

MOTORCYCLE PUBLIC TRANSPORT SERVICES IN KENYA:

**A study of their Compliance with Road Safety Regulations in Kitale
Municipality**

BY

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DECLARATION

This project is my original work and has not been presented for a degree in any other university.

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This proposal has been submitted for examination with my approval as a university Supervisor.

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DEDICATION

This project work is dedicated to my loving wife Lydia Etemesi who has been of great support to me. Special thanks go to my sons: Samuel Wema, Philip Ahadi and James Fadhili who have showed patience and understanding.

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ABBREVIATIONS

NMIMTS-non-motorized and intermediate mode of transport.

GEF -Global Environmental Facility

SOTUC -Soci'ete' des transports Urbains du Cameroon.

UTC-Uganda Transport Company

PTC-Peoples' Transport Company

SACCOS-Savings and credit co-operative society

NHTSA-National Transport and Safety Authority

PSV- Public Service Vehicle

UN-United Nation

GOK-Government of Kenya

GNP- Gross National Product

SPSS-Statistical package for social sciences

ABSTRACT

The study was conducted in Kitale Municipality to determine the level of compliance with road safety regulations among public motorcycle transport operators. The research study had three objectives. The first objective was to find out the characteristics of public motorcycle operators second, determine their level of awareness of government policy and regulations and the third to examine their level of compliance to road safety regulations. The study was informed by two theories namely; rational choice theory and systems theory. The study was conducted using descriptive survey, employing both quantitative and qualitative approaches to source, process and analyze data. Data was collected using a set of questionnaire for public motorcycle operators and interview guide for key informants (see annexes I, II & III). Quantitative data was analyzed using statistical package for social sciences (SPSS) while qualitative data was analyzed using thematic categorization and narrations.

The findings on characteristics of operators showed that majority of them were males below 39 years of age. More than half were primary school leavers, married and had dependent children. On level of awareness of government policy and regulations, less than half knew the required license needed for one to ride a motorcycle, majority could not mention the specific government Act regulating their operations. On the level of compliance with road safety regulations, over 80% of them acquired riding skills informally from their fellow operators, less than half were tested by traffic police in driving and issued with licenses. On riding habits most operators over speed and overloaded their bikes.

The use of head lights and protective gears among operators was low. One key recommendation from the study is the need to enforce the existing government rules and regulations without fail by government agencies. In addition, proper training and testing of operators before issuing them with licenses will help reduce road accidents.

CHAPTER ONE: INTRODUCTION

1.1 Background of the study

Transport plays a key role in any given society at any given time. Transport is concerned with the movement of people, goods and services from one point to another for either personal or business purposes. There are two major elements that are critical in transport movement; first is the infrastructural facilities like roads and railways and the second is the operation of transport vehicles like trucks, cars, trains, buses and motorcycles. The demand for transport is a derived one in the sense that it originates from the needs of people for example, to travel to places of work, schools, markets and the needs of business like moving industrial raw materials and manufactured products. Transport therefore plays the role of providing satisfaction of some other needs (Bamford, 1998).

Transport provides linkages to and between different institutions. From a social point of view, it is through transport that members of a society can access job opportunities, health services, education services and food items essential for survival (World Bank, 2002). Hoyle (1973) noted that the interaction between the level and pattern of transport resources and the average level of living standards of members of society in a particular area is a crucial factor affecting their economic and social progress. This is true especially in urban centres and cities in the low and middle income countries in the world. There is a mutual relationship between changes in transportation technology and the growth of cities (Hall, 1992). The transport system in a significant way shapes the growth of urban centres and cities but on the other hand such growth can constrain the transportation alternatives that are available. Cities and emerging urban centres rely heavily on an efficient and effective system that ensures the constant supply of goods and services. African cities for example, are growing rapidly in the range of 4 and 6 percent annually. In 2000, one in three Africans lived in a city; by 2030, it is expected that one in two will do so. These cities are largely administrative, industrial and commercial capitals, headquarters of at least 70% of the commercial banks, insurance companies, industries, more than 50% of the national manufacturing sector with a big share of skilled labour force (Kumar 2011). For such commercial activities to be transacted, there must be a well developed and properly

functioning transport system. The high population growth rate of between 4 and 6 percent annually has led to expansion of low class residential areas for the majority poor (UN HABITAT, 2008). There have been difficulties in meeting the basic needs of urban residents, particularly, the poor who depend on public provision of water, electricity, transport and other services.

The key modes for mobility in a city include non-motorized (walk and bicycle) and motorized. Most developing countries in Asia have had transport policies that favour non-motorized and intermediate mode of transport (NMIMTS). Asingo (2004) pointed out that China for a very long time had traditionally emphasized the use of NMIMTS. China being the largest manufacturer of bicycles has had the highest fleet of bicycles in the world till recently in the 1990's that there was a decline due to increased access to more convenient, safer and faster modes of transport. Countries like Chile, Peru and Philippines which had ignored the NMIMTS had started shifting from motorized transport to NMIMTS. Chile for example, constructed a 40 kilometer bike line in Santiago city of which 19 km was funded by the Global Environmental Facility (GEF). This was geared towards facilitating more use of bicycles, easing congestion on roads and controlling pollution. In Lima, Peru the World Bank financed an NMIMT, the Callao project in the early 1990s, by extending bikeway network to connect to public bus system.

The motorized modes of transport include vehicles owned and operated by individuals for private and those available to the public under public or private ownership (Kumar 2011). In Sub-Saharan Africa cities, transport has been dominantly the motorized one. In Douala, Cameroon until 1995 public transport services were operated by a state owned company, SOTUC (Soci'ete' des transports Urbains du Cameroon). In Kampala, Uganda Public transport was provided by two private monopoly bus companies, Uganda Transport Company (UTC) and peoples' Transport Company (PTC). In the recent decades these companies started disappearing and led to the emergence of informal transport services. Olvera Diaz, Plat and Maidadi (2012) noted that state transport companies stopped their operations in the mid 1980s and 1990s due to the summed up effects of poor management, the absence of a coherent transport policy and structural adjustment programs. Structural adjustment programs came up with policies that aimed at reducing state provision of social

services and reducing public expenditure. These policies disrupted the large public companies but there were no efforts to get a better alternative from the private sector to provide the much needed transport services.

A decline in organized public transport system led to rapid growth in non-conventional means of public transport initially provided by minibuses and shared taxis or vans and more recently by public motorcycles (Kumar, 2011). Over the last decade the use of public motorcycle taxis in Sub-Saharan Africa, Latin America and Asia has been significant. Motorcycle transport is a popular mode of transport in eleven countries of South Asia (Santikarn, 2010). In 2009, the cumulative registered number of motorcycles was 55.7 million. The highest number was in India (15.9 million) followed by Indonesia (18.8 million) and Thailand (17.8 million). The percentage of registered motorcycles among all types of registered vehicle was 55.7 percent for the region. At country level, Nepal ranked first (81.8%) then Maldives (79.9%) and Indonesia (75.2%). This high percentage of registered motorcycles has not been seen in any high income countries, where registered motorcycles is only less than 4% of all registered vehicles. Motorcycles as can be seen have traditionally been associated with Asia rather than Africa, but this is rapidly changing. In Nigeria by 1980 motorcycles for public purposes were operating in many urban centres (Oladipo, 2002). In Lagos for example, public use of motorcycles began in 1980. With a decline in formal public transport system, their use spread to other parts and become popular by early 1990s and almost 10,000 motorcycles were registered for commercial purposes in 1995. With high inflation and economic recession in Nigeria, Commercial motorcycles had reached about 200,000 units in 2007 (Kumar, 2011).

In Kenya the non-motorized and intermediate modes of transport (NMIMTS) has not been mainstreamed into the countrys' transport system (Asingo, 2004). In Nairobi city for example, it is estimated that about 40% of its residents walk on foot while going to their places of work while only 4% use bicycles. Government of Kenya, Economic Survey, (2012) report indicated that motorcycle registration was the highest at 68.1% of all the total new motor vehicles registered in the country. This is an indication that commercial motorcycle taxi business is becoming dominant in Kenya. Active "boda boda" services in Kenya has been around since 1992 when young people in Busia town that shares the border with Uganda started using bicycles to transport goods

across the border. The concept “boda boda” originates from the English word “border” thus “boda boda” or border-to-border. Young people picked up the innovation and the idea spread to other parts of western Kenya (Amimo, 2001; Malmberg, 1994). Both bicycles and motorcycle services are often known by the same name (Kawour, 2009). “Boda boda” public taxi services are now widespread covering almost all major towns across Kenya. The number of registered motorcycles in Kenya rose from 16,293 units in 2007 to 140, 215 in 2011 (Government of Kenya, Economic Survey, 2012).

While motorized transport has expanded in many cities in the world, there has been a growing trend in the number of accidents occurring. Death and injuries from road traffic crashes are a major public health epidemic. Each year about 1.3 million people die in road crashes and the number of seriously injured could be as high as 50 million. The burden of road crashes costs between 1-3% of the world's GDP. It is estimated that almost nine out of ten road deaths and serious injuries occur in developing countries. In high income countries, road deaths are expected to fall but in the rest of the world they are likely to increase by more than 80%. The poor people are the most vulnerable especially the pedestrians, bicyclists and motorcyclists (Mumford & Bradford 2009). US Department of Health and Human Sciences (2012) indicated that in 2010, 4502 motorcyclists (Operators and Passengers) were killed in motorcycle crashes. This constituted 14% of all road traffic deaths, yet motorcycles accounted for less than 1% of all vehicle miles travelled. In Malaysia, about 60% of both road traffic fatalities and injuries were motorcyclists, (Hashim, 2010). In Iran, nearly 6000 motorcyclists die annually due to traffic injuries which stand for one forth of traffic fatalities, (Abdoos, 2010).

The rapid growth in public service vehicles has been accompanied by an equal increase in road accidents and associated fatalities and injuries and a consequent high cost in terms of productivity and health care (Chitere, 2006). The annual cost of road traffic crashes in low and middle income countries is estimated to be between US \$ 65-100 billion, more than the total annual obtained from development aid (Kudebong et al. 2011). The estimated costs as a percentage of the Gross National Product (GNP) in most African countries range from about 0.8% in Ethiopia and 1% in South Africa to 2.3 % in Zambia and 2.7% in Botswana to almost 5% in Kenya.

In Kenya, more than 3000 people die annually as a result of road traffic accidents. Out of this approximately 7% are motorcycle riders- a five-fold increase over the last five years (UN Kenya, 2012). Most hospitals in western Kenya region that is Kisumu, Kakamega, Bungoma, Kapsabet, Kitale and Eldoret have special wards in place to cater for “boda boda” traffic accident victims. At Rift Valley Provincial Hospital a special ward has been set aside for victims of “boda boda” accidents (Motano, 2012). This is a case that is similar to other African countries where motorcycle public transport taxis are found. At the National Orthopedic Hospital Igbobi, Lagos Nigeria there is a ward called "Okada" wholly devoted to patients involved in motorcycle accidents. “Boda boda” injuries admitted at Mulago National Hospital in Kampala, Uganda are second to motor vehicle traffic injuries. The commonest injuries involve the lower extremity, the majority of them being open tibia fractures followed by head injuries (Naddumba, 2001). In spite of these challenges the “boda boda” mode of transport is becoming entrenched in Kenya's transport system both in the urban and rural areas. This study therefore seeks to determine public motorcycle transport compliance with road safety rules and regulations in Kitale municipality. The study is relevant to my area of specialization in the sense that public motorcycle taxi enterprise has contributed a lot in terms of employment opportunities to the youth. The enterprise while solving the problem of poverty and unemployment has on the other hand been blamed for the rising number of traffic accidents. The “boda boda” enterprise is here to remain and therefore the focus should be geared towards making it more effective and efficient in service delivery with minimal levels of road traffic accidents.

1.2 Statement problem

Public motorcycle transport business has become a source of livelihood for many unemployed youth in Kenya. Many households in Kenya rely directly or indirectly on this enterprise for survival. Motorcycle registration was the highest at 68.1% of all total new motor vehicle registered (G.O.K Economic survey, 2012). This is an indication that public motorcycle transport is becoming dominant in Kenya. One notable challenge that comes with this rapid growth is the challenge of road accidents.

In Kenya, more than 3000 people die annually as a result of road accidents. Out of this approximately 7% are motorcycle riders- a fivefold increase over the last five

years (UN Kenya, 2012). Road traffic crashes are a major cause of misery, disability and death affecting households. Many media reports in Kenya have highlighted the challenges of road safety. In one of the articles (Daily Nation 15th July 2013) titled “Motorcycles leading cause of fatalities” by nation correspondent indicated that in a month in Kisii town there were ten deadly “boda boda” accidents. Motorcycle transport unless well regulated will cause a lot of suffering to road users due to traffic accidents. A substantial number of fatal accidents in Kenya involve public motorcycles. It is therefore important to investigate the levels of compliance with the existing road safety regulations in order to provide direction on measures to take to control the road menace. Failure by operators to comply with the road safety rules and regulations can contribute to road accidents. Improved road safety will reduce loss of lives, business investment, livelihoods and injuries that lead to disabilities. Increasing number of accidents put a lot of pressure on already burdened health system in the country. Most household livelihoods are disrupted when the bread winner is involved in fatal road accident.

Public motorcycle enterprise is relatively new in Kenya compared to other countries in sub-Saharan Africa like Nigeria. A few studies have been done in Kenya on public motorcycle transport. These studies have focused more on its growth and expansion. Mbugua (2011) examined the effects of motorcycle transport revolution and its effect on economic growth of Kenya. Kimwetich, Kyalo and Mulwa (2008) conducted another study in Kitui town to investigate the influence of urban transport policy on the growth of motorcycles and tricycles as a preferred mode of public transport in Kenya. Maina (2011) in his study assessed training and safety needs of motorcyclists in Kenya. In this study, a framework for training motorcyclists and causes of accidents were examined.

Whereas such studies have been done certain areas need more studies. Such areas include awareness and compliance with road safety regulations by the operators. This study therefore examined the levels of awareness and compliance with the existing traffic rules and regulations by motorcycle operators in Kitale Municipality in Kenya. Among the regulations examined in this study included; Training and acquisition of riding skills by operators, acquisition of riding licenses, insurance cover, wearing of protective gears like helmets, passengers carried per trip and riding habits.

1.3 Research questions

- a) What are the characteristics of “boda boda” operators within Kitale municipality?
- b) What is the level of awareness of government policy and regulations among the “boda boda” operators in Kitale Municipality?
- c) What is the level of compliance of motorcycle public transport operators with road safety in Kitale Municipality?

1.4 Main objective

To understand the level of compliance with road safety regulations by public motorcycle operators in Kitale Municipality.

1.5 Specific objectives

- a) To find out the characteristics of motorcycle public transport operators.
- b) To determine the level of awareness of government policy and regulations among operators in Kitale Municipality.
- c) To examine the level of compliance of motorcycle public transport operators with road safety regulations in Kitale Municipality.

1.6 Significance of the study

- a. The study sort to examine the level of awareness of operators’ knowledge about government policy and regulations on motorcycle public transport. The study will help to determine how knowledgeable the operators are concerning relevant policy and regulations governing their operations. This in turn will help formulate relevant interventions aimed at creating more awareness on government policy and regulations. More awareness among “boda boda” operators will help reduce traffic road accidents.
- b. The study will profile the socio-economic, general and industry specific characteristics of “boda boda” operators. This will help in re-formulating specific intervention policies that will enhance the road safety of “boda boda” enterprise.
- c. The study findings may also be used for comparative study purposes and reference

material for further research on “boda bodas”. The study will explore and raise questions that may call for extensive survey and scrutiny by other experts in community development.

1.7 Scope of study and limitation

Road safety in Kenya is not only a concern to public motorcycle transport but of motorized transport as a whole. Due to limited resources this study focused on public motorcycle in Kenya with reference to Kitale Municipality. The target population of this study was public motorcycle taxi operators within the town and key informants drawn from Traffic police department and medical personnel at Kitale District Hospital. The study profiled taxi operators, examined levels of awareness and compliance with rules and regulations.

Lack of enough resources made it impossible to cover a large sample that is good for generalization purposes.

1.8 Definitions of terms used in the study

“Boda boda”: Motorcycle used for public transportation of passengers at a fee.

Matatu: A public service vehicle (PSV) used to transport passengers.

Training: The level of competencies and skills of “boda boda” operators in motorcycle riding.

Experience: number of years the operator has been consistently riding the “boda boda”.

Level of education: number of years spent in school by “boda boda” rider/ driver

Okada: Public motorcycle used in Nigeria.

Pillion passengers: These are customer clients of public motorcycle operators.

CHAPTER TWO: LITERATURE REVIEW

This chapter examines literature review on key thematic areas which are characteristics of public motorcycle operators, levels of awareness and compliance with traffic laws and regulations.

2.2 Characteristics of public motorcycle taxi operators

There are very few studies that have been conducted in East Africa to profile public motorcycle operators. Kisaalita and Kibalama (2007) found that all motorcycle taxi operators in Kampala city were males and over 90% of respondents were in age bracket of 16-30 years old. In this study, 56% of operators were married and the level of education ranged from primary to secondary. Primary school leavers constituted 46% followed by secondary school leavers (“O” level) at 32%.

Odumosu and Yaro (2008) in a study in Nigeria indicated that the ages of majority of motorcycle operators ranged between 19-36 years constituting 73% of the total sample population. In terms of education, the study did indicate that 73% of motorcycle operators attended school up to secondary, 14% had post secondary education while 5% had no formal education.

Maina (2011) showed in his study that all operators were male, 49% married while 51% single. Majority of them belonged to age bracket 16-19 years constituting 62% of the total sample population. In terms of education those who had completed primary education were 25% while 75% had completed secondary.

One key factor related to road safety is the rider’s age. Available literature showed that adolescents and young adults frequently got involved in accidents compared to other age-group categories (Beenstock & Gafni, 2000). Young drivers / riders tend to take risk behaviors while on the roads (Vasconcellos 1990; Zhang, Frazer, Lindsay & Mao, 1998).

Massie, Campbell and Williams (1995) indicate that males have a higher risk

experiencing fatal crashes compared to female drivers. Odera, Garner and zwi (1997) reported that men in developing countries are more exposed to the danger of accident injuries than females. The high percentage of male getting involved in accidents is attributable to high numbers of male in driving profession compared to females.

2.3 Level of awareness and compliance to traffic laws and regulations by motorcycle operators.

The emergence of public motorcycle taxi business in most countries in sub-saharan Africa was to a larger extent facilitated by lack of proper laws and regulations. This has been shown by various studies. Olvera Diaz, Plat and Maidadi (2012) showed that the government of Cameroon issued a decree setting out rules and regulations governing public motorcycle operations in 1995. Most operators as late as 2012 had not complied with basic requirements in riding like getting a license, wearing helmets by operators and the passengers or the painting of motorbikes with yellow colour. In 2008 in Douala, the study established that 17% of the riders did not have operating licenses and 34% did not have other necessary registration documents.

Jorgensen and Abane (1999) in a study in Ghana, showed that traffic regulations schemes were not systematically implemented and the traffic police service was less well trained to handle traffic problems.

Training of drivers increased their driving skills. Asogwa (1992) in a study in Nigeria showed that a large number of drivers who had valid driving licenses had never gone to training colleges or tested as required by the law. Drivers who are not trained have higher chances of breaking traffic rules and regulations and thus causing accidents. Most crashes are caused by less experienced and non professional drivers (Asogwa, 1978).

Some studies have been conducted on riders and drivers after being involved in motor accidents. In these studies alcohol and other drug substances have been identified to be a major cause of drivers/ riders impairment in making wrong decisions while on the roads (Violant & Marshall 1996; Kayombo 1995; Broughton 1991; Shibata 1994). Driving under the influence of alcohol and other intoxicating substances is known to impair the drivers' ability to make right decision and control of the vehicle (Orsay, Dowan, Lewis & Rama 1994).

Shibata and Fukuda (1994) and Zhang et al. (1998) identified excessive speed or riding above set speed limits as a major contributing factor to road accidents and subsequent injuries and deaths. Fatigue has been identified as a contributing factor in causing accidents.

In many countries, motorcycle taxi operators have organized protests against governments to protect their interests. This has demonstrated a failure by regulatory agencies to control them. Such protests have been conducted in various cities as seen in Douala and Kampala (Konings 2006; Goodfellow & Titea 2012). In Kampala for example, the city council introduced a licensing tax on all public motorcycle taxis in 2002 but the tax was abandoned in 2004 after the “boda boda” operators rejected it. Implementation of other control measures failed in Kampala like operators required to operate outside the central business district, operators to have two helmets, reflective jacket, gloves and driving permits (Good fellow & Titea 2012).

Kisaalita and Kibalama (2007) established that seven out of 37 “boda boda” operators sampled had valid driving permits. This translates to only 19% of the total sampled operators having driving permits. The remaining 81% were on the roads illegally. In the same study, almost 30% of the motorcycle operators had taught themselves how to ride a motorcycle. This means that quite a big number of operators had not been properly trained or tested as required.

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 & Matarmi 2012). The two studies showed that to a large extent 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 55.5% 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.

Preusser, Williams and Ulmer (1995) in USA carried out an analysis on characteristics of 2074 fatal motorcycle crashes by examining data from the Fatal Accident Reporting System (FARS) and identified ten main types of fatal crashes and associated factors. The findings indicated that running off road crashes accounted for 41.3% of fatalities followed by crashes involving failure to obey traffic laws at 18.1 % and head on crashes at 10.8%. Other categories were turning across traffic, rear-ending other vehicles and striking objects on the road way. Haworth, Smith, Brumen and Pronk (1997) analyzed 222 motorcycle crashes in Victoria and identify six safety issues in motorcycling. The issues identifies were inexperience, road environmental factors, alcohol and use of drugs, unfamiliarity with the vehicle, poor bike maintenance and inappropriate speed. According to this study 23% of crashes were due to over speeding.

In a cross-sectional study on "boda boda" injuries at Mulako Hospital in Kampala, Uganda, road traffic injuries were the leading causes of surgical admissions in the

hospital (Naddumba 2001). This had been attributed to reckless motorcycle operators. The desire to make quick money led motorcyclists to over speed and ride in a zig zag style so as to beat the traffic jam. According to the findings, some motorcyclists were unlicensed and rode under the influence of alcohol or other drugs “Boda boda” injuries accounted for 25% of all cases, pedestrians and motorcyclists were injured in the 78% of “boda boda” accidents. Young motorcyclists are reckless, indisciplined and lack respect for other road users. They hardly wear protective gear while riding. The most injured category were the businessmen and students.

Chalya et al. (2012) noted that road traffic crashes constituted a major public health problem and significantly contributed to unacceptably high morbidity and mortality in Tanzania. The study revealed that pedestrians were most vulnerable to injury and death. This was attributed to a number of factors; lack of pedestrian facilities when roads were being constructed, poor knowledge and practice of road safety measures by the general population, recklessness by motorists and driving at high speed.

2.4 Theoretical framework

To understand the challenges of road safety in relation to “boda boda” taxi mode of transport, the study was informed by two theories; rational choice theory and systems theory.

Rational choice theory

Rational choice theory also known as rational action theory, is a framework for understanding social and economic behavior. The basic assumption of this theory is that social phenomena can be explained in terms of individual actions of which they are composed of. The basic idea of rational choice theory is that patterns of behavior in societies reflect the choices made by individual actors as they try to maximize their benefits and minimize costs. This can be simply stated that people make decisions about how they should act by comparing costs and benefits of different courses of action. The end result will be patterns of behavior that will develop within the society from those choices. The theory emphasizes the individual social actor, his or her interests as the starting point. Social institutions and social change can only be explained as arising from the actions and interactions of individuals. Actors are seen as being purposive or have intentions towards a certain goal. The goal is shaped by

values and preferences. This theory holds that individual actors must anticipate the outcome of the alternative course of action and determine that action that will be best to undertake. Rational choice theory informed the study on the importance of the individual actors in making the motorcycle public transport taxi enterprise a success or failure. The theory helped the study to explain the attitudes, perceptions and responses of motorcycles operators, and passengers towards their compliance to traffic rules and regulations as pertains to road safety. The “boda boda” operators and passengers should comply with traffic regulations if order and road safety is to be realized. The “boda boda” operators, passengers, pedestrians, traffic police officers, county government officials and other actors have to act in a rational way so as to reduce road traffic accidents and enhance order in the “boda boda” business.

Systems theory

Ludwig Von Bertalanffy, William Ross Ashby and others founded systems theory based on principles from physics, biology and later in engineering. Systems theory or general system theory or systemic is an interdisciplinary field which looks at system from a holistic perspective. Systems theory is used in other fields, such as action theory of Talcott Parsons and the social systems theory by Niklas Luhmann (Allan 2007).

A system is a set of related components that work together in a particular environment to perform certain functions so as to achieve certain objectives. Systems work towards the realization of goals. One of the most important concepts in systems theory is interdependence between systems or sub- systems. Systems rarely exist on their own or in isolation. A system will comprise of regularly interacting or interdependent group of activities or parts that form a whole. There is always closer interdependence between groups of individuals, structures and processes that enable a system to function.

Systems theory helped in identifying interrelated components that are underplay within a public motorcycle transport system in an urban environment. Key components in this study included motorcycle taxi operators, Traffic police officers, pillion passengers, county government officials related to transport matters, medical personnel that attend to accident victims at hospitals and other road users. Some of the interrelated systems under this study included; public motorcycle transport licensing,

insurance, training, traffic control and motorcycle repairs and maintenance.

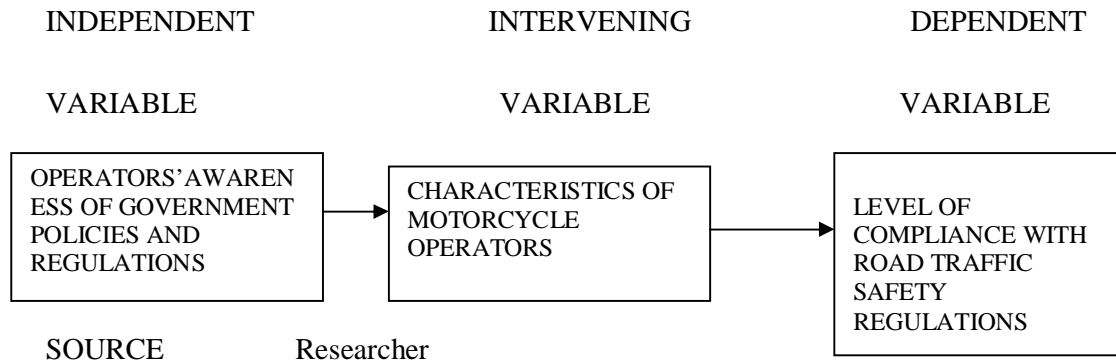
The relevance of systems theory in this study can be seen from three different levels. First, the model helped to identify the existing government Traffic laws and regulations and models of enforcement geared towards ensuring that road traffic laws on Kenyan roads are followed. Second, the model helped in identifying risk factors that are associated with public motorcycle operators and thirdly, the model helped in understanding the existing human behavior especially among the operators and law enforcers that contribute to road safety.

The enforcement of traffic laws and regulations in line with Highway Code and ensuring that all road users adhere to them is the starting point in addressing the problem of public motorcycle road safety. The riding style and behavior of “boda boda” operators and the level of compliance with laws and regulations has a direct bearing on the levels of road safety. Various control mechanisms must work closely to ensure total compliance to traffic laws and regulations. Kenya Traffic Police department, National Transport and safety Authority (NTSA), driving schools, county governments, operators and passengers all must work to ensure road safety standards are maintained and upheld. Comprehensive road traffic management system is needed to have public motorcycle road safety.

Public motorcycle transport enterprise like all other systems has forces that rush towards disorganization and death (entropy). Entropy is a measure of the degree of disorder in the system. For any system to survive there is a need to have checks to monitor the correctness of its output. The system has to develop “negative entropy” to counter the destructive force. Negative entropy that would help enhance public motorcycle road safety include total compliance to traffic laws and regulations, standardized training and testing of operators, provision of facilities for operators within the municipality and general sensitization of all road users to adhere to road safety.

2.5 Conceptual framework

The study was based on the following conceptual frame work in fig 1.



2.6 Operational definitions

Government policy and regulations- These are guidelines stipulated in the Transport Act (Laws of Kenya) governing the public motorcycle transport services in Kenya. The rules and laws are established by national and/or delegated authorities that govern the design of standards, levels of application, punishments, fines and sanctions, inspection and control of public motorcycle transport services.

Level of compliance with road traffic safety regulations-This is the measure at which public motorcycle transport operators adhere to traffic laws while riding on public roads.

Road traffic safety- This is an indication of how secure road users are on the road.

Characteristics of motorcycle operators- These are socio-economic and physical attributes of motorcycle operators.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the methodology that was used in conducting the study. This was a descriptive survey on public motorcycle taxi operators within Kitale municipality in terms of their characteristic, level of awareness of government policy and compliance to road safety regulations.

3.2 Scope of study

The study focused on Kitale municipality in Trans Nzoia County, Kenya. The choice of the municipality was due to the fact that a large number of public motorcycle operators exist and were within the reach of the researcher.

3.3 Study population

The respondents in the study included public motorcycle operators, Kitale traffic police and Kitale district hospital staff. According to Trans Nzoia “boda boda” Sacco society limited, the town had 37 motorcycle operator stages located along major roads with an average of 15-20 public motorcycle operators in every stage.

3.4 Research design

The study was conducted using descriptive survey. Descriptive survey has the ability to elicit a large amount of information by administering a single questionnaire to a large number of respondents. The study applied both quantitative and qualitative approaches to source, process and analyze the data.

3.5 Unity of observation and analysis

The unity of observation and analysis was the public motorcycle transport operators within Kitale Municipal council. Within the municipality there were 37 motorcycle operator stages with an average of about 15-20 motorcycle operators in each stage.

3.6 Sampling of the respondents

The study set out to get a representative sample of public motorcycle transport operators within Kitale Municipal council.

a) Public motorcycle operators.

Public motorcycle operators within Kitale municipality operate from specific stages along major roads. Passengers are picked from stages and transported to desired destinations within or outside the town. At the time of study, there existed 37 motorcycle operator stages in the town. Using cluster sampling technique, the town was divided into four zones based on the major roads linking the town to other parts. The four clusters were, north, east, west and south.

From each cluster, three motorcycle operator stages were selected using simple random sampling. From each selected stage, five motorcycle operators were selected using simple random sampling. The total number of selected respondents was sixty (60) that participated in the research study.

b) Key informants

Key informants were drawn from traffic police department and Kitale District hospital. These were two key institutions that dealt with issues of public motorcycle transport in relation to traffic safety. Using purposive sampling, five (5) traffic police and five (5) medical personnel at Kitale district hospital were selected to participate in the research.

3.7 Data collection and analysis

Data was collected using two tools: A questionnaire and an interview guide. Motorcycle taxi operators were provided with questionnaires to fill (see annex I). Respondents who were unable to read and write were assisted by the author and his assistants. Key informants were interviewed by the author using an interview guide (see annexes II&III).

After data collection, all completed questionnaires were examined, information organized and coded for analysis. The statistical package for social science (SPSS) was used to analyse the information. Quantitative data were analyzed using descriptive statistics by organizing it into frequency distribution tables and percentages. On the other hand, qualitative data were analyzed using thematic categorization and narrations given by respondents.

3.8 Response Rate

The study targeted 60 “boda boda” operator and 10 key informants drawn from Traffic police department and medical personnel from Kitale District Hospital. From the study, 60 out of the 60 sampled “boda boda” operator respondents filled the questionnaires making a response rate of 100%. The key informants were identified from Traffic Police Department and the medical personnel from Kitale District Hospital. According to Mugenda and Mugenda (1999) a response rate of 50% is adequate for analysis and reporting; a rate of 60% is good and a response rate of 70% and over is excellent; therefore, the response rate in this study was excellent for analysis and reporting.

However, there were challenges that the researcher faced in the data collection. First, the “boda boda” operators who were key in this study resisted the idea of giving the information. The reason behind this was their fear of being investigated by the authorities on their activities and subsequent punishment. This was solved by the researcher identifying himself by showing the letter from the University permitting him to collect data. The other big challenge came from the key informants. The researcher had to wait for more than a week to get the Traffic Department commandant’s approval to interview him and other officers. At Kitale District Hospital there was a challenge of waiting for approval as there were laid down procedures to be followed before one is allowed to conduct a study there.

CHAPTER FOUR: DATA ANALYSIS, PRESENTATION AND INTERPRETATION OF FINDINGS

4.1 Introduction

This chapter presents the results of the study. The study set out to investigate road safety among public motorcycle transport operators in Kitale municipality. The objectives of the study were: To find out the characteristic of public motorcycle transport; to determine the level of awareness of government policy and regulations among the operators and to examine the level of compliance of motorcycle public transport operators with road safety.

4.2 Characteristics of public motorcycle operators

The first objective was to find out the characteristics of motorcycle public transport operators. The characteristics were: Age, gender, level of education, Marital status, area of residence and number of children in school.

4.2.1 Age of public motorcycle operators.

On the age of the respondents, the study found that a majority of the respondents were between 20- 29 years (53%), (18%) were aged between 30-39 years, (15%) were aged below 19 years, (12%) were aged between 40-49 years while (2%) were over 50 years as indicated in Table 1 below. This showed that majority of the respondents are young people.

Table1: Public motorcycle operators' age

Age	Number	%
Below 19 years	9	15
20 – 29 years	32	53
30 – 39 years	11	18
40 – 49 years	7	12
Over 50 years	1	2
Total	60	100

4.2.2 Gender of public motorcycle operators.

From the findings all of the “boda boda” operators were male.

4.2.3 Level of Education of public motorcycle operators.

The findings in Table 3 show the level of education of “boda boda” operator respondents. Those of lower primary constituted (20%), upper primary (37%) and secondary school (43%). The findings show that the majority of respondents were secondary and primary school leavers.

Table 2 Level of education of public motorcycle operators

Level of education	Number	%
Lower primary	12	20
Upper primary	22	37
Secondary school	26	43
Total	60	100

4.2.4 Marital status of public motorcycle operators.

On the marital status of the respondents, the data in Table 4 show that 62% were married, 36% o single, while 2% divorced. These results show that majority of the respondents were married and therefore responsible and accountable.

Table 3 Marital Status of public motorcycle operators

Marital Status	Number	%
Married	37	62
Single	22	36
Divorced	1	2
Total	60	100

4.2.5 Number of public motorcycle operators with children in school

With regard to the number of operators with children in school, the findings indicated

that there were 29 respondents with children in school, 24 respondents without children in school, 19 respondents with no children and 3 operators with children working. Most operators had dependants in their households.

Table 4 Number of operators with children in school

Schooling of operators' children	Number	%
With children in school	29	39
With children not in school	24	32
With no children	19	25
With children working	3	4
Total	75	100

4.2.6 Place of residence of public motorcycle operators

The study sought to find out the place of residence of the respondents. From the findings, (93%) indicated that they were residents of Kitale Town while (7%) were none residents as seen in Table 5.

Table 5 Place of residents of public motorcycle operators

Place of Residence	Number	%
Kitale Town	56	93
Outside Kitale Town	4	7
Total	60	100

4.3 Level of awareness of government policy and regulations among public motorcycle operators.

The objective was to determine the level of awareness of government policy and regulation among “boda boda” operators. The level of awareness was determined by asking: What type of license is required to ride a motorcycle, Kenyan law governing motorcycle riding, specific traffic rules and regulations to be observed while riding on a public road.

4.3.1 Type of license required to ride a motorcycle on public road.

When asked about the type of license required to ride a motorcycle, 48% of the respondents indicated F and G classes were the licenses required, 22% indicated E, 18% indicated A while 12% indicated BCE. From these findings those who selected the right license as F and G were less than half. This means that majority of operators do not have the licenses and are not even aware what type of license is required for one to ride a motorcycle.

Table 6 License required for one to ride a motorcycle

Type of License	Number	%
BCE	7	12
E	13	22
A	11	18
FG	29	48
Total	60	100

4.3.2 Awareness of law governing motorcycle transport.

The study sought to find out respondents' awareness of the laws of Kenya governing the public motorcycle transport ("boda boda" services). According to the findings, majority of them could not mention The Traffic Act Cap 403 of Laws of Kenya (1993). Only 18% of respondents mentioned traffic laws, the majority at 65% indicated that they did not know the law while 12% mentioned Michuki Rules.

Table 7: Law governing public motorcycle transport.

Law governing motorcycle transport	Number	%
Don't Know	39	65
Traffic laws	11	18
Michuki rules	7	12
Laws	2	3
Traffic motorist Act	1	2
Total	60	100

4.3.3 Awareness of traffic rules and regulation governing motorcycle transport.

When asked to mention specific traffic rules and regulations governing public

motorcycle transport, majority of them could not mention them. Only 10 respondents, constituting 16% of total respondents mentioned riding within speed limits, “not overloading” “having a riding license” and “always keeping distance”. The remaining 84% of operators gave sketchy responses to this question. Many of the sampled responses given by majority of operators indicated (“wearing a helmet” “wearing a jacket” “keeping left always while riding” “keep distance” “keeping motorcycle in good working condition” “following all rules” “observing all rules” “no drinking and riding”). From these responses, it showed low levels of awareness of government regulations among operators. This further indicates low levels of competence in riding. Awareness is the first initial step in bringing safety on the roads.

4.4 Compliance with road safety rules and regulations.

The third objective was to examine the level of compliance by the motorcycle public transport operators with road safety regulations in Kitale Municipality. The following are the regulations that operators are required to comply with;

- 1 Possession of valid riding license
- 2 Trained in motorcycle riding in accredited institution
- 3 Tested by traffic police
- 4 Wearing of protective gear by both the rider and passenger
- 5 Carrying one passenger per trip
- 6 Having an insurance cover
- 7 Riding with headlights on during daytime
- 8 No riding under the influence of alcohol
9. Riding below the speed limits.

4.4.1 Acquisition of motorcycle riding skills by public motorcycle operators

With regards to where they had acquired their riding skills from, 82% indicated that they had acquired them from fellow “boda bodas” operators, and only 18% had acquired their riding skills from private colleges. This indicated that most operators did not have the required driving skills to operate motorcycles.

Table 8 Riding skills acquisition by operators

Training Sources	Number	%
From fellow “boda boda” operators	49	82
From private college	11	18
Total	60	100

4.4.2 Test conducted by traffic police before operator issued with driving license.

The study sought to find out whether the respondents were tested by the traffic police department in order to get a license. According to the findings, 55% showed that they were not tested while only 45% were tested. It was clear that over half of operators were not tested as required by the law.

Table 9 Public operators tested by the traffic police department

Testing of operators	Number	%
Yes	27	45
No	33	55
Total	60	100

4.4.3 Operators who passed the test by traffic police in riding skills.

All the 27 respondents that were tested by the Traffic police passed the test in riding skills. This showed that more than half of operators in Kitale town are not qualified to ride motor bikes as required by the law.

4.4.4 Operators with valid government riding licenses.

The study sought to find out whether the respondents had valid driving licenses. According to the findings, 58% did not have valid driving licences while only 42% had them.

Table 10 Operators in possession of valid government riding license

Possession of Riding License	Frequency	Percent
Yes	25	42
No	35	58
Total	60	100

4.4.5 Ability of operators to operate public motorcycles without valid licenses.

In the analyzed data remarks on how operators who did not have valid or no license managed to conduct their business, there were varied responses which included: “always hiding from traffic police”, “bribing police when caught” “using panya roots”, “not using motorbikes during police crackdown on unlicensed motorbikes”, “dodging police”. Failure by the traffic police to enforce the law and operators managing to conduct their business without being punished has compromised traffic road safety.

4.4.6 Possession of insurance cover by the public motorcycle operators.

The study revealed that 67% of the respondents did not have any insurance cover while 33% reported having an insurance cover.

Table 11 Possession of insurance cover by operators

Insurance Cover	Number	%
Yes	20	33
No	40	67
Total	60	100

This demonstrated low levels of compliance to insurance cover as stipulated in law.

4.4.7 Wearing protective gear by motorcyclists while riding.

The study sought to determine whether the respondents put on protective gear while riding the motorcycle and found that 63% of the respondents indicated putting on reflective jacket and helmet, 22 % put on helmet alone, 10 % put on reflective jacket, helmet and riding boots. The findings show that majority of operators put on reflective jackets and helmets.

Table 12 Wearing of protective gears by riders

Wearing of protective gear by riders	Number	%
Reflective jacket alone	1	2
Helmet alone	13	22
Riding boots alone	2	3
Reflective jacket and helmet	38	63
Reflective jacket, helmet and riding boots	06	10
Total	60	100

4.4.8 Involvement of public motorcycle operators in road accidents that led to injury.

The study revealed that 55% of the respondents indicated having been involved in accidents where either the respondent or the passenger got injured while 45% reported no such accident (Table 14). The result showed that more than half of the operators had been involved in accidents. One key informant from the police traffic department said, “ ... in a month there are more than ten accidents that occur involving motorcycles.” Another informant from the Kitale District Hospital said “...the main orthopedic conditions arising from motorcycle accidents are: fractures of upper and lower limbs, head and neck injuries, soft tissue injuries, hip dislocations and spinal cord injuries. The injured are transported to hospital by any means of transport available.”

Table 13 Involvement of public motorcycle operators in road accidents that led to injury

Occurrence of road accidents	Number	%
Yes	33	55
No	27	45
Total	60	100

4.4.9 Period when accident occurred in years

The study sought to know which year most accidents occurred and the finding indicated 2013 had 64%, followed by 2012 with 15% as shown in Table 15. This shows an upward trend in the number of accidents being recorded.

Table 14. Year when accident occurred involving the operator

Period when accident occurred	Number	%
2009	2	6
2010	3	9
2011	2	6
2012	5	15
2013	21	64
Total	33	100

4.4.10 Reporting the occurrence of accidents to police

For those who reported having been involved in an accident that led to injury of the operator or the passenger when asked whether they reported to the police, 58 % did not report the occurrence of the accident while 33% reported the accident but 9 % declined to indicate whether they reported or not as shown in Table 16. This finding means that most accident cases involving public motorcycle taxis are not reported to police.

One key informant from traffic police department said "... most accidents that occur away from the main roads are not reported unless they are fatal."

The study sought to know why the operators who were involved in accidents did not report the accident to police. The responses received from the respondents were as follows: Lack of driving licence, lack of insurance, feared to be imprisoned for lack of money to pay the cost, corruption by police, agreement to meet medical expenses of the injured passenger while others thought it was just not important to report to police.

Table 15: Reports to police by operators on accident occurrence

Accident Reports to Police	Number	%
Yes	11	33
No	19	58
No response	3	9
Total	33	100

When asked to state the reasons for causes of motorcycle accidents in Kitale town, one key police informant noted the careless riding of motorcycles. The key words he used to demonstrate careless riding theme were “failure to observe all traffic rules” “lack of driving skills and experience” “use of drugs and alcohol” “poor driving”, “over speeding” “overloading of bikes”.

4.4.11 Motorcycle operators’ riding habits.

The study sought to establish riding habits of the “boda boda” operators. Among the riding habits that the study examined were; riding speed, riding under the influence of alcohol, use of head lights during day, overloading, carrying passengers with protective gears, wearing of protective gear and reflective clothing as shown in table 15 below.

Table 16 Motorcycle operators’ riding habits.

Riding Habit	Always		Frequently		Occasionally		Never		Total	
	No	%	No	%	No	%	No	%	No	%
Riding above speed limit	15	25	14	23	24	40	7	12	60	100
Riding under influence of alcohol	0	0	2	3	8	14	50	83	60	100
Riding with headlights on during daytime	13	22	18	30	18	30	11	18	60	100
Riding overload motorcycle	21	35	12	20	25	42	2	3	60	100
Carrying passengers without protective gear	54	90	4	6	1	2	1	2	60	100
Wearing protective gear	23	38	15	25	22	37	-	-	60	100
Wearing bright reflective clothing	34	57	15	25	10	17	1	2	60	100

The study sought to establish riding habits of the “boda boda” operators. On speed limit, 40 % occasionally rode above speed limit, 25% always rode above the speed limit, 23 % frequently rode above speed limit while only 12 % never rode above the speed limit. The study findings indicate that majority of operators did not keep speed limits.

The study findings indicate that 83% of respondents did not ride under the influence of alcohol while 14% occasionally used alcohol.

When asked about using headlights while riding, the study findings indicated that 30% occasionally put on the lights, 30% frequently used headlights, 22% always used headlights while 18% never used headlights. The level of compliance is low.

The study sought to establish whether the motorcycle operators overloaded their motorcycles or not. The findings from the study showed that 42% occasionally overloaded, 35% always overloaded, 20% frequently overloaded while only 3% never

overloaded. Overloading is common among the motorcyclist as shown in the study.

The study also sought to know how often the pillion passengers were protected while being transported. The study showed that 90% of riders did not give passenger protective gear to wear.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of the Findings

5.2 Characteristics of motorcycle operators

The study found out that public motorcycle taxi operators were young people below 39 years comprising 86% of the total respondents. This group is energetic and need to be integrated in the national development through participation in various economic activities. Public motorcycle transport offers them an opportunity to earn a living. To make this venture fruitful certain regulations and policies must be in place and must be followed.

In terms of gender, the study established that all boda boda operators in Kitale town were males. The operator's level of education ranged from primary to secondary school. Those in primary school constituted 57% while those from secondary constituted 43%. The study further indicated that most operators were married with children at 62% while those still single were only 14%. This means that most operators have dependents to cater for within their households. In terms of residence, 93% of operators reside in Kitale town.

5.3 Operators' awareness of government regulations and policy

On issues of awareness of government regulations governing public motorcycle transport the study revealed that less than half were aware of the class of licenses required for one to ride a motorcycle. Only 48% of operators could mention class "F" and "G". Most operators could not tell the law governing motorcycle operations in Kenya. Still on issues of awareness when asked about the specific regulations governing motorcycle riding, less than half could mention them. Only 34 respondents mentioned the use of helmet and reflective jacket, 10 mentioned over speeding, keeping left and not taking alcohol when riding.

5.4 Road safety compliance

The study found out that majority of the motorcycle operators had acquired their riding skills from fellow boda boda operators at 82%. To be issued with a driving

license one has to be tested by the traffic police after undergoing a driving course in accredited institution. The study revealed that less than half of the operators were tested as required. Operators possessing valid driving licenses were less than half at 42%. The remaining 58% explained that they managed to operate their “boda bodas” through various ways including among others; hiding from traffic police, bribing police when caught, using “panya roots”, pulling out of business during police crackdown on unlicensed operators, operating on roads that did not have check points by traffic police, and by dodging police.

According to The Traffic Act Cap 403 Laws of Kenya, Section 31 (1) stipulates that a licensing officer shall not grant an applicant a driving license endorsed in respect of any class of any motor vehicle unless the applicant satisfies the licensing officer that he has passed a test of competence to drive that class of motor vehicle conducted under section 39. Section 39 stipulates that driving test shall be conducted by driving test examiners and shall include the test of applicant's knowledge of the rules of the road; knowledge of the recognized road signals and road signs; knowledge of any authorized road or highway code and physical fitness to drive a motor vehicle of the class for which the license is required. The study findings indicated that 45% of operators were tested by the traffic police for issuance of licenses. This means that 55% of operators have never been tested and are on the roads illegally. The law is clear on the training of the applicants of those wishing to be drivers. Most of the “boda boda” operators got their training from fellow operators and therefore this compromises their ability to drive safely on the roads.

In Great Britain for example, the Driving Standards Agency (DSA) motorcycling manual outlines legal requirements with which motorcyclists must comply with before they are allowed to drive on public roads. One such requirement is the compulsory Basic Training (CBT). There is need to have a standard training manual or curriculum for the training of “boda boda” drivers and such training should be made compulsory to all aspiring drivers.

According to Diaz Olvera L.D. et al (2012), when the motorbike appeared on the roads, in many African countries they were thought of exclusively as a personal transport mode. There was no obligation either to register or hold a driving license. The increasing use of motorbike taxis led the authorities to take notice of them. In a

short period of time, motorbike taxis were demonized by general public and local authorities because of several reasons; stiff competition with other transport operators, their power as a pressure group acting on authorities, and their aggressive behavior. For effective regulation and control and for the safety of the riders and other road users there is need to implement the requirements for licensing and registration of public motorcycle transport in Kenya. It should be noted that boda boda public transport enterprise is not bound by Transport Licensing Act Cap 404 yet they are engaged in public transportation.

The study revealed that 55% of operators were involved in accidents and most of them occurred in 2013. It is only 33% of the accidents that were reported to police. The high levels of accidents point to the lack of compliance to road safety regulations among the motorcycle operators. This is supported by the study findings where only 12% of operators never rode above the speed limit, while 40% occasionally rode above the speed limit and 25% always rode above the speed limit. Over speeding is one of the factors that cause accidents on roads. As regards riding with headlight on during the day, the study indicated that only 22% of operators always complied with this regulation. On the issue of overloading the study revealed that 35% of respondents overloaded their motorcycles, 20 % frequently overloaded, 42% occasionally overloaded. According to the Traffic Act Cap 403 Section 60(1) stipulates that it shall not be lawful for more than one person in addition to the driver to be carried on any two- wheeled motorcycle. This regulation is not complied with by most of the operators.

The other regulation that is not strictly followed concerns the wearing of protective gear. The study findings indicate that only 38% of operators always put on protective gear, 25% frequently put on while 37% occasionally put on. Lack of compliance to this regulation by operators increases the chance of getting severe head or neck injuries in case of a crash. The safety of passengers is not also taken into account as the study indicated that over 90% of passengers did not put on any protective gear. The regulation concerning the wearing of reflective jacket is fairly complied with by the majority of operators. The study showed that 57% of operators wore reflective jackets. In addition, most operators complied with the regulation of not drinking while

riding. The findings revealed that 83% of operators never took alcohol while riding motorcycles.

5.5 Conclusion

Most public motorcycle operators do not know traffic rules to observe. Their level of awareness of existing rules as stipulated in the Traffic Act Cap 403 laws of Kenya is very low. There are also notable problems in the enforcement of traffic laws by the traffic police department. The problem of overloading, lack of driving license, lack of insurance cover, lack of total compliance to helmet wearing by both the operators and the passengers together make compliance with road safety regulations low among operators. The level of law enforcement of traffic rules and regulations by Traffic police in Kitale town is also low.

There is need to relook the training curriculum of the riders in order to make them more conscious of the risks they face and what they can cause to other road users. There is need to sensitize the traffic police to enforce traffic laws without compromise. This will ensure a high level of compliance to the rules and regulations on road safety among road users in general. A consortium of the motorcyclists, traffic police and county governments should come together to ensure that there is mutual agreement and ownership of the traffic rules. The ministry of health needs to come up with partnerships with private sector and other relevant ministries to undertake trainings on the health hazards of motorcycles, implications of fracture injuries to health and consequent effects on economic wellbeing .This will translate into better health and safer riding cutting on cost of medical care , loss of life and loss of earning ability.

5.6 Recommendations

Based on the findings and conclusions, the following recommendations are made from the study.

1. The study recommends that the insurance industry needs to undertake research to find out why the intake of insurance cover among the motorcyclists is very low. This could call for specific insurance packages for “boda boda” operators.

2. Traffic Police Department need to beef up capacity in terms of number of officers in order to enforce traffic rules. Regular retraining of the motorcyclists should be undertaken through partnership of traffic police department, driving schools and motorcycle associations. The traffic police department to ensure that all motorcyclists are tested as required before being issued with driving licenses.

3. The National and county governments should come up with policies to develop infrastructure that cater for motorcycle and pedestrians in urban centers. Some of the ways to make roads safer is by making separate motorcycle lanes and facilities, path for pedestrians, designated parking points for motorcycles and motorcycle traffic signs.

5.7 Areas of further study

Further research needs to be undertaken to determine the profitability of the motorcycle public transport to operators and owners and its contribution to the national economy as a whole. Further studies should be undertaken to establish the costs incurred to treat patients involved in motorcycle accidents in various hospitals.

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ANNEX I

QUISTIONNAIRE

I'm an M.A student at University of Nairobi in the Faculty of Arts Department of Sociology and Social Work carrying out a study on motorcycle boda boda public service transport within Kitale Municipality.

Please choose the correct option as honestly and correctly as possible by putting a tick on one of the boxes or as directed. For questions requiring your own opinion please fill the blanks.

Name of stage.....Route.....

1. Characteristics of the operators

a)Sex Male Female

b) Age Below 19years Between 20-29

Between 30-39years Between 40-49

Over 50 years

c)Level of education

Lower primary school

Upper primary school

Secondary school

College Diploma

University degree

d)Marital Status

Single

Divorced

Married

Widowed

e) Have many children do you have ?.....

f) How many of your children are

Not in school.....

In school.....

Working.....

g) Are you a resident of Kitale town? Yes No

h)If No, where do you reside?.....

How far from Kitale town in (KMS).....

2.Level of awareness of government policy and regulations among motorcycle operators

a) What licence is required for one to ride a motorcycle?

BCE E A FG

b)Public motorcycle transport (boda boda) services are governed under what laws of Kenya?

.....

c)List down traffic rules and regulations that a boda boda operator has to be observe while riding on a public road?

i).....

ii).....

iii).....

- iv).....
- v).....
- vi).....
- vii).....
- viii).....

3.Level of compliance of motorcycle public transport operators with road safety.

a. Before joining “boda boda” taxi business how did you acquire riding skills

From fellow boda boda riders

From a private driving college

From a government driving college

b) If you attended driving college were you tested by the traffic police department in order to get a license? Yes No Don't Know

c) Did you pass the test administered by traffic police in driving/riding?
Yes No

d) Do you have a valid government riding/license? Yes No

a) If you do not have a license how are you able to operate?.....
.....
.....
.....

b) Do you have insurance cover for your boda boda public transport business?

Yes No

c) What protective gear do you put on while riding a motorcycle on public road?(please choose one)

Reflective jacket alone

Helmet alone

Riding boots alone

Reflective jacket and helmet

Reflective jacket, helmet and riding boots

Reflective jacket helmet, riding boots, ear plugs and eye goggles

d) Have you ever been involved in a traffic motorcycle road accident that lead to the injury to you or your ppassenger? Yes No

i). If yes to the question above when was the accident?

YearMonth.....

j) If you have ever been involved in an accident did you report to the police?

Yes No

k) If No, to the above question give reason(s) why you did not report to police

.....
.....

l)The following questions relates to your riding habits. Answer them as truly as possible?

When riding your motorcycle how often do you	Always	Frequently	Occasionally	Never
Ride above the speed limit?				
Ride under the influence of alcohol and drugs?				
Use day time headlights?				
Overload the motorcycle				
Carry passenger with no protective gear?				
Wear protective gear?				
Wear bright/reflective clothing?				

ANNEX II

INTERVIEW GUIDE

I'm an MA student at University of Nairobi in the faculty of Arts, Department of sociology and social work carrying out a study on “boda boda” public transport within Kitale Municipality.

a) Where do majority of motorcycle operators receive their training on motorcycle riding?

Driving schools

Informally

b) Is the Traffic Police Department in Kitale Town involved in testing the motorcycle operators before issuing them with riding licenses? Yes No

c) What do you think are the main causes of motorcycle accidents in Kitale town?

i).....

ii).....

iii).....

iv).....

v).....

d)On average how many accidents occur in a month?

Less than 2

2 to 5

6 to 10

More than 10

d) How often do you carry out the following?

	Very often	Often	Rarely	Not at all
How often do you stop motorcycles to inspect them on compliance with traffic rules?				
How often are road accidents involving motorcyclists that occur a way from main roads in town reported?				
How often do you set up road blocks to check the behavior of motorcyclists?				
How often do Traffic Police Department join other stake holders in sensitizing road users on compliance of traffic rules?				

e) Listed below are types of accidents that involve motorcyclists. Please tick three you think motorcyclists are most at risk from in Kitale Town.

Collision while overtaking other road users

Being hit from behind by other road users

Collision with right-turning vehicles

Collision with right-turning vehicles

Loss of motorcycle control

Bad roads with pot-holes

Sharp bends on the roads

ANNEX III

INTERVIEW GUIDE

I'm an M.A student at University of Nairobi in the faculty of Arts, Department of sociology and social work carrying out a study on "boda boda" public service transport within Kitale Municipality.

a) Are there any conditions that motorcycle operators have suffered from as a result of continuous use of motorcycles Yes No

b) If yes kindly specify the most health condition suffered by motorcyclists (please tick what is applicable).

Chest infection Running nose Eye infection

Backache

Others specify.....

c) Are there frequent cases of casualties resulting from motorcycle accidents? Yes

No

f)What are the five main orthopedic conditions that you attend to in the wards arising from motorcycle accidents?

.....
.....
.....

g)In case of road accidents involving motorcycle operators and passengers how are the injured transported to the hospital for treatment? Ambulances

Other vehicles motorcycles/bicycles

Others specify.....

Thank you for taking time to give your responses.