2012) found that, in explaining accident involvement among young people, age played a much greater role than inexperience and indicated that training was essential in reducing accident involvement. They concluded that more emphasis should be on consequences of dangerous riding. They suggest that in order to understand the reason why young people take risks more than any other age category, there was need for further research emphasizing on attitudes and beliefs of younger riders. Forward (2006) observes that “skills will be turned into safety only when a proper set of underpinning beliefs and perceptions is provided for behavior.”

In another study Nunn, (2014) Look at young drivers in New Zealand's views and behaviors. The study revealed that the opinions of riders and the real practice differ. The opinion of the young rider did not conform as expected to their protective behavior. For example, the drivers didn't wear protective clothing as they thought it was unacceptable. It was explained that fashion and the cost of protective equipment could contribute to this scenario. Motorcyclists are often youthful and unfamiliar. Current, often deadly accidents (Teoh and Campbell, 2010).

2.3.3 Training of Motorcycle Operators and Operational Performance of Motorcycle Projects

The public often view driver-and riders ' training as a panacea for a large number of road safety issues, especially in relation to the involvement of novice drivers and drivers (Buche, Williams & Ochs, 2015). Although there is strong belief in training and in the ability to reduce accidents, empirical research does not support the belief that previous reviews have little or no benefit from it (Nunn, 2011). The apparent inefficiency of training programs is possible due to a range of possible weaknesses. These issues include content for the program and delivery methods, influence (where applicable) on the licensing system, and deficiencies in assessment (e.g. bias in self-selection, lack of statistical powers, and differences in exposure such as distances). However, overconfidence after training can also affect eventual crash involvement (Ogunmodede, 2016).

There may be no positive evaluation of the training programs, but the need for more efficient program design and delivery does not reflect a failure of education (Otuya

2011). Evaluation training programs, which can explain the small number of assessments that have been reported to date, were usually impaired by the methodological problems (Buche, Williams & Ochs, 2015). Long-term training focused entirely on motorcycle control and traffic awareness with little attention to attitude and behavioral problems. The training may not recognize the various training needs of drivers, thus jeopardizing the efficiency of road accident reduction training (Cavalcant, 2011).

In Uganda for instance, the motorcyclists tend to over speed and over load their machines for quick returns. It is because of this recklessness, indiscipline and lack of respect for other road users by the Boda boda motorcyclists who are mainly youths, are the major cause of these accidents. Young Motorcyclists hardly wear protective gear, hence aggravating the risks of getting severe head injuries and being predisposed (Odero, 2013). In Malaysia where motorcycle injuries contribute 60% of all road fatalities, improper use of helmets was the most important cause of the fatal accidents. The young age of the motorcyclists as one of the major factors responsible for motorcycle accidents due to inexperience. As a response to the increasing motorcycle accidents, the Ugandan government introduced training for motorcyclists, and alcohol restrictions to reduce the risks of motorcycle related accidents (Nandwoli, 2014).

There is also the problem of driver training, examination and certification in Kenya right from the vehicles to the motorcycles. There is a weak legal framework for training and certification. According to the Kenyan legislation, prospective motor vehicle drivers can receive driving training from any registered driving school or from any private individual who holds a driving license for at least the class for which one wants to be trained as a driver. This means that any one holding a driving license can train others how to drive (Kayi, 2011).

Furthermore, there is neither a standard curriculum nor set textbooks for drivers. There is also no requirement for proof of good health before one enrolls for driving training (Khayesi, 2012). Chitere, (2014) has established that more often the prospective riders begin by learning from those who already know how to ride without any formal training at all. They then go to ride soon after assuming that they

have known. Furthermore, these riders tend to work for long hours, in some cases up to 13 hours a day for seven days a week.

They are also paid low wages on daily basis, lack permanent employment contracts, rarely stay with one employer for long, and operate on daily collection targets set for them by motorcycle owners. Given casual manner in which training and certification is done, it is not surprising that drivers are the major cause of road crashes in Kenya (Chitere,2014).The capacity and competence of the training institutions has also been a major concern.

Most of the training institutions are not properly equipped and staffed to provide effective training. At the same time, driver/rider testing also lacks in rigor and can easily be passed even by a very weak candidate. This is partly because there are very few driving test examiners. As a result, one examiner handles too many candidates in one day which leaves the examiner exhausted thus compromising the evaluation exercise. In addition, the conditions in most of the training institutions are appalling. To begin with, the training instructors are very poorly remunerated, have low morale and keep asking for handouts from the trainees who have already paid fees to the school. It is those who are able to pay the instructors extra money that receives some form of good training. Due to low pay, the schools are unlikely to attract and retain good instructors. Cyclists also cause crashes mainly because of ignorance of road traffic signs and signals due to poor training (Odero, 2013).

Lack of experience is mostly addressed formally through a range of rider licensing, training and education programs for which, as noted previously, there is a lack of rigorous evaluations. Programs generally target new riders regardless of age, tending to capture not only young riders but also older ones who comprise a large proportion of those seeking a license (Haworth & Rowden, 2010). Edson & Tandoc (2007); further add that young motorcyclists below the age of 18 years make up a significant percentage of road accidents among road users in many countries because of lack of proper training, riding while they are under age and not complying with the traffic rules. When motorcyclists drive at excessively high speeds, beyond the recommended speed limit, they can lose control of their motorcycles relatively easily, which can then cause an accident. In addition, if a motorcyclist driving at an excessive speed hits a pothole or unseen bump in the road, it could send the motorcyclist off the bike or

cause the motorcycle to go off the road. High speed therefore by any reasoning increases the chances of becoming involved in an accident.

According to Luchidio (2013); in his study on the “impact of training boda boda operators and safety status in Kakamega county”, over speeding has also contributed to the increase in number of accidents with 52% of the responders agreeing that over speeding is a big problem this can be attributed to the operators who rush so as to make extra money. Over speeding can also be attributed to the age of the riders who are still in their teenage and want to experiment with the machine. The operators who drive under influence of alcohol also contributed to the accidents in the county by 45%. Drunk driving can make operators to make wrong judgments thus putting themselves and other road users in danger. Poor roads in the county also contributed to accidents of the boda boda operators 19% have suffered due to the bad state of the roads. Traffic rules and regulations not being followed has also contributed to accidents 12% while overloading 4% have also contributed to accidents on the road.

2.3.4 Awareness Compliance with Government Regulations on Boda Boda Motorcycle Accident

Musilimu & Oluwole, (2014) in South Western Nigeria while assessing the level of compliance of commercial motorcyclists to traffic rules on urban roads revealed a rampant irrational behavior of commercial motorcyclists on urban roads attributable to inadequate training, illegal possession of driving license as well as the inability of the Police to enforce traffic rules and regulations among this category of transporters. The operators were mostly young men with over 84% under 40years of age therefore prone to deviance including in observing traffic rules. As a result, the non-compliance led to traffic accidents in the urban centers. The study further revealed that in Nigeria, except for the Lagos State and part of the Federal Territory, there was little or no serious government policy addressing the operations of commercial motorcyclists with a view to cutting down the rate of motorcycles accidents.

Oluwaseyi and Edward, (2014) while evaluating the performance of Motorcycle Operation, as a Means of Urban Mobility in Lokoja, Nigeria established through an extensive interview with the Sector Commandant of Federal Road Safety Corps Lokoja that, majority of motorcycle crashes were attributable to over speeding of the cyclists, over loading, rough overtaking of the riders, dangerous riding, bad road and

loss of control by the riders. These emanated from non-compliance of most of the cyclists to traffic rules and safety. Further, majority of riders had failed to use their safety materials that could have enhanced safe riding and reduced the accidents occurrences. This implies that the large number of accidents observed involving commercial motorcycles in Nigeria emanated from the non compliance to traffic rules. The study however did not focus on the cost of non compliance on the performance of commercial motorcycle transport enterprises which will be addressed in the current study.

However, a study by Nandwoli (2014) in Bungoma South Sub-County, Bungoma County, Kenya revealed that most of motorcycle boda boda riders avoided undergoing the training process due to the costs involved in the driving schools or booking for road test exams. The findings also gave an indication that a significant number of the riders were not well prepared to comply with the traffic rules and regulations. As a result, there was friction between the riders and the law enforcers. This resulted in a standoff where the riders boycott operations accusing the police of harassment. The low level of compliance and the unwilling riders to comply with the traffic rules therefore disrupted business and increased the cost of running the business.

Kimwetich et al (2012) in their study to determine the level of compliance and awareness of traffic rules and regulations among operators in Kitui town, only 2.2% of the 90 motorcycle taxi operators knew traffic rules that governed their operations. The study revealed that 97.8% of all the respondents when asked to state traffic laws to be obeyed while on public roads gave sketch answers or never attempted to answer. In this study 57.8% of operators reported having a driving license leaving out a massive 42.2% without this vital document. The 42.2% operators were on the roads illegally and this is a demonstration of failure by the control and regulatory agencies in Kenya to enforce traffic laws and regulations. Maina (2011) in a study showed that wearing personal protective gear among the motorcycle operators was low. Only 14% of operators sampled wore reflective jackets alone, 20% helmet alone, 9% riding boots alone, 48% wore reflective Jacket, Helmet, goggles, riding boots and ear plugs. The use of protective gear can protect the rider and the passenger in the event of accident. Thomson, Rivara and Thomson D. (1989) found that riders who wore correct helmet had 85% reduction in their risk of head injury compared to those who did not put on helmets.

Kent (1991) further demonstrated that helmets could reduce damage to the head by a big percentage. Others studies have shown remarkable compliance to traffic rules and regulations in Nigeria (Asogwa 1992; Tunde, Taiwo & Matarmi2012). The two studies showed that to a large extend some rules and regulations were followed by motorcycle taxi operators. Take for example, the age limit for one to ride a public motorcycle, the study findings indicated that 91.8% of operators were within the age bracket of 41-58 years. This is well above the legal age limit for one to get a license to ride a motorcycle in Nigeria.

The compliance for valid driver's license stood at 64.2%. In terms of number plate requirement, all operators had complied. A shortfall in compliance was reported in wearing of crash helmets and carrying of excess passengers. The study indicated that 84% of the operators did not wear crash helmets and 5.5% carried more than one passenger. Only 42% of the motorcyclists were aware of the existence of the Highway Code. This shows that most of them did not pass theory or practical tests required for one to be licensed.

2.4 Theoretical Framework

The current study utilized two theoretical perspectives. It focused on Structural Functionalism and Marxist Theory of class Structures.

2.4.1 Structural Functionalism

Four main contributors can be traced to the origins of contemporary sociological references to a social structure: Spencer (1820-1903). Parsons (1902-2009) and Merton (1910-2003), Durkheim (1858-1917). He imagined society in its interdependent portions of the human body as a biological organism. The 'organic analogy' was developed by the British philosopher Herbert Spencer. A French sociologist, Emile Durkheim, was asked how some companies keep and survived internally over the period. Talcott Parsons (1902-1979) was the great theory of society. Robert Merton (1910-2003) thought there could be numbness in any social structure could have a number of functions some which could be manifest (evident) and others latent (covert).

Sociological theory is structural functionalism which seeks to clarify why society functions in the same way. The emphasis is on the relationships between the various social institutions that make up society. In this theory, society is seen as a complex and partly solidary and stable system. The social structure and social functions are the key elements in this perspective.

The theory says that the social behavioral structures are relatively stable in our lives. Each organization has a social function which helps the society as a whole to operate. The theory describes the conservation of parts, structures, institutions, regulations or cultural patterns of the social system. It looks at each section's particular role or role. It can help maintain the la.

Parsons, (1951; 1966) states that society is not only a group of social structures but an actual operational or operating system with various levels of coherence, integration and efficiency. Society subsystems, such as politics, law, economics and training, are therefore interrelated and may contribute differently to overall systemic performance of different quality and quantity.

Durkheim submitted that some aspects of society are interdependent and structured by their interdependence. This study uses the structural functionalism to explain the role of various road safety institutions in reducing accidents. This is because its social processes have to be connected smoothly with system needs to ensure the survival of a society. Each process, institution and practice has a role that meets a social need (security) and thus helps to maintain the structure or balance of society. Social processes and institutions are seen as contributing to an ongoing social whole (Bacchieri & Barros, 2011).

Like a firm, there are several different parts or units in the road-and transport system (in Kenya the whole system refers to road transport). The latest study considers that the road transport system is comprised of various institutions and structures like NTSA, the Criminal Justice Department of the Kenya Roads Board and the Ministry of Transportation and Infrastructure (KRA). Riding schools, NGOs, the Kenyan Automotive Association, motorbike manufacturers, and others; Insurance Regulatory Authorities, (IRA).

The study therefore requires the survival of the road transport system in such a case to depend on the collaboration of the different institutions in order to comply with the need for safety of road and transport systems. Each institution performs a function that meets this security requirement. As mentioned above, there is a large number of road safety institutions in Kenya. These institutions can contribute to or hinder the behavior of drivers in the event of an accident, depending on their role within the system, or may hinder their riders ' behavior. NTSA has many responsibilities to ensure road safety.

These include the development and implementation of road safety policies, the facilitation of road safety education for the public, the setting-up of systems and procedures for and supervision of drivers, driver training, testing and permitting and general policy implementation by the relevant authorities. The Department of Traffic Police is responsible for the enforcement of traffic laws. The criminal justice system is used to treat trafficking offenders. Transportation and Infrastructure Ministry, Road networks and infrastructure are also concerned. Riding schools deal with rider training, and the health ministry takes care of injured persons during accidents. The Finance Ministry contributes to the financing of the various road safety ministries. The NGOs focus on education and campaigns in the field of road safety. Motorcycle riders ' associations are at times engaged with sensitizing drivers on road safety in primary and secondary schools. The road networks and audits are undertaken by the Kenya Urban Roads Authority and the Kenya Roads Board (Kayi, 2011).

As has already been stated, all these institutions play a role in ensuring road safety. You need to work together for safety. Road security measures in Kenya are known to be sporadic, unregulated and disorganized without a systematic and effective approach to improving road safety (Odero, 2013). Interdependent institutions can therefore significantly help to reduce motorcycle accidents if they work together efficiently. Politicians and policymakers exist in the abovementioned institutions. These institutions need to work in conjunction to minimize boda boda accidents, which are the main purpose of the study. The theory of structural functionality therefore helps us to understand the safety of boda boda motorcycles as faults, influencing behavior and thus contributing to the cause of accidents (Khayesi, 2012). The current study focuses on law and policy implementation institutions and related institutions. Huang and Preston (2013) Notes that accident happen when the

performance of the Joint System does not meet its environmental needs. While theory seeks to explain why society works in this way, social inequality as classes or social classes is not accepted. Therefore, the study introduces the Marxist theory of social structures to supplement the theory of structural functionalism by explaining the determinants of motorcycle accidents.

2.4.2 Marxist Theory of Class Structures

The Marxist theory of class structures was promoted by Karl Marx (1818-1883). As a base of ownership of other means of production and control of the labor force, Karl Marx introduces social stratification in terms of the higher, middle, and lower classes. According to him, property relationships determine class. Therefore, the functioning of social structures and ideas on themselves and their social circumstances is of major importance to Marx. Marx argues that economic relations form the basis of society on which non-economic institutions like politics and religion, whose nature and scope are deeply defined through economic activity, build themselves (Blackman, Ross & Haworth, 2013). That means that, at the end of the day, people have a decisive influence on their life through the productive relationships. This argument is central to Marx's understanding of human nature and conduct. Therefore, Marxists stress that social analysis should focus on class and relationship structure (Cavalcant, 2011).

As has already been mentioned, the social relations that make up the society determine the actions of the individuals socializing into a certain structure to a certain degree (Andersen, 2001). This perspective is seen in the present study in terms of class structure from the socioeconomic stratification system. There are different positions in society regarding the economic, social, political and cultural resources of society (Andersen, 2001). Motorcycles are common in most parts of Kenya, both rural and urban (Albalate & Fernández-Villadangos, 2014), although they occur in relatively poor neighborhoods. The class structure in Kenya is thus likely to define the dominant mode of transport and the way people are employed. This increase in motorcycles can lead to an increase in accidents, especially in the case of non-application of rules and regulations. The focus of this approach in the current study on motorcycle safety argues that boda boda riders in the process of trying to make a life in a tough environment are engaged in accidents. That's due to their relations with the means of production that riders are part of a certain social category. You may not be

adequately prepared to do your job by skills (trained to ride), because the formal training cannot be paid for.

2.5 Conceptual Framework

Independent Variable

Accident Predisposing factors

Drug and Alcohol Abuse
Take Alcohol/Abuse substances
Drugs easily available
Drunk during working hours
Unable to control

Personal Demographic characteristic
Sex, age, level of education, Marital status, Experience

Training
Certification
Capacity of training institutions
Riding period/duration

Awareness and Compliance
Licensing
Highway Code
Insurance
Safety compliance

Dependent Variable

Operational Performance

Operational Performance

- Number of accidents
- Profits made
- Frequency of accidents
- Reported cases of accidents to the police

Figure 1: Conceptual Framework

2.6 Explanation of Relationships between Variables in the Conceptual Framework

Mathieson et al. (2011) defined a conceptual framework as a virtual or a written product which explains the main things to be explored— the key factors, concepts or variables, and the alleged relations between the variables in the study, either graphically or in narrative form. The study independent variable was accident predisposing factors and the dependent variable is operational performance. The independent variable was further divided into alcohol and drug abuse, personal demographic characteristic, training and awareness and compliance with government regulation.

The conceptual framework was used to show the relationship between the independent variables and the dependent variable. The arrows point at the direction which accident predisposing factors like drug and alcohol abuse, personal demographic characteristics, training and awareness and compliance with regulations may lead to increased/reduced number of accidents, profits made, frequency of accidents and reported cases of accidents to the police

2.7 Summary of Literature

The chapter paid attention on appropriate past obtainable literatures concerning the topic which was under the study, theories relevant to the topic, conceptual framework which indicated the relationship between the independent variable and the dependent variable. From the literature which was reviewed, the concept of accident predisposing factors was discussed while putting in mind the underlying causative factors. The underlying factors that were discussed are: drug and alcohol abuse, personal demographic characteristics, training and awareness and compliance with traffic regulations. From the review of literature, it is concluded that accident predisposing affects negatively operational performance of boda boda projects. Additionally, alcohol and substance abuse was diligently examined its influence on operational performance of boda boda projects looked at. From the literature alcohol and substance abuse influences operational performance of boda boda projects. Consequently, personal demographic characteristics were also determined from the review of literature to be influencing operational performance of boda boda projects. For instance, under demographic characteristics it was found that marital status,

education and age of an operator determines the probability of occurrence of accidents. Also the literature on training which delved on Certification of a boda boda rider, capacity of training institutions to offer quality training and Riding period/duration was found to be influencing operational performance of boda boda projects. On awareness and compliance with regulations the literature reviewed found out that majority of boda boda operators are not licensed they are not aware of high way code and do not take seriously issues to do with insurance. This study was supported by structural functionalism theory and Marxist theory of class structures.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses the researcher's methodological orientation that was used in collection and analysis of data. It provided details on: the study design, rationalization of the study sites, target population, sample size, research instruments to be used, and the intended data collection procedures and data analysis.

3.2 Research Design

The study adopted a descriptive survey design that involves observation (survey) and a description without affecting the behavior of a subject in any way (Kothari, 2010). The survey method is a popular and common research strategy, according to Willis and David, (2012) It allowed the collection of large quantities of data from an ideal population and in high cost-effectiveness. Frameworks are often used to standardize, easily understand and comparable the collected data.

This way, the problem is better understood through different sources of information, as well as an overview of the reliability with which it is involved (DeVaus 2002). This method was useful. The selection of random samples from large population populations is often characterized by the acquisition of contemporary empirical knowledge (Saunders, Lewis & Thornhill, 2007). For the current study, the descriptive survey design was appropriate because it gave the investigator the information required on accident predisposition factors on operational performance of boda boda projects.

3.3 Population

Also known as the universe is target population. The Target Population comprises all the members of a real or hypothetical set of persons, events and objects to which we wish to spread the results (Kothari, 2010), and is a complement of study elements. This study included a population of 630 Lurambi Sub County registered motorcyclist (2019, Kakamega County Department of single business licenses). The population included Boda Boda operators, the Commander Traffic Police Base and Kakamega Hospital Medical Superintendent. The main respondents were Boda Boda operators and they included trained and untrained persons who provide a rich source of

information about accident predisposition factors on operational performance of boda boda projects in Lurambi Sub County. The Commander Traffic Police Base, and Medical Superintendent provided an understanding of the most frequently reported causes of motorcycle accidents.

Table 3.1: Population

Stratum	Target Population
Motorcycle Operators	630
Base Commander	1
Medical Superintendent	1
Total	632

Source: Kakamega County single business permit department, 2019.

3.4 Sampling Procedure and Sample Size

3.4.1 Sampling Procedure

Sampling consists of selecting units from a population of interest (e.g. people, organizations) so that we can relatively generalize the results to the population of which we were selected by examining the samples (Fowler, 2013). The study zeroed on sampling, because of its proven cost, efficiency and the ability to produce results faster and with high precise instead of collecting data of the total population (Fowler, 2013). The principal function of the sample is to enable the investigator to collect information of people from the sample and apply the results of the investigation to the entire population. To identify potential respondents in the study, the researcher used stratified random sampling. Stratified random sampling involves segregation into homogeneous groups of the population (groups with the same properties). The selection of subjects in each stratum / sub group is then followed by random selections. First, the population is divided into groups that are mutually exclusive and relevant and meaningful in the study (Denscombe, 2014).

A simple random and convenient sampling process is required to obtain the sample population. The Lurambi Sub County maps and assigns a different place to all commercial motorcyclists as drop and pick points. The researcher by use of the head of motorcyclist union leader in Lurambi Sub County carried out the mapping process.

The researcher booked appointments with cyclists through its stage leaders so as to be able to administer research instruments effectively, since they are very mobile members of the community. The Commander and the Medical Superintendent of the Kakamega Hospital was chosen using a population census.

3.3.2 Sample size

Determination of the sample size involved decision on the items in each sample frame participating in the study, while selection of the sample size involved strategies used to select individual population elements. Determining the sample volume means determining the correct sample volume depending on the purpose, population volume, precision level, confidence or risk level and variability of the measured attributes (Denscombe, 2014).

A sample size of 245 respondents was taken from 630 motorcyclists. A census of the commander of the traffic base and medical superintendent of the hospital of Kakamega was done. This means that the sample will have a total size of 247 respondents from the target population of 632. Taro Yamane (1967), sample size formula modified by Kent and Myers (2008) as cited in Etuk and Akpabio (2014) was used to select a sample size of 245 respondents as shown below:

$$n = \frac{N}{1 + Ne^2}$$

Where:

n = Sample size

N = Population size

e = the error of Sampling

This study allowed the error of sampling of 0.05. Thus, sample size was as follows:

$$n = 630 / 1 + 630 * 0.05 \text{ raised to } 2$$

=245

Table 3.1: Sample Size

Stratum	Target Population(N)	Sample size(n)
Motorcycle Operators	630	245
Base Commander	1	1
Medical Superintendent	1	1
Total	632	247

Source: Kakamega County single business permit department, 2019.

Simple random sampling was used to select respondents. Simple random sampling is modus operandi where every item in the population is given an equal opportunity and odds of participating in the study. In this particular method the selection of respondents is totally dependent on probability and therefore every individual in the target population of this study had an opportunity of participating in the study.

3.4 Data Collection instruments and procedures.

3.4.1 Data Collection Instrument

Fowler (2013) reports that data collection is a way of obtaining information from the research subject selected. The study used primary and secondary data. The researcher obtained primary data through questionnaires which a research assistant administered to the respondents. The questionnaire's advantage is that many people can be issued simultaneously (Zohrabi, 2013). A five point Likert scale questionnaire was used which ranged from (5) strongly agree, (4) agree, (3) undecided, (2) disagree and (1) strongly disagree. All sampled respondents will be given a questionnaire. Secondary data will be obtained through literature review, journals and other documents.

3.4.2 Data collection procedures

The process of collection of data refers to the way the data collection tool is administered (Gosh, 2012). A review of the existing literature was used to collect secondary data. Primary data was gathered via questionnaires that are administered after permission is obtained from NACOSTI and other relevant authorities in the county. The introduction letter was issued to the respondent to explain the purpose of the study. Questionnaires were given through the use of research assistants

3.5 Validity and Reliability of Research Instruments

3.5.1 Validity

Validity is the degree to which the findings of the research accurately reflect the findings of the studies. A content validity method was used to determine the validity of the questionnaire. Validity of content is the measurement of a test in a hypothetical structure (Denscombe, 2014). The validity of content involves examining theoretical approaches and reviews of the literature. Validity of content can be evaluated using a panel of content-familiar experts, and experts are able to examine the items and decide what is meant to measure that particular item (Kothari, 2010). This study employed supervisors and other experts in the fields of project management. The experts examined and decided whether or not the items in the questionnaires are valid. Their views were incorporated in the questionnaire. In order to generalize collected data, data validity plays an important role in referring to real characteristics of the problem of study (Saunders, Lewis, & Thornhill, 2007).

3.5.2 Reliability

Reliability means the extent that results are consistent over time and that the total population being studied is accurately represented. The research instrument is then considered reliable if the results of the study can be reproduced using the same methodology (Orodho, 2003). They relate to the extent that a given measurement is consistent, with the stability of a measurement over time, and to the similarity of measurements during the time period. In this study test-retest method will be used to determine the reliability of the research instruments.

The test-retest method is used to determine the reliability of the questionnaires. A trustworthy measurement is the same as it was the first time if repeated for the second

time (Collis & Hussey, 2009). Reliability testing is a measure of reliability achieved through the administration of the same test twice over a period to a group of people (Mandrish & Schaffer, 2005). The first and second scores can then be correlated to evaluate the stability test over time (Fowler, 2013). The degree of consistency in test-re-test reliability shows a variation in the score that occurs from a test-session due to measurement errors (Gideon, 2015). A pilot test will take place in the test-retest method. A pilot trial was performed on a sample of the population concerned, but not on those involved in the final sample (Collis & Hussey, 2009). The pilot test is used to evaluate the reliability of the research instruments (Bille, R., 2010).

3.6 Data Analysis and Presentation

This study was produced both quantitative and qualitative data on accident predisposing factors on operational performance of boda boda projects. Once the questionnaires were received, they cleaned, edited and encoded. Data was analyzed by employing descriptive and inferential statistical techniques. The statistical package for the social science (SPSS 20) was used to analyze data. Under inferential statistics multiple regressions was used to determine the effect of a set of independent variable. This technique gives a simple summary of the data sampled and displays quantitative descriptions in a manageable form, (Orodho, 2003). Together with simple graphics analysis, descriptive statistics form the basis of virtually every quantitative analysis of data (Kothari, 2010). Pearson product moment Correlation analysis was used to establish the relationship between the independent and dependent variables (Kothari, 2010). The aim of correlation is to enable the study to predict how a variable differs from normal. The data is then statically presented by use of tables, diagrams and graphs illustrations.

Multiple regression analysis is used where one dependent variable is supposed to function with two or more independent variables (Kothari, 2010). The aim of this analysis is to predict the variable on the basis of its covariance with the independent variables (Kothari, 2010). Skewness and curtosis are used to test the assumption of normality. Assumption of linearity, the relationship among variables is assumed to be linear in this study. Scatter plot linearity can be tested. The variance of errors on each of the levels of the independent variables is homoscedasticity. This assumption can be checked by the standardized reversal value (Williams, Grajales, & Kurkiewicz, 2013),

visually examining a plot of standardized errors (residuals). The following models of regression was used.

Multiple Regression Analysis Model:

$$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4(X_1X_2X_3) + \dots \dots \dots \epsilon$$

Y = Motorcycle accidents

β_0 = Constant

X_1 = Alcohol and drug abuse

X_2 = Personal Demographic characteristic

X_3 = Training

X_4 = Awareness and Compliance

ϵ = Error Term

β = Standardized regression coefficient

3.7 Ethical Consideration

In all studies the researcher should take ethical protocols into account, so that the rights and freedom of the respondents are not violated (Young, 2009). The researcher ensured that the goals of the research and its contribution to its implementation are known to all the respondents. In addition, the researcher requested the respondent's explicit consent to ensure their participation. The researcher treated respondents courteously and respectfully (Cooper & Schindler 2003). This made it easy for respondents to fill in the questionnaires candidly. The researcher checked the correctness of the encoding of the responses to ensure the integrity of the data. This was done to ensure that the study statistics are verifiable and accurate (Cooper & Schindler, 2003).

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

The chapter presents the analysed data gathered from the respondents using the questionnaire. The study sought to establish the accident predisposing factors on operational performance of boda boda projects in Lurambi Sub county, Kakamega town. The analysis was guided by objectives of the study. The data was analysed, interpreted and presented in two broad themes: respondents background information and respondents response on specific information on the basis of each research objective. Both descriptive and inferential statistics was used to analyse the data and summarized in tables.

4.1 Response Rate

The researcher distributed 247 questionnaires to respondents Lurambi Sub County amongst which 217 questionnaires were returned. A total of 30 questionnaires were not returned which constitutes 12.15%. Thus the response rate was 87.85% which was significant enough to provide reliable and valid findings for this study (Babbie,2002)

4.2 Demographic Information

It was necessary for the researcher to find out the bio data information which included age, level of education and period of employment. The researcher intended to find out whether there were any variations in the respondents' background which may have an effect on the respondents' response. From the response, 48.4% of the respondents were between 21 – 30 years, 26.7% of them were between 31 – 40 years while 21.2% of them were between 41 – 50 years and 3.7% of them were 51-60 years. This indicates that majority of the boda boda riders in Lurambi sub county, Kakamega County were still young and able to perform boda boda business effectively as they were between 21 – 30 years. These results also indicate that more than 75.1% of the respondents are below 40 years. Therefore, it implies that these respondents are more productive since they are less committed to other activities other than boda boda business unlike those above 40 years of age.

The study also analysed the responses of the respondents on the period they have been operating their boda boda business. The findings indicated that 53% of the respondents have been operating for less than 5 years, 20.3% have operated for a period of 6-8 years, 6% for a period of 9-11 years and 20.7% have operated for over

12 years. From these results 47% of respondents have operated boda boda business for more than five years therefore they are able to give relevant information sought by the researcher.

The researcher found it necessary also to establish the respondent's level of education. The findings in table 4.2 revealed that 1.4% of the respondents had their education level at university level and 4.6% had obtained College education while 51.1% had secondary education and finally 42.9% primary education.

Table 4.3: Demographic Information

Variables	Item	Frequency	Percentage
Age	21-30	105	48.4
	31-40	58	26.7
	41-50	46	21.2
	51-60	8	3.7
	Total	217	100
Level of Education	University	3	1.4
	College	10	4.6
	Secondary	111	51.1
	Primary	93	42.9
Years Operated	Total	217	100
	less than 5yrs	115	53
	6-8yrs	44	20.3
	9-11yrs	13	6
	over 12yrs	45	20.7
	Total	217	100

The findings revealed that the majority of the respondents were semi literate as 94.1% of them had attained primary or secondary education and these means that majority of the respondents are in a position to run their business fairly well. The study also reveals that 6% of the respondents have attained university or college education and this demonstrates the challenge the youths are facing in securing formal employment.

4.3 Analysis of Variables

This sub section presents information analyzed from responses of participants and it is arranged according to the objectives of the study that is drug abuse, personal demographic characteristics on operational performance of Boda boda projects.

4.3.1 Influence of Drug and Substance Abuse on Operational Performance of Boda Boda Projects

In relation to the first objective which was meant to establish the influence of drug and substance abuse on operational performance of boda boda project a mean of 4.2 (SD=0.874) respondents contributed to the first item by agreeing that Most of the boda boda involved in accidents take alcohol. A mean of 4.14 (SD=0.623) contributed to the second item by agreeing that the drugs Boda Boda take are easily available. A mean of 4.11 (SD=0.797) agreed by contributing that most of the boda boda are drunk during working hours. A mean of 3.97(SD=0.775) respondents, agreed that boda bodas are unable to control the urge to abuse drugs and alcohol. These findings indicate that majority of respondents are in agreement that most of the boda boda involved in road accidents take alcohol and also they agree that the drugs boda boda uses are easily available.

To test for the assumption of normality, skewness and kurtosis was used. The findings are given in the Table 4.3 in page 44. For this data on indicators of drug and substance abuse, skewness and kurtosis values are within the range of ± 3 and it can be concluded that normality was achieved within the data (Stevens, 2012).

Table 4.4: Influence of Drug and Substance Abuse on Operational Performance of Boda Projects

Response items	Mean	Std. Deviation	Skewness	Kurtosis
Most of the Boda Boda involved in accidents take alcohol	4.20	0.874	-1.288	1.312
The drugs Boda Boda take are easily available	4.14	0.623	-0.915	2.911
Most of the Boda Boda are drunk during working hours	4.11	0.797	-0.976	-1.016
Boda bodas are unable to control the urge to abuse drugs and alcohol	3.97	0.775	-0.885	0.910

The implication of these findings is that it is established that most boda boda operators use alcohol and drugs which makes them prone to accidents. The results above are supported by SARTRE (2014) who found out that the second biggest contributor of road deaths after speeding is drinking driving in Europe. Drunk driving accounts for about 25% of EU road hazards and 30-40% of driver deaths. In Nigeria, motorcycle crashes are reported to be caused by over-speed, and alcohol consumption as major factors (Ogunmodede, 2015). The results above imply that if motorcyclists are not restricted from alcohol consumption then accidents involving them was rampant.

4.3.2 Influence of Personal Demographic Characteristics on Operational Performance of Boda Boda Projects

In regard to the second objective which meant to assess the influence of personal demographic characteristics on operational performance of boda boda projects a mean of 4.15 (SD=1.161) agreed that Most of the boda boda involved in accidents are of male gender. A mean of 3.96 (SD=1.161) respondents agreed that boda boda of the younger age below 35 years are the once mostly involved in road accidents. A mean of 3.06 (SD =1.210) respondents were undecided that More often Boda Bodas who

are illiterate or less educated are involved in accidents. A mean of 3.59 (SD =0.963) tended to agree that married Boda Bodas are responsible road drivers and less likely to be involved in accidents. To test whether there was normality; tests were carried out using skewness and kurtosis and the findings are given in Table 4.4 below. For this data on indicators of personal demographic characteristics, skewness and kurtosis values are within the range of ± 3 and we can conclude that normality was achieved within our data (Stevens, 2002).

Table 4.5: Influence of Personal Demographic Characteristics on Operational Performance of Boda Boda Projects

Response items	Mean	Standard		
		Deviation	Skewness	Kurtosis
Most of the Boda boda involved in accidents are of male gender	4.15	1.161	-0.377	-1.329
Boda Boda of the younger age below 35 years are the once mostly involved in road accidents	3.96	1.161	0.120	1.465
More often Boda Bodas who are illiterate or less educated are involved in accidents	3.06	1.210	0.327	-1.300
Married Boda Bodas are responsible road drivers and less likely to be involved in accidents	3.59	0.963	-0.271	-0.870
Most of the Boda boda involved in accidents are of male gender	3.50	1.001	-0.356	-1.051

The results above imply that personal demographic characteristics influence operational performance. Also the results show the male gender are the once mostly involved in motorcycle accidents and those who are below the age of 35 years. The results above are in agreement with the findings of a study conducted by Nunn,

(2014) who observed young drivers in New Zealand's views and behaviors. The study revealed that the opinions of riders and the real practice differ. The opinion of the young rider did not conform as expected to their protective behavior. For example, the drivers didn't wear protective clothing as they thought it was unacceptable. It was explained that fashion and the cost of protective equipment could contribute to this scenario. Motorcyclists are often youthful and unfamiliar

4.3.3 Influence of Training on Operational Performance of Boda Boda Projects

In regard to the third objective which was purposed to determine the influence of training on operational performance the findings were as follows. A mean of 4.21 (SD =0.840) respondents agreed that certified boda boda riders rarely get involved in road accidents. A mean of 4.03 (SD =0.799) respondents agreed that Training institutions have little capacity to train boda bodas. The findings are supported by Kayi, (2011) who says that the training and certification legal framework is weak. Under Kenyan legislation, future vehicle drivers can be trained as a driver from any registered driving school or by any private person holding a driving license for at least the class they want as a driver. So anyone with a driving license can train other drivers (Kayi, 2011). A mean of 4.14 (SD =0.807) respondents agreed that Experience that a Boda boda has contributes on whether he will perform well or not. A mean of 4.01 (SD=0.767) agreed that refresher courses are important because they help reduce road accidents. To test whether there was normality; tests were carried out using skewness and kurtosis as shown in Table 4.5 For this data on indicators of training, skewness and kurtosis values are within ± 3 and it can be concluded that normality was achieved within these data (Stevens, 2012).

Table 4.6: Influence of Training on Operational Performance of Boda Boda Projects

Response items	Mean	Std. Deviation	Skewness	Kurtosis
Certified boda boda riders rarely get involved in road accidents	4.21	0.840	-1.318	1.653
Training institutions have no capacity to train boda bodas	4.03	0.799	-1.095	-1.095
Experience that a Boda boda has contributes on whether he will perform well or not.	4.14	0.807	-1.014	-1.014
Refresher courses are important because they help reduce road accidents	4.01	0.767	-0.832	-0.916

This result implies that training is vital to boda boda operators if they want to achieve their goals and this is supported by Armstrong (2006) who said that training and education services might be provided with the goal of disseminating information and modifying motorcyclist behavior and this can enhance operational performance because operators have been trained and therefore competent.

4.3.4 Influence of Awareness and Compliance to Government Regulation on operational performance of Boda Boda Projects

In relation to the fourth objective which was meant to establish the influence of compliance to government regulation on operational performance of boda boda project a mean of 3.96 (SD=0.864) respondents agreed that most Boda bodas are not Licensed motorcycle riders. A mean of 4.05 (SD=0.723) contributed to the second item by agreeing that Boda Bodas do not know how to use highway code and sign. A mean of 4.11 (SD=0.897) agreed by contributing that boda boda do not abide by the government policy of having an insurance and incase of an accident they are helpless. A mean of 3.79(SD=0.734) respondents, agreed that Boda bodas do not follow safety

regulations. These findings indicate that majority of respondents are in agreement that most of the boda boda involved in road accidents take alcohol and also they agree that the drugs boda boda uses are easily available.

To test for the assumption of normality, skewness and kurtosis was used. The findings are given in the Table 4.6 in page 44. For this data on indicators of awareness and compliance with government regulations, skewness and kurtosis values are within the range of ± 3 and it can be concluded that normality was achieved within the data (Stevens, 2012).

Table 4.7: Influence of Awareness and Compliance to Government Regulation on operational performance of Boda Boda Projects

Response items	Mean	Std. Deviation	Skewness	Kurtosis
Most Boda bodas are not Licensed motorcycle riders	3.56	0.864	-1.288	1.312
Boda Bodas do not know how to use highway code and sign	4.05	0.723	-0.915	2.911
They do not abide by the government policy of having an insurance and incase of an accident they are helpless	4.11	0.897	-0.976	-1.016
They do not follow safety regulations	3.79	0.734	-0.885	0.910

The implication of these findings is that it is established that most boda boda operators don't comply with government regulations. This results are in line with Oluwaseyi and Edward (2017) who assessed the performance of motorcycle operation, as a means of urban movements in Lokoja, Nigeria. The majority of motorcycle crashes were attrivable to overload, overload, harsh over-loading of riders, dangerous riding and bad roller-coaster crashes. These were due to the failure to comply with traffic and safety rules of most of the cyclists. In addition, most of the drivers had not used their safety equipment to improve safe driving and reduce

accidents. This means that Nigeria has seen many accidents involving commercial motorcycles as a result of traffic failure (Maina, 2013).

4.3.4 Descriptive Statistics on Operational Performance

In relation to the dependent variable which was operational performance a mean of 4.2 (SD=0.864) respondents contributed to the first item by agreeing that Number of accidents have increased because of accident predisposing factors. A mean of 4.15 (SD=0.624) contributed to the second item by agreeing that Boda boda riders are not making good returns because of accident predisposing factors. A mean of 4.22 (SD=0.712) agreed by contributing that Number of customers using boda bodas has decreased. A mean of 4.00 (SD=0.782) accidents are regularly reported.

To test for the assumption of normality, skewness and kurtosis was used. The findings are given in the Table 4.3 below. For this data on indicators of operational performance, skewness and kurtosis values are within the range of ± 3 and it can be concluded that normality was achieved within the data (Stevens, 2002).

Table 4.8: Descriptive Statistics on Operational Performance

Response items	Mean	Std. Deviation	Skewness	Kurtosis
Number of accidents have dincrease	4.20	0.864	-1.319	1.489
Boda boda riders are not making good returns	4.15	0.624	-0.927	2.956
Accidents are frequently reported	4.22	0.712	-0.894	-1.271
Number of customers using boda bodas has decreased	4.00	0.782	-0.822	0.782

These findings indicate that majority of respondents are in agreement that accident predisposing factors negatively influences operational performance of boda boda projects. According to Odero, (2013), Almost 3,000 deaths per 10,000 registered

motorcycles occur on the streets of Kenya annually. Like Western Kenya, marriage weddings are often used for short-distance transport, revolutionizing people's movements and once driving away popular bicycles (Kisia, 2017). However, as its number increases day by day, the new transport mode comes with its share of accidents (RTIRN, 2010). Many hospitals are so often required to create special wards for victims of boda boda and relevant stakeholders to carry out safety campaigns. Many of the reported accidents are due to poor training and knowledge among young people and people involved in the marriage industry

4.4 The Relationship between Accident predisposing factors and operational performance of Boda boda Projects

Pearson Product Moment Correlation Coefficient was used to establish the relationship between accident predisposing factors and operational performance of boda boda riders. There was a positive significant relationship between alcohol and drug abuse and operational performance of boda boda projects ($r=.871$, $p<.05$) This indicated that there was strong positive relationship between alcohol and drug abuse and operational performance of boda boda projects. The implication of this is that alcohol and drug abuse affects negatively operational performance of projects. These results are in agreement Switzerland, (2014) who in his study determined that motorcycle traffic accidents happen in Thailand. Thailand's factors include alcohol consumption, drug abuse, inexperience and the age of drivers, since they are common in motorcycle accidents compared to in automobile accidents. 26,211 people died of motorcycle traffic accidents in Indonesia in 2013, according to the Directorate of Land Transport Safety (2014). The increasing population of motorcycle proprietors in Indonesia is the cause of the increasing motorcycle accidents.

There was also a positive significant relationship between Personal Demographic Characteristic on operational performance of boda boda projects ($r=.689$, $p<.05$), this indicates a strong positive relationship between personal demographic factors and operational performance. This implies that boda boda operators should have desirable personal demographic characteristics to be able succeed in boda boda businesses. Mallikarjuna and Krishnappa (2015) found that young people's involvement in accidents is far more aged than inexpressed, and said training is essential in reducing young people's involvement with accidents. They concluded that more emphasis

should be given to the consequences of dangerous riding. They proposed further research on the attitudes and beliefs of young riders.

There was also positive significant relationship between Training and operational performance of boda boda projects ($r=.901$, $p<.05$). This implies that training improves operational performance since operators are updated with new skills and techniques which are essential for performance.

Lastly There was also positive significant relationship between awareness and compliance to Government Regulation and operational performance of boda boda projects ($r=.713$, $p<.05$). This implies that awareness and compliance to government regulation affects positively operational performance since operators was made aware and stick to regulation guiding motorcyclist. This results are supported by Musilimu and Oluwole, in southwestern Nigeria, (2016) who revealed a rampant irrational behavior on the urban routes of commercial motorcyclists attributed to inadequate training, illegal possession of a driving licence and the police's inability to comply with traffic regulations and rules (Edson & Tandoc, 2012). Mostly young men under 40 were therefore prone to abuse, including when complying with traffic regulations. This caused traffic accidents in the cities due to non-compliance.

Table 4.9: Correlations**Correlations**

Response items	Operational Performance	Alcohol and drug abuse	Personal demographic characteristic	Training	Awareness and Compliance
Operational Performance	1				
Alcohol and drug abuse	.901**	1			
Personal demographic characteristic	.689*	.655**	1		
Training	.871*	.926**	.675**	1	
Awareness and Compliance	.713	.813**	.735**	.875**	1

** . Correlation is significant at 0.01 level (2-tailed).

In summary there was a positive relationship between alcohol and drug abuse ($r=.901$), personal demographic characteristics ($r=.689$), training ($r=.871$), awareness and compliance ($r=.713$) and operational performance of boda boda projects. This implies that alcohol and drug abuse and training had the highest positive correlation with operational performance. In this regard boda boda operators should pay much attention on these objectives. Furthermore, there was a significant positive relationship between alcohol and drug abuse and personal demographic characteristics ($r=.655$), alcohol and drug abuse and training ($r=.926$). This indicated that there was a strong relationship between alcohol and drug abuse, personal demographic characteristic and training. Finally, there was a positive relationship between alcohol and drug abuse and awareness and compliance to government regulation ($r=.675$), personal demographic characteristic and awareness and compliance with government

regulation ($r=.735$) and training and awareness and compliance to government regulation ($r=.875$). This indicated that there was a strong relationship alcohol and drug abuse, personal demographic characteristic, training and compliance with government regulations. The implication of this is that alcohol and drug abuse, personal demographic characteristic, training and awareness and compliance with government regulations can jointly and individually affect operation performance positively. These finding correspond with those of Akaranga (2011) who found a positive correlation between accident predisposing factors and operation performance.

4.5 Effects of Accident predisposing factors on Operational Performance of Boda boda Projects

The main purpose of the study was to determine the accident predisposing factors on operational performance of boda boda projects. Regression analysis combined selected independent variables with operational performance being dependent variable and variables such as alcohol and drug abuse, personal demographic characteristic, training and awareness and compliance with government regulations as predictors representing the independent variable. This was to determine any significance for the assumed relationships based on the magnitude and direction of the relationship. R represents the values of multiple correlation coefficients between the predictors used in the model and operational performance of boda boda operators. The R^2 represented the measure of variability in operational performance among the employees that is accounted for by the predictors (independent variables). From the model, ($R^2 = .834$) it implies that all the predictors account for 83.4% variation in operational performance while the remaining 16.6% was accounted for by predictors not considered in the study. Therefore, the predictors used in the model have captured the variation in operational performance of boda boda projects. The Durbin –Watson value was found to be 1.599 which was within 1.5-2.5 hence the error is correlated.

Table 4.10: Model Summary on Operational Performance

Model Summary			
	Adjusted	R	Std.Error of
R Square	Square		the Estimate
			Durbin-Watson
0.834	0.831		0.2165
			1.599

a. Predictors: (Constant), Alcohol and drug abuse, personal demographic characteristics, training and awareness and compliance to government regulation

b. Dependent Variable: Operational Performance

The adjusted R^2 gave the idea of how well the model generalizes and ideally, its value would be the same or very close to R^2 . In our case the value of adjusted R^2 is .831, showing that if the data was derived from the population rather than the sample it could account for approximately 83.1% less variance in operational performance. The change statistics were used to test whether the change in R^2 is significant using the F ratio. The Model caused R^2 to change from zero to .834 and this change gave rise to an F ratio of 356.031, which is significant at a probability of .05. The analysis of variance was used to test whether the model could significantly fit in predicting the outcome than using the mean as shown in Table 4.8.

Table 4.11: ANOVA on Operational Performance**ANOVA^b**

		Sum of	Mean			
Model		Squares	Df	Square	F	
					Sig.	
1	Regression	50.076	3	16.692	356.031	.000 ^a
	Residual	9.986	213	0.047		
	Total	60.062	216			

a. Predictors: (Constant), Alcohol and drug abuse, personal demographic characteristics, training and awareness and compliance to government regulation

b. Dependent Variable: Operational Performance

Source: Author's computations, 2019

The F- ratio represents the ratio of improvement in prediction that results from fitting the model, relative to the inaccuracy that exists in the model. The F- ratio was 356.031 which are likely to happen by chance and was significant ($P < .05$). The

model significantly improved the ability to predict operational performance. Thus the model was significant leading to rejection of the null hypotheses and hence suitable for use.

4.6 Coefficients of Operational Performance

From table 4.9 below the estimate of standardized coefficient values β values gives an individual contribution of each predictor to the model. The β value tells us about the relationship between each predictor and operational performance. The positive β values indicate the positive relationship between the predictors and the outcome whereas a negative coefficient represents a negative relationship. The β value for alcohol and drug abuse was (.633) personal demographic characteristic (.151) training (.183), awareness and compliance with government characteristic (.172) and were positive. The positive β values indicate the direction of relationship between predictors and outcome. From the results (Table 4.9) the model was then specified as: -

$$\text{Operation performance} = -.633 \text{ alcohol and drug abuse} + .151 \text{ performance measurement and reward personal demographic characteristic} + .183 \text{ training} + .172 \text{ awareness and compliance with government regulation} \dots \dots \text{Eq 4.1}$$

The coefficients for each of the variables indicated that for every one percent increase in the independent variable there was one percent increase in operational performance, given that all other variables in the model are held constant.

The t test was used as a measure to identify whether the predictors were making a significant contribution to the model. When the t-test associated with p-values is significant then the predictor is making a significant contribution to the model. The smaller the value of significance (the larger the value of t) meaning greater is the contribution of that predictor. For this model alcohol and drug abuse ($t = 8.512$, $P > .05$), personal demographic characteristics ($t = 3.957$, $P > .05$) training ($t = 2.410$, $P < .05$), and awareness and compliance with government regulations ($t = 2.312$, $P < .05$), From the study findings alcohol and drug abuse was the most powerful indicator for predicting operational performance of boda boda projects.

Table 4.12: Multiple Regression Model

Multiple Regression Model

Model	Unstandardized Coefficients	Standardized Coefficients	T	Sig.	Collinearity Statistics	
					Tolerance	VIF
(Constant)	0.592		5.111	.000		
Alcohol and drug abuse	0.620	0.633	8.512	.000	0.141	7.075
Personal demographic characteristics	0.091	0.151	3.957	.000	0.538	1.860
Training	0.169	0.183	2.410	0.017	0.135	7.420
Awareness and compliance with government regulations	0.153	.172	2.312	0.012	0.231	6.321

a. Dependent Variable: Operational Performance

Significance level is 0.05

To test whether there was multi collinearity, tests were carried out using Variance Inflation Factor (VIF) statistics in table 4.9 above. For this model, VIF values are all below 10 and we can conclude that there is no issue of multi collinearity within our data (Bowerman & O'Connell, 1990).

4.6.1 Testing Results of the Hypotheses

The Multiple Regression was used to test the hypotheses of the study as summarized in Table 4.9 above and the following hypotheses were tested in this study:

- H0₁: There is no significant effect between alcohol and drug abuse and operational performance of boda boda projects. From the Multiple Regression results, it showed that alcohol and drug abuse significantly influences operational performance among boda boda operators, since the $p < 0.05$, $r = .901$ and $\beta = (.633)$. Thus the null hypothesis is rejected. Hence it implies that alcohol and drug abuse has a significant effect on operational performance thus boda boda operators should limit on the use of alcohol and drugs to ensure their operations are seamless.
- H0₂: There is no significant effect between personal demographic characteristic and operational performance. From the Multiple Regression results it showed that personal demographic characteristic influence operational performance among boda boda operators, since the $p < 0.05$ $r = .689$ and $\beta = (.151)$. Thus the null hypothesis is rejected. Therefore, personal demographic factors are crucial if the boda boda operator is to realize full capabilities of his project.
- H0₃: There is no significant effect between training and operational performance of boda boda projects. From the Multiple Regression results it showed that training significantly influences operational performance among boda boda operators, since the $p < 0.05$, $r = .871$ and $\beta = (.183)$. Thus the null hypothesis is rejected. This implies that training has a significant effect on operation performance hence rejecting the null hypotheses and encouraging operators to go for training.
- H0₄: There is no significant effect between awareness and compliance to government regulation and operational performance of boda boda projects. From the Multiple Regression results it showed that awareness and compliance to government regulation significantly influences operational performance among boda boda operators, since the $p < 0.05$, $r = .713$ and $\beta = (.172)$. Thus the null hypothesis is rejected. This implies that awareness and compliance to government regulation has a significant effect on operation performance hence rejecting the null hypotheses and encouraging operators to comply with government regulations.

CHAPTER FIVE
SUMMARY OF FINDINGS, DISCUSSIONS, CONCLUSIONS AND
RECOMMENDATIONS

5.1 Summary of Findings

The main objective of this study was to find out the accident predisposing factors on operational performance of boda boda projects. The study established the extent to which alcohol and drug abuse influences operational performance of boda boda projects at Lurambi sub county in Kakamega County, it assessed the influence of personal demographic characteristic on operational performance, to determine how training influences operational performance and influence of awareness and compliance with government regulation on operational performance. The study found out that accident predisposing factors significantly influences operational performance of boda boda projects.

5.2.1 Influence of Alcohol and Drug Abuse on Operational Performance of Boda Boda Projects

In relation to the first objective which was meant to establish the influence of drug and substance abuse on operational performance of boda boda project a mean of 4.2 (SD=0.874) respondents contributed to the first item by agreeing that Most of the boda boda involved in accidents take alcohol. A mean of 4.14 (SD=0.623) contributed to the second item by agreeing that the drugs Boda boda take are easily available. A mean of 4.11 (SD=0.797) agreed by contributing that most of the Boda boda are drunk during working hours. A mean of 3.97(SD=0.775) respondents, agreed that Boda bodas are unable to control the urge to abuse drugs and alcohol. There was a positive significant relationship between alcohol and drug abuse and operational performance of boda boda projects ($r=.871$, $p<.05$). Further to that it was indicated that an increase in 1 standard deviation in alcohol and drug abuse there is likely to result in 0.633 standard deviation increase in operational performance. The implication of this is that alcohol and drug abuse affects negatively operational performance of projects. These results are in agreement Switzerland, (2014) who in his study determined that motorcycle traffic accidents happen in Thailand. Thailand's factors include alcohol consumption, drug abuse, inexperience and the age of drivers, since they are common in motorcycle accidents compared to in automobile accidents.

26,211 people died of motorcycle traffic accidents in Indonesia in 2013, according to the Directorate of Land Transport Safety (2014). The increasing population of motorcycle proprietors in Indonesia is the cause of the increasing motorcycle accidents.

5.2. Influence of Personal Demographic Characteristics on Operational Performance of Boda Boda Projects

In regard to the second objective which meant to assess the influence of personal demographic characteristics on operational performance of boda boda projects a mean of 4.15 (SD=1.161) agreed that Most of the Boda boda involved in accidents are of male gender. A mean of 3.96 (SD=1.161) respondents agreed that Boda Boda of the younger age below 35 years are the once mostly involved in road accidents. A mean of 3.06 (SD =1.210) respondents were undecided that More often Boda Bodas who are illiterate or less educated are involved in accidents. A mean of 3.59 (SD =0.963) tended to agree that married Boda Bodas are responsible road drivers and less likely to be involved in accidents. There was also a positive significant relationship between Personal Demographic Characteristic on operational performance of boda boda projects ($r=.689$, $p<.05$), this indicated a strong relationship between personal demographic characteristic and operation performance among boda boda operators. Further to that it was indicated that an increase of 1 standard deviation in personal demographic characteristic is likely to result in 0.151 standard deviation increase in operation performance. This implies that boda boda operators should have desirable personal demographic characteristics to be able succeed in boda boda business. Mallikarjuna and Krishnappa (2015) found that young people's get more involved in accidents as compared to the aged and the married. They concluded that experience and training is essential in reducing young people's involvement in accidents. They add that more emphasis should be given to the consequences of dangerous riding. They proposed further research on the attitudes and beliefs of young riders.

5.2.3 Influence of Training on Operational Performance of Boda Boda Projects

A mean of 4.21 (SD =0.840) respondents agreed that certified boda boda riders rarely get involved in road accidents. A mean of 4.03 (SD =0.799) respondents agreed that Training institutions have little capacity to train boda bodas... A mean of 4.14 (SD

=0.807) respondents agreed that Experience that a boda boda has contributes on whether he will perform well or not. A mean of 4.01 (SD=0.767) agreed that refresher courses are important because they help reduce road accidents. There was also positive significant relationship between Training and operational performance of boda boda projects ($r=.901$, $p<.05$). This implies that training improves operational performance and this indicated a strong relationship between training and operation performance of boda boda operators. Armstrong (2011), says that training and education services might be provided with the goal of disseminating information and modifying motorcyclists behavior and this can enhance operational performance because of training and skills attained during the process.

5.2.4 Influence of Awareness and Compliance to Government Regulation on operational performance of Boda Boda Projects

In relation to the fourth objective which was meant to establish the influence of awareness compliance to government regulation on operational performance of boda project a mean of 3.96 (SD=0.864) respondents agreed that most Boda bodas are not Licensed motorcycle riders. A mean of 4.05 (SD=0.723) contributed to the second item by agreeing that Boda Bodas do not know how to use highway code and sign. A mean of 4.11 (SD=0.897) agreed by contributing that boda boda do not abide by the government policy of having an insurance and incase of an accident they are helpless. A mean of 3.79(SD=0.734) respondents, agreed that Boda bodas do not follow safety regulations. There was also positive significant relationship between awareness and compliance to Government Regulation and operational performance of boda projects ($r=.713$, $p<.05$). In addition to that it was indicated that increase of 1 standard deviation in awareness compliance to government regulation it is likely to result in 0.153 standard deviation increase in operational performance. . This results are supported by Musilimu and Oluwole, in southwestern Nigeria, (2016) who revealed a rampant irrational behavior on the urban routes of commercial motorcyclists attributed to inadequate training, illegal possession of a driving licence and the police's inability to comply with traffic regulations and rules (Edson & Tandoc, 2012). Mostly young men under 40 were therefore prone to abuse, including when complying with traffic regulations. This caused traffic accidents in the cities due to non-compliance.

From the model, ($R^2 = .834$) shows that all the predictors account for 83.4% variation in operational performance. Therefore, the predictors used in the model have captured the variation in the operational performance among the employees. The β value for alcohol and drug abuse (.633), personal demographic characteristic (.151) training (.183) and awareness and compliance with government regulations were positive (.173). The positive β values indicate the direction of relationship between predictors and outcome. Alcohol and drug abuse, personal demographic characteristic, training and awareness and compliance with government regulations as predictors significantly influence operational performance of boda boda projects. Accident predisposing factors therefore influences operational performance of boda boda projects

5.3 Discussions

In this study the researcher found out that there was a positive significant relationship between alcohol and drug abuse and operational performance of boda boda projects ($r=.871, p<.05$). This indicated that there was strong positive relationship between alcohol and drug abuse and operational performance of boda boda projects. The implication of this is that alcohol and drug abuse affects negatively operational performance of projects. These results are in agreement Switzerland, (2014) who in his study determined that motorcycle traffic accidents happen in Thailand. Thailand's factors include alcohol consumption, drug abuse, inexperience and the age of drivers, since they are common in motorcycle accidents compared to in automobile accidents. 26,211 people died of motorcycle traffic accidents in Indonesia in 2013, according to the Directorate of Land Transport Safety (2014). The increasing population of motorcycle proprietors in Indonesia is the cause of the increasing motorcycle accidents.

There was also a positive significant relationship between Personal Demographic Characteristic on operational performance of boda boda projects ($r=.689, p<.05$), this indicates a strong positive relationship between personal demographic factors and operational performance. This implies that boda boda operators should have desirable personal demographic characteristics to be able succeed in boda boda businesses. Mallikarjuna and Krishnappa (2015) found that young people's involvement in accidents is far more aged than inexpressed, and said training is essential in reducing

young people's involvement with accidents. They concluded that more emphasis should be given to the consequences of dangerous riding. They proposed further research on the attitudes and beliefs of young riders.

There was also positive significant relationship between Training and operational performance of boda boda projects ($r=.901$, $p<.05$). This implies that training improves operational performance since operators were updated with new skills and techniques which are essential for performance. Skill development and training helps in achieving performance contract targets and this is supported by Armstrong (2011), who said that training and education services might be provided with the goal of disseminating information and modifying motorcyclists behavior and this can enhance operational performance because of training and skills attained during the process.

Lastly There was also positive significant relationship between awareness and compliance to Government Regulation and operational performance of boda boda projects ($r=.713$, $p<.05$). This implies that awareness and compliance to government regulation affects positively operational performance since operators were made aware and stick to regulation guiding motorcyclist. This results are supported by Musilimu and Oluwole, in southwestern Nigeria, (2016) who revealed a rampant irrational behavior on the urban routes of commercial motorcyclists attributed to inadequate training, illegal possession of a driving licence and the police's inability to comply with traffic regulations and rules (Edson & Tandoc, 2012). Mostly young men under 40 were therefore prone to abuse, including when complying with traffic regulations. This caused traffic accidents in the cities due to non-compliance.

5.4 Conclusions

From the findings this study submits the following conclusions: From the first objective which intended to establish the influence of alcohol and drug abuse, the study found out that most of the respondents were of the opinion that alcohol and drug abuse influences operational performance of boda boda projects because more of the boda boda involved in accidents take alcohol. Also majority of the alcohol and drugs boda boda use are easily available in the market. The study also determined that most of the boda boda operators are drunk during working hours. Finally, on the first objective the study concludes that Boda bodas are unable to control the urge to abuse drugs and alcohol because it's cheap and readily available.

Personal demographic characteristic as a second objective has a positive effect on operational performance. This study established that most of the boda boda operators involved in accidents are of male gender and rarely are women involved. boda boda operators are usually of the younger age below 35 years are the once mostly involved in road accidents. This is because most of the youths in the country are the once who are unemployed hence engaging themselves in Boda boda. It is not certain that Boda Bodas who are illiterate or less educated are the once involved in accidents because nowadays as we can deduce from demographic information of the study all cadre of individuals form all levels of education background are being involved directly or indirectly from boda boda operations. boda boda operators should get married to be responsible road drivers and less likely to be involved in accidents.

The third objective was influence of training on operational performance of boda boda projects. boda boda operators should be trained in order to possess the necessary skills that are critical for a rider example road signs and first aid. Boda boda operators should be trained and given certification certificates. Institutions involved in training boda boda and drivers should be well equipped in terms of technical staff and equipments so that students can be adequately trained. For one to be given a chance to carry passengers then there should be proof of hours spent riding the motorcycle as a guarantee of experience. Boda boda operators should frequently attend refresher courses because of the ever changing dynamic of our roads. Refresher courses will help reduce road accidents.

Lastly on the awareness and compliance with government regulations the study concludes that a boda boda operators should put in an effort to ensure they acquire the relevant license. Most of the boda boda riders do not know how to use highway code and sign. Boda boda operators do not abide by the government policy of having insurance and in case of an accident they are helpless. They play hide and seek with the law enforcement with little knowledge that it's their life which is in danger. Most Boda bodas do not follow safety regulations and are not even aware that they exist.

5.5 Recommendations

According to the study, it is evident that while there are several factors that are crucial for operation performance of boda boda projects, accident predisposition factors remains a crucial predictor of operational performance. As such it is important to emphasize that operators should be aware of accident predisposition factors so as to be able to operate seamlessly in their business by ensuring alcohol and drugs are not abused, operators to ensure they have desirable demographic characteristic, operators should be trained and regularly attend refresher courses, and lastly comply with government policies and regulations regarding road safety and motorcycling.

This study recommends that boda boda operators should avoid or at least use alcohol after working after as consumption of alcohol impairs judgment. When this is done accidents will reduce, operators, passengers and commuter will not die because of accidents or get injured and hence improve on operational performance of operators. The government should ensure it controls distribution of cheap and illegal alcohol and drugs through regular raids by police on illegal brew dens and observation of Mututho law to the later. Drunk driving should be prohibited and it should attract stringent penalty.

Personal demographic characteristic as has a positive effect on operational performance. Both the genders should be encouraged to operate the boda boda as it brings income. The youth should be sensitized and made aware of safe driving of boda boda so as to minimize on their death as a result of boda boda accidents. Youths of all levels of education should be encouraged to operate boda boda instead of waiting for formal employment while languishing in poverty.

As evidenced by the results of the sampled respondents, training is crucial in influencing operational performance of boda boda operators. Boda boda operators should be trained and given certification certificates. Institutions involved in training boda boda and drivers should be well equipped in terms of technical staff and equipments so that students can be adequately trained. For one to be given a chance to carry passengers then there should be proof of hours spent riding the motorcycle as a guarantee of experience. Boda boda operators should frequently attend refresher courses because of the ever changing dynamic of our roads. Refresher courses will help reduce road accidents.

Lastly on the awareness and compliance with government regulations the study recommends that boda boda operators should put in an effort to ensure they acquire the relevant license. The government should be strict on attainment of licenses and insuring the motorcycle.

5.6 Suggestion for Further Studies

From the findings the researcher is recommending the following areas for further study; effects of compliance to government regulations on operational performance of Boda boda and the replication of the same topic in another county.

REFERENCE

- Ackaah, W., & Afukaar, F. (2017). Prevalence of helmet use among motorcycle users in Tamale Metropolis, Ghana: An observational study. *Traffic Injury Prevention*, 2(5):522-525. (DOI: 10.1080/15389588.2010.489198)
- Aderamo (2012) Road traffic accident injuries and productivity in Nigeria, *Journal of Asian Scientific Research*, 2 (7): 334 – 344.
- Albalade Fernández-Villadangos (2014) Motorcycle injury severity in Barcelona: The role of vehicle type and congestion. *Traffic Injury Prevention*. (Barcelona) Spain.
- Bacchieri G (2011) Acidentes de trânsito no Brasil de 1998 a 2010: muitas mudanças e poucos resultados. *Revista de Saúde Pública* 45 (5):949-963
- Blackman Ross Haworth (2013) Comparison of moped, scooter and motorcycle crashes: implications for rider training and education. In 2013 International Motorcycle Safety Conference, (Orlando), Florida, U.S.A
- Buche, T., Williams, S., & Ochs, R. (2015). A system designed to succeed. Paper presented at the International Conference on the Safety and Mobility of Vulnerable Road
- Cavalcanti (2011) Mortality due to traffic accidents and occurrence of maxillofacial fractures. *Revista Brasileira de Odontologia* 68(2):220-224. (Rio de Janeiro) Brazil.
- Chang, L. (2013). Empirical analysis of the effectiveness of mandated motorcycle helmet use. In Taiwan, *Journal of the Eastern Asia Society for Transportation Studies*, Vol. 6, pp. 3629 - 3644,
- Chepchiong (2012) The influence of urban transport policy on the growth of motorcycle and tricycles in Kenya. University of Nairobi, Nairobi. MA thesis published online.

- Chitere, P.O. (2014). Matatu Industry in Kenya: A Study of the Performance of Owners, Workers and their Associations and Potential for Improvement. IPAR Discussion Paper No. 055.
- Clarke (2012) In-depth study of motorcycle accidents, Department for Transport, U.K.
- Darido (2017) Concerns over the growth of motorcycles in cities, Transport for development: The World Bank Group..
- Denscombe, M. (2014). The good research guide: for small-scale social research projects. McGraw-Hill Education (UK).
- Edson C. and Tandoc Jr (2012). Motorcycle epidemic“ deaths, injuries De La Salle University, Manila, Philippines
- Everett, S. A., Shults, R. A., Barios, L. C., Scks, J., Lowry, R., & Oeltmann, J. (2011). Trends and subgroup differences in transportation related injury risk and safety behavior among high school students, 1991- 1997. *Journal of adolescent Health*, 28, 228-234.
- Federal Road Safety Commission. (2010). Drivers “ Licence Report, FRSC, Abuja.
- Fowler, J. F. (2013). Survey research methods . Sage publications.
- Haqea M, Chinb HC, Huanga H. (2015) Modeling fault among motorcyclists involved in crashes. *Accident Analysis & Prevention* 41 (2):327-335.
- Haworth, N. & Rowden, P. (2013). Challenges in improving the safety of learner motorcyclists. Paper presented at the 20th Canadian Multidisciplinary Road Safety Conference, Niagara Falls, (Ontario) Canada.
- Kayi, C. (2011). An analysis of road traffic accidents using Geographic Information Systems (GIS): A case of Nairobi city, Kenya, Verlag publishers. Hamburg.
- Khayesi M, (2012). An Analysis of the Pattern of Road Traffic Accidents in relation to selected Socio-Economic Dynamics and Intervention measures in Kenya (unpublished PhD Thesis, Kenyatta University)
- Kisia (2017) Motorbikes push popular bicycles out of business, Standard Newspaper Wednesday,

- Kokwaro, P., Ajowi, O. Kokwaro, E. (2013) A Competitive Forces Influencing Business Performance of Bicycle Taxis in Kisumu City, Kenya. *Mediterranean Journal of Social Sciences*. 4(2)719 – 728.
- Kombo, D., & Tromp, D. (2006). *Proposal and Thesis Writing- An Introduction*. Nairobi : Paulines Publications.
- Kothari, C. (2010). *Research Methodology; Methods and techniques*. NewDelhi: Wiley Eastern.
- KNBS (2010) *National Economic Survey, 2010*. Nairobi Kenya National Bureau of Statistics:
- Maina, M. E. (2013). *An assessment of training and safety needs of motorcyclists in Kenya (Doctoral dissertation, KCA University)*.
- Mallikarjuna S K, Krishnappa P. (2015) Prevalence of maxillofacial injuries by motorized two wheeler road traffic accidents in Bangalore city. *Dental Traumatology*25 (6):599-604.
- Miruka Kenan (2013, November, 29th). Police Chief Warns of Rising Boda Boda Accident deaths in Kisii. *The Standard News Paper*. P. 25. www.standardmedia.co.ke.
- Moraa, G. M., (2010). *Road Safety in Kenya: A study of knowledge, Attitudes and practices of drivers of passenger service vehicles*. Lambert Academic Publishers GmbH and Co. KG. Germany. United Kingdom.
- Muhumuza (2016) *Kampala's Transport System under Scrutiny over Motorcycles* East African Business week
- Musilimu, A., & Oluwole, A. (2014) The Level of Compliance of Commercial Motorcyclists to Traffic Rules on Urban Roads in South Western Nigeria. *Journal of Educational and Social Researc*. Vol. 4 No.3. 345 – 351.
- Mustapha S. (2014, August, 6th). 64 Killed in Motorcycle Accidents by June. *The Daily News*. Retrieved October, 17th, 2010 from www.dailynews.co.tz

- Nandwoli, F (2014) Factors Influencing Motorcycle Transport on Creation of Employment Opportunities in Kenya; a Case of Bungoma South Sub-County, Bungoma County. A Master Thesis, University of Nairobi.
- Nyachieo, G. M. M. (2013). Creating Employment through Transport; The Youth and Motorcycle (bodaboda) in Kitengela, Kajiado County-Kenya. *Research Journal in Organizational Psychology & Educational Studies*, 2(4), 154-157.
- Nunn (2014) Death by motorcycle: background, behavioral, and situational correlates of fatal motorcycle collisions. *Journal of Forensic Sciences* 56 (2):429-437.
- Odero, W., Khayesi, M., & Heda, P. M. (2013). Road traffic injuries in Kenya: magnitude, causes and status of intervention. *Injury control and safety promotion*, 10(1-2), 53-61.
- Ogunmodede (2016) Factors influencing high rate of commercial motorcycle accidents in Nigeria, *American International Journal of Contemporary Research*, 2(11): 130 – 140.
- Oluwaseyi, O.S., Edward, E., Eyinda, C.A. and Okoko, Eno. E. (2017) Performance Assessment of Motorcycle Operation, as a Means of Urban Mobility in Lokoja, Nigeria. *Journal of Transportation Technologies*, 4, 343-354.
- Otuya (2015) Management of Bicycle Taxi Operations in Kenya; A Case of boda boda in Kakamega town, *International Journal of Current Research*.
- Peden, M. (2013). *World report on road traffic injury prevention*.
- Roach Max Schanzenbach (2015) *The Effect of Prison Sentence Length on Recidivism: Evidence from Random Judicial Assignment*. Northwestern Law & Econ Research Paper.
- Saunders, M., Lewis, P., & Thornhill, A. (2007). *Research Methods for Business Students*. 4th edition . Edinburgh Gate, Harlow: Financial Times Prentice Hall.

- Siskind (2014) Risk factors for fatal crashes in rural Australia. Accident Analysis and Prevention. Australia.
- SARTRE (Social Attitudes to Road Traffic Risks in Europe) (2014): European drivers and road risk (Arcueil), France
- Sufiyan, M. B, & Ahmad, S. M. (2017). Knowledge, attitude and compliance with safety protective devices among commercial motorcyclists in Tudun-Wada Zaria, North-Western Nigeria.
- SurajiSulistio (2016) Modeling of Motorcycle Accidents of Road Links. Jurnal Transportasi] 10(1): 53-64..
- Teoh Campbell (2010) Role of motorcycle type in fatal motorcycle crashes. Journal of Safety Research,(Jerusalem), Israel.
- Willis, Y. O., & David, O. (2012). A general guide to writing research proposal and Report. A handbook for beginning researchers
- WHO (2009) Global status report on road safety: time for action
- WHO (2012) Motorcycle-related road traffic crashes in Kenya Facts & figures. NairobiRS10 Kenya project:
- WHO (2013) Road Safety in The WHO African Region.The Facts

APPENDIX I: LETTER OF INTRODUCTION

Dear Responded,

RE: QUESTIONNAIRE

I am a student at the University of Nairobi (Extra Mural studies in Kakamega) undertaking a Masters degree in Project Management. As part of my course requirement, I am undertaking a research project entitled, “Accident predisposing factors on operational performance of boda boda projects in Lurambi Sub county, Kakamega town”. The attached questionnaire aims to collect data and information, which will help me complete this research study. Your assistance in filling the questionnaire was of great value.

The information given was used for academic purpose only and was treated with utmost confidentiality.

Thanks in advance for your understanding and help.

Yours faithfully,

Adamba Wendy

APPENDIX II: QUESTIONNAIRE FOR MOTORCYCLE OPERATORS

General instructions:

The purpose of this questionnaire is to collect data on the Accident predisposing factors on operational performance of boda boda projects in Lurambi Sub county, Kakamega town. As you begin each section, please read the directions carefully and provide your responses candidly in the format requested. For questions with boxes, please tick the appropriate box with the correct answer. All your responses and information was treated with strict confidentiality and shall only be used for analytical purpose of the research.

3

SECTION A: DEMOGRAPHIC INFORMATION OF THE RESPONDENTS

(Please tick appropriately)

SECTION A

DEMOGRAPHIC INFORMATION

Instructions

Tick your answer in the appropriate box

- What is your age bracket?
21-30 ()
31-40 ()
41-50 ()
51-60 ()
- What is your level of education?
Primary ()
Secondary ()
College ()

University ()

- For how long have you worked in this organization

Less than 5 years ()

Between 6-8 years ()

Between 9-11 years ()

Over 12 year ()

SECTION B: influence of Alcohol and Drug Abuse on operational performance of boda boda projects

The measurement used was the likert scale; questions below ranges from 1 strongly disagree, 2 Disagree, 3 Neutral, 4 Agree and 5 strongly agree.

Kindly indicate the extent to which you agree with the statement that alcohol and drug abuse influence operational performance of boda boda projects in Lurambi Sub County

Response Item	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
Most of the Boda Boda involved in accidents take alcohol					
The drugs Boda Boda take are easily available					
Most of the Boda Boda are drunk during working hours					
Boda bodas are unable to control the urge to					

abuse drugs and alcohol					
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SECTION C: Influence of Personal Demographic Characteristic on operational performance of boda boda projects in Lurambi Sub County

Response Item	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
Most of the Boda boda involved in accidents are of male gender					
Boda Boda of the younger age below 35 years are the once mostly involved in road accidents					
More often Boda Bodas who are illiterate or less educated are involved in accidents					
Married Boda Bodas are responsible road drivers and less likely to be involved in accidents					

SECTION D: Influence of Training on operational performance of boda boda projects in Lurambi Sub County

Response Item	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree

Certified boda boda riders rarely get involved in road accidents					
Training institutions have the capacity to train boda bodas					
Experience that a Boda boda has contributes on whether he was involved in an accident or not					
Refresher courses are important because they help reduce road accidents					

SECTION D: Influence of Compliance to Government Regulation on operational performance of boda boda projects in Lurambi Sub County

Response Item	Strongly Agree	Agree	Undecided	Disagree	Strongly Disagree
Most Boda bodas are not Licensed motorcycle riders					
Boda Bodas do not know how to use highway code and sign					
They do not abide by the government policy of having an insurance and incase of an accident					

they are helpless					
They do not follow safety regulations					