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ASSESSING THE EFFICACY OF EDUCATION AND AWARENESS CAMPAIGNS ON MOTORCYCLE SAFETY: A CASE STUDY OF TESO SOUTH SUB COUNTY, KENYA

Hillary Busolo, PhD
School of Business, Economics and Human Resource Development, Alupe University, Kenya
hillvob@gmail.com

Caren Jerop, PhD
School of Business, Economics and Human Resource Development, Alupe University, Kenya
carenjerop@gmail.com

Abstract

The objectives of the study were to assess the current level of education and awareness regarding motorcycle safety among Teso South Sub County riders, to evaluate the effectiveness of existing motorcycle safety education and awareness campaigns, to identify the challenges faced in implementing motorcycle safety education and awareness campaigns and to recommend strategies for improving motorcycle safety education and awareness campaigns in Teso South Sub County. The survey adopted a qualitative analysis approach, and 295 'boda boda' riders participated. Data was collected using questionnaires and interview schedules. The study findings revealed that respondents have a relatively low level of awareness, have a favourable perception of motorcycle safety initiatives in the region, and acknowledge the existence of challenges or obstacles that impede the effectiveness of motorcycle safety programs. It was recommended that media platforms, such as social media, local newspapers, radio, and television, reach a broad audience and, hence, can be used to spread safety messages. Seminars focusing on motorcycle safety could be organized, and experts could be invited to discuss safe riding practices, the importance of protective gear, and the benefits of proper training. Also, apps that offer safety tips, route planning with safer roads, and reminders for maintenance checks can be promoted or developed.

Keywords: Boda Boda rider, motorcycle, motorcycle safety, awareness campaigns

INTRODUCTION

According to National Transport and Safety Authority (NTSA) and National Police Service (NPS) statistics, 591 people died of motorcycle accidents in 2018; 728 in 2019; 1,244 in 2020; 1,154 in 2021 and 1,209 in 2022 (NTSA, Director General, 2020; Kinyanjui, 2023). Generally, the number of accidents has been on the rise; for instance, a 13.6 percent increase in motorcycle rider causalities in 2021 of 4,336 from 3,818 in 2020, whereas pillion passengers' causalities increased by 16.5 percent from 2,332 in 2020 to 2,716 in 2021 (KIPPRA, 2022). According to the 2018 report by the National Crime Research Centre, 65.1 percent of boda boda accidents are due to reckless behaviour by riders (NCRC, 2018; Mustafa, 2019). Motorcycles have been contributing to the highest number of fatalities in road traffic accidents over the years, and the trend, if not arrested, will significantly impact the health and safety of riders and pillion passengers. Injuries and disabilities associated with motorcycle accidents contribute to inactivity that may progressively lead to health complications (Fanai & Mohammadnezhad, 2022). The transport subsector has an increased crime rate associated with robbery, stealing, and assault of passengers and pedestrians. Boda boda operators are gradually becoming the new face of crime in Kenya, posing a security challenge to the public (KIPPRA, 2022).

The economic impact of motorcycle accidents could be huge as an estimated $1.8 billion is contributed annually by the approximate 1.5 million people employed in the sector. This sector has the potential to contribute immensely to the realization of SDG 1 (No poverty) and Vision 2030 by its exponential creation of jobs compared to any other sector in the transport sector. An increase in accidents will hurt the Kenyan economy, which saw its progress halted by the COVID-19 pandemic. The riders constitute youthful and young adult individuals who are often family providers. It is, therefore, ideal to continually promote and strengthen safe and healthy motorcycle riding behavior among boda boda riders so that they can sustainably contribute to the country's economy. Motorcycle safety awareness programs must proactively raise awareness among all boda boda rider cohorts.

United Nations projections show that the COVID-19 pandemic erased more than four years of progress in eradicating poverty and pushed millions into poverty. By the end of 2022, it is suggested that 8.4 percent of the world's population, or as many as 670 million, could still live in extreme poverty (United Nations Report, 2023). The current rates show that 574 million people will still be living in poverty by 2030, almost 7% of the world's population, with the majority in Africa (Roberts, 2022). This is a precarious situation in rollbacks to poverty eradication, taken together with an increase in unemployment rates, which can push Kenya and Busia County, in particular, further away from the economic targets set in Vision 2030. The

motorcycle transport business offers a remarkable opportunity for the absorption of youths who fail to progress to higher education, who happen to drop out of school for one reason or another, or who have completed training and cannot get jobs directly in the areas they trained. Therefore, the riders must be empowered and their capacity strengthened to increase safe and healthy riding behaviour, a vital impetus to poverty eradication.

Boda boda business must be sustainable for riders' families and the government. The future can be guaranteed if the safety and health of the riders are looked at together with the economic aspects. This is critical because economic gains realized from boda boda activities remain in deep peril as they get lost when used to address accidents and other health-related issues arising from riders' behaviour. Studies reveal that up to 95 percent of motorcycle accidents are associated with human behaviour (Mustafa, 2019). Human errors may include speediness, alcohol drunkenness, fatigue, drowsiness, attentiveness, drug and medicine consumption, seat belt wearing, wearing of fluorescent jacket, and helmet use (Ospina-Mateus et al., 2019; Salako et al., 2013; Balami, 2019). When safe and healthy motorcycle riding behavior is promoted and strengthened, financial resources will be reduced to mitigate boda boda accidents and health-related challenges.

The accidents associated with boda boda have compelled most level 4 and 5 hospitals in many Counties of Kenya to have wards dedicated to such accident victims. The lingering impact on the safety and health of riders, passengers, and other road users necessitates the creation of awareness of safety and health riding programs that exist in the Counties and evaluate existing programs since they are not achieving much (Dodge et al., 2018). If these programs are not promoted and strengthened, the risk of devastating effects of boda-boda-related accidents will be accelerated and costly to mitigate. A fundamental shift is needed to put road safety and health programs on a better path that will progressively impact the riders, their families, and the government.

NTSA has expressed concerns over the increasing number of accidents caused by boda-boda operators, compelling the then Interior Cabinet Secretary on 22nd November 2018 and his Transport counterpart James Macharia to a task force to introduce reforms in the boda-boda sector. A 12-member task force mandated to address policy, legal, and administrative reforms on public transport gave recommendations that, in part, were deemed to address safety issues of riders, passengers, and other road users. In 2022, NTSA formulated rules to register boda boda operators into SACCOs to enhance accountability and help curb road fatalities (KIPPRA, 2022). Apparently, the accident figures have remained on an upward trend, questioning the effectiveness of the measures.

A change in approach to addressing motorcycle accidents is important, particularly based on motivation for behavioral change. This has worked in other sectors, minimizing accidents greatly. Based on the analysis of accident situations and causes in mining industries, a study on unsafe behaviors was made, which showed that stimulating safe behaviors and restraining unsafe behaviors would not only greatly improve human reliability but also reduce unexpected circumstances and accident frequency in work. Based on behavior science and motivation theory, the thinking thread and framework for constructing a safe behavior motivation system was presented according to the coalmine accident prevention mechanism and the relationship between motivation and safe behaviors. This approach can be adopted for the boda boda riders by analyzing accident-causing situations and studying safe and unsafe motorcycle riding behavior. Then, an attempt is made to induce a change in behavior from unsafe to safe. The desired (safe) behaviour can then be reinforced among boda boda riders.

Statement of the Problem/Rationale

Kenya has witnessed a steady growth in the number of motorcycles after the government zero-rated import duty on motorcycles below 250cc in 2008, making them affordable to many people. For instance, the number rose by 55.1 percent in 2008 from 16,293 units in 2007 to 51,412. By 2009, the country had 91,151 units, 1.39 million registered boda bodas in Kenya as of February 2018, and an influx of approximately 1.5 million people employed in the sector by 2022. The trend has remained on an upward trajectory as the sector has now become the single largest employer in Kenya, thanks to its popularity as a means of transport for many in both urban and rural areas, evolving into an informal sector of the transport industry. By virtue of its potential growth in the number of boda boda riders annually, it is a sector that cannot be ignored and needs to be supported to realize its full potential.

The rate of loss of life and injuries associated with boda boda motorcycle accidents has morphed into a public health issue. The financial and social costs associated with managing these debilitating public health issues are high, bearing in mind the age of riders (being youthful and young adults) and economic status (being family breadwinners). This is unnecessary and unacceptable as this transport sector significantly impacts other Kenyan economic sectors. Studies reveal that human behaviour is responsible for up to 95 percent of motorcycle accidents (Abdul Manan et al., (2017). However, since there is also a significant number of boda boda riders who have been operating in the sector for an extended period without recording accidents and display ideal behaviour that has kept them safe and healthy, it demonstrates that it is possible to minimize road accidents associated with boda boda motorcycles. It’s, therefore,

ideal for harnessing available resources to realize the health and safety aspirations of boda boda riders, their passengers, pedestrians, and other road users.

According to the Boda Boda Safety Association of Kenya, they have launched periodic road safety campaigns and training, creating awareness with a focus on reducing road accident incidences in collaboration with the European Driving Schools Association. Other actors like NTSA and the National Police Service have worked diligently to improve road safety, launched road safety and associated programs, and sought collaborations to make the programs accessible and put in necessary legislation. However, the programs do not seem to yield the desired results. One may ask: What is the mindset of a boda boda rider and the sector generally in relation to road safety? What beliefs do they hold on road safety and security in general? When scrutinized against available evidence, what road safety behaviour of boda boda riders needs to be addressed? What can be done to modify the behaviour of boda boda riders appropriately? Lastly, how can the inherent potential in road safety programs for boda boda riders be unlocked?

Study Objectives

1. To assess the current level of education and awareness regarding motorcycle safety among Teso South Sub County riders.
2. To evaluate the effectiveness of existing motorcycle safety education and awareness campaigns in Teso South Sub County.
3. To identify the challenges faced in implementing motorcycle safety education and awareness campaigns in Teso South Sub County.
4. To recommend strategies for improving motorcycle safety education and awareness campaigns in Teso South Sub County.

Research Questions

1. What is the current level of education and awareness regarding motorcycle safety among Teso South Sub County riders?
2. How effective are the existing motorcycle safety education and awareness campaigns in Teso South Sub County?
3. What challenges are faced in implementing motorcycle safety education and awareness campaigns in Teso South Sub County?
4. What strategies can be recommended to improve motorcycle safety education and awareness campaigns in Teso South Sub County?

LITERATURE REVIEW

Motorcycles are a popular mode of transportation in rural areas as well as among the middle and low income residents in urban areas that register high numbers of accidents. Reports revealed that the number of deaths caused by motorcycles is significantly higher than by any other means of transportation (NTSA, Director General, 2020; Kinyanjui, 2023). Road transport and its effectiveness remains a key element of economic growth and competitiveness in urban areas. In Kenya for instance, road transport is a major mode of transport contributing up to 6.2% of the GDP (ROK, 2016).

The emergence and significant growth of motorcycle transportation as one mode of road transport is not only linked to the fall-out of structural adjustment program but also to transport activities between Uganda and Kenya at Busia border town (Mutiso & Behrens, 2013). In the initial case in the early 1960s, bicycles were the common means of transport across the border, facilitating movement of goods and people. The vibrant trade led to vibrant movement across the Kenya-Uganda border contributing to the bicycle transport referred to as 'border-border' transport. This term later morphed into 'boda boda' transport and referred to both bicycles and motorcycle modes of transport. Motorcycles have replaced bicycles in numbers, and the figures have been growing exponentially (Howe, 2004).

After the government of Kenya zero-rated import duty on motorcycles below 250cc in 2008, making them affordable to many people, Kenya has witnessed a steady growth in the number of motorcycles. For instance, the number rose by 55.1 percent in 2008 from 16,293 units in 2007 to 51,412. By 2009, the country had 91,151 units, 1.39 million registered boda bodas in Kenya as of February 2018 and an influx of approximately 1.5 million people employed in the sector by 2022 (ROK, 2010; KNBS, 2022). *The increase in number has also been attributed to* advantages such as speed, convenience of travel irrespective of time, type of road and destination that this means of transport offers over bicycles (Nyachieo, 2013).

Despite the opportunities created by motorcycles, there has been concern as the riders are major contributors to fatal road accidents. According to National Transport and Safety Authority (NTSA) and National Police Service (NPS) statistics, 591 people died of motorcycle accidents in 2018; 728 in 2019; 1,244 in 2020; 1,154 in 2021 and 1,209 in 2022 (NTSA, Director General, 2020; Kinyanjui, 2023). Generally, the number of accidents has been on the rise; for instance, a 13.6 percent increase in motorcycle rider causalities in 2021 of 4,336 from 3,818 in 2020, whereas pillion passengers' causalities increased by 16.5 percent from 2,332 in 2020 to 2,716 in 2021 (Muguro et al., 2020; KIPPRA, 2022).

A large percentage (95%) of motorcycle accidents occur mainly due to human behaviour (Mustafa, 2019). Some researchers attribute these accidents to a combination of several behavioural and societal factors, among them rider's age, gender, circadian rhythms, riding experience, type of road, and characteristics of the motorcycle riders (Ospina-Mateus et al., 2019; Salako et al., 2013; Balami, 2019). According to Peden et al. (2002), motorcycle injuries are among the leading causes of disability and death, and the main victims are motorcyclists, passengers and pedestrians in their young, productive age group. On the use of helmets, a study carried out by Kitara (2011) revealed that not all operators understand the need for using helmets and not all passengers would want to wear helmets for safety purposes.

In addition, there is a likelihood of serious injury or death faced by motorcyclists. This could be due to lack of adequate training of the Riders and this compromise riding standards and road safety. These injuries in turn strain a country's health system and health finances, necessitating the use of additional resources and increased levels of care. For instance, the accidents associated with boda boda have compelled most level 4 and 5 hospitals in many Counties of Kenya to have wards dedicated to such accident victims.

Given reducing motorcycle accidents, the government of Kenya introduced several measures, among them licenses to ride on the street, demonstrating a minimum level of riding skill and knowledge, and liability insurance. Although the riders have been educated to consider the inevitable human error to reduce the risk of crashes and minimize their severity, they may lose control because they misjudge the speed at which a bend can be driven safely. The injury outcome is often determined by what they hit when they leave the road (Jevtic, 2015). The WHO (2017a) recognizes the multidisciplinary solutions required to tackle motorcycle safety effectively; thus, it is critical to investigate education and awareness campaign efforts on motorcycle safety.

THEORETICAL FRAMEWORK

The study was guided by Ferrell's Human Factors Theory, which states that accident causation is very complex and must be understood adequately to improve accident prevention. This theory was proposed by Dr. Russell Ferrell, Professor of Human Factors at the University of Arizona. The theory states that accidents result from a casual chain (as in multiple causation theory), one or more of the causes being human error, which is caused by three situations – overload, incompatibility and improper activities (Heinrich et al., 1980). Separate from each other, overload, incompatibility, and improper activities can all cause human error, leading to an accident.

Road accident prevention is at the core of every health and safety programme, and understanding how an accident happens is truly the first step in preventing future recurrence. Knowing how a series of events or behaviours can result in an accident is key to providing quality training to minimise accidents. This study adopted this theory as its application to motorcycle accidents can be done, and it will help address human behaviour perspectives of motorcycle accidents.

STUDY MATERIALS AND METHODS

Study Location

The study area is Teso South Sub-County, which covers 236.8 km 2 in surface area and has an estimated population of 168 116 people, of whom 80 484 are male, 87,630 are female, and 2 are intersex (KNBS 2019). Teso South Sub-County's main town is located at Amagoro, which lies at Latitude 0° 37′ 40.335′ N and Longitude 34° 19′ 57.2736 E at 1200 and 1500 m above sea level. The Sub-County is characterized by undulating terrain, with highlands intersected by fairly flat lands.

Sampling

The study used a 295-respondent sample randomly selected from the six wards (Amukura West, Amukura East, Amukura Central, Angorom, Chakol North and Chakol South) of Teso South Sub-County, Busia County. The respondents were picked proportionately based on registered ‘Boda Boad’ rider associations in the wards to complete questionnaires. The association members were selected to participate in the three focus group discussions.

Data Collection Approach

A qualitative approach was adopted to attain the objectives of this study. Triangulation of the data collected was considered ideal to capture the relevant data to respond to all the research questions.

The study employed three research data collection tools, eliciting both primary and secondary data. The study collected data using questionnaires, content analyses, and focus group discussions.

Data analysis

The data collected was qualitative; therefore, it was analyzed thematically using content analysis procedures. The analysis followed six steps: transcribing all the audio-taped interviews

and field notes, re-familiarizing the data, first-phase coding, second-phase coding, and third-phase coding, and producing a report.

Ethical considerations

The following measures were put in place to ensure ethical considerations are observed during conduct of the study:

i. Authorisation from the National Commission for Science, Technology and Innovation (NACOSTI) and county offices to access the research area.
ii. Informed consent from all respondents to participate and their right to withdraw from the study whenever they wished**.**
iii. Anonymity of the respondents – the identity of the respondents was coded.

RESULTS AND DISCUSSIONS

Demographic Descriptive

The study collected demographic data from respondents, including their gender, age, marital status, and academic levels. Age was divided into four categories: 18 – 25, 26 – 30, 35 – 49, and 50 years and above. Academic levels were five: secondary education, high school education, college diploma, university bachelor's degree, and postgraduate degree. The demographic data is summarized in Table 1.

Table 1: Demographic Descriptive

Demographics	Number	Percentage
Gender	**295**	**100**
Male	275	93%
Female	20	7%
Age	**295**	**100**
18 - 25 years	52	18%
26 – 30 years	103	35%
31 – 35 years	88	30%
36 – 40 years	24	8%
41 – 45 years	21	7%
46 – 50 years	3	1%
51 – 55 years	3	1%
56 – 60 years	0	0%
61 years and above	0	0%

Marital Status	295	100
Married	193	65%
Single	72	24%
Separated	18	6%
Widow/er	5	2%
Divorced	6	3%
Education Level	**295**	**100**
No Formal Education	111	38%
Certificate	85	29%
Diploma	62	21%
University Degree	35	12%
Post Graduate Degree	1	0%

The distribution of the respondents by gender showed that 93% of the respondents who completed the questionnaires were male, while females constituted 7%. This shows that most 'Boda Boda' riders are male compared to their female counterparts. Age distribution of respondents showed that the age brackets of 18-25 years, 26-30 years, and 31-35 years comprised the larger percentage of 'Boda Boda' riders with 18%, 35%, and 30%, respectively. Small percentages of 8% and 7% represented respondents in the age brackets of 36-40 years and 41-45 years, respectively. Age brackets 46-50 years and 51-55 years registered 1%, while age brackets 56 years and beyond did not register any respondents. Most 'Boda Boda' riders are youthful and may significantly contribute to safe transport if proper safe and healthy riding behavior is inculcated. The marital status of the respondents showed that 65% were married, 24% single, 6% separated, 2% window/er, and 3% divorced. Education level demographics indicated that 38% of the respondents did not have formal education, 29% had up to certificate level of education, 21% had a diploma education level, and 12% had university degrees. In comparison, the post-graduate degree level of education registered 0%. The high percentage of 'Boda Boda' riders without formal education may influence the approach to promoting and strengthening road safety. A more practical approach that is less theoretical would yield the desired result.

General Information on 'Boda Boda' Riders

The study investigated a range of general information on 'Boda Boda' riders. As indicated in the sub-titles below.

Respondents' Occupation Apart from 'Boda Boda' Riding

The study investigated the respondents' occupations apart from being 'Boda Boda' riders. Table 2 provides descriptive data on the alternative occupations of Boda Boda riders.

Table 2: Respondents Occupation Apart from 'Boda Boda' Riding

Occupation	Frequency	Percentage
Farmer	123	42%
Business Owner	39	13%
Labourer	21	7%
Non	112	38%

The data indicates a diverse range of secondary occupations among Boda Boda riders. The largest group, 42%, are farmers, which suggests a significant portion of riders are engaged in agriculture. This dual occupation might be influenced by the seasonal nature of farming, allowing riders to supplement their income during off-peak agricultural periods. 13% of riders own businesses, indicating entrepreneurial activities complementing their Boda Boda income. This shows a degree of financial independence and diversification in income sources among these riders. 7% of riders work as labourers, reflecting a segment that engages in physically demanding jobs to augment their earnings from Boda Boda riding. 38% of the respondents rely solely on Boda Boda riding for their income. This group might be more vulnerable to fluctuations in demand for Boda Boda services and face greater financial instability.

The findings have several implications. The significant engagement in farming and business ownership indicates that many riders diversify their income, which can provide financial stability and resilience against economic downturns in the Boda Boda sector. Understanding the dual occupations can help design targeted support programs that align with the needs of riders who balance multiple jobs. 38% of riders without other occupations might require additional support to mitigate risks associated with relying solely on Boda Boda riding for their livelihood.

Years Respondents Have Worked as Boda Boda Riders

The study investigated the years the 'Boda Boda' riders have been working. The results are presented in Table 3.

Table 3: Years Respondents Have Worked as 'Boda Boda' Riders

Years	Frequency	Percentage
Less than a year	40	14%
Roughly 1 year	84	28%
2 – 3 years	67	23%
4 – 5 years	53	18%
Over 5 years	51	17%

The data reveals a diverse range of experiences among Boda Boda riders. The substantial percentage (42%) of riders with less than or around one year of experience suggests high professional turnover. This might be due to job instability, safety concerns, or economic challenges. 41% of the respondents are riders with 2 to 5 years of experience, indicating a significant group that has settled into the profession and is potentially gaining skills and knowledge, contributing to safer and more efficient operations. The 17% of riders with over 5 years of experience highlight a core group of seasoned professionals who likely possess extensive knowledge and expertise in Boda Boda operations.

Given the high proportion of relatively new riders, comprehensive training programs are needed to ensure they acquire the necessary skills for safe and effective operations. Addressing factors contributing to high turnover could help retain riders and reduce the frequency of new entrants with limited experience. Also, leveraging the expertise of experienced riders to mentor newer entrants can enhance overall safety and operational standards within the sector.

Motorcycle Ownership

The respondents were asked if they owned the motorcycle they use. The results are shown in table 4.

Table 4: Motorcycle Ownership

Response	Frequency	Percentage
Yes	201	68%
No	94	32%

The data indicates that most (68%) of Boda Boda riders surveyed own motorcycles. Owning a motorcycle provides riders greater economic stability and control over their earnings, as they are not required to share profits with the owner. It can be viewed as a long-term investment, providing a source of income for years. Also, owners can operate their motorcycles

without restrictions imposed by rental agreements or leasing terms, allowing for more flexible work schedules.

Conversely, 32% of riders do not own their motorcycles. Renting or leasing motorcycles can reduce net earnings due to rental fees, impacting overall financial well-being. Riders without ownership may have less control over their working conditions and schedules, depending on the terms set by the motorcycle owners. Finally, non-owners might be less inclined to invest in the maintenance and upkeep of the motorcycle, potentially affecting safety and longevity.

Hours Spent Operating Motorcycle Per Day

The 'Boda Boda' riders were asked how many hours they spent operating their motorcycles daily. Table 5 captures the responses.

Table 5: Hours Spent Operating Motorcycle Per Day

Mean	Median	Mode	Standard Deviation
8.77	8.00	8.00	4.15

The data revealed that, on average, Boda Boda riders spend approximately 8.77 hours operating their motorcycles daily. The median and mode, 8.00 hours, suggest a central tendency towards an 8-hour workday for many riders. However, the standard deviation of 4.15 indicates considerable variability, with some riders working significantly longer or shorter hours. This implies that the average and median operational hours suggest a full workday, which may lead to fatigue and an increased risk of accidents if adequate rest is not taken. Also, the long hours reflect the economic dependency of riders on their daily earnings from operating motorcycles. Finally, extended work hours raise concerns about the health and safety of riders, necessitating measures to mitigate fatigue and promote well-being.

Motorcycle as Primary Source of Income

The study investigated if the motorcycle was operated as the primary source of income for the 'Boda Boda' riders. Table 6 provides insights into the dependency of Boda Boda riders on their motorcycles as their primary source of income.

Table 6: Motorcycle as Primary Source of Income

Response	Frequency	Percentage
Yes	199	68%
No	96	32%

The data indicates that a significant majority (68%) of Boda Boda riders surveyed rely on their motorcycles as their main source of income. This dependency highlights the critical economic role that Boda Boda operations play in the livelihoods of these individuals and their families.

Conversely, 32% of riders do not depend primarily on their motorcycles for income. This group may have alternative sources of income or supplementary earnings, which could impact their level of commitment or engagement in Boda Boda activities. This implies that policies and initiatives supporting the Boda Boda sector are crucial for maintaining economic stability for those heavily reliant on motorcycle-based income; regulatory frameworks should balance safety and operational standards with the economic needs of Boda Boda riders; and there's a need to explore opportunities for income diversification or skill development programs to support riders who may not rely exclusively on motorcycle earnings.

Number of Dependents 'Boda Boda' Riders Have

The 'Boda Boda' riders were asked to state the number of dependents (family members or others relying on their income). Understanding riders' family obligations is crucial for designing support systems and policies that cater to their economic and social needs. The results are presented in Table 7.

Table 7: Number of Dependents 'Boda Boda' Riders Have

Mean	Median	Mode	Standard Deviation
4.04	4.00	2.00	4.20

The table shows that Boda Boda riders typically have an average of 4.04 dependents. The median and mode, which are around 4.00 and 2.00, respectively, suggest a concentration of responses in these ranges. The standard deviation of 4.20 indicates considerable variability in the number of dependents among the riders surveyed, reflecting diverse family sizes and support obligations. This implies that Boda Boda riders likely bear significant financial responsibilities, supporting multiple dependents. Also, the number of dependents underscores the broader social impact of Boda Boda operations on families and communities.

Boda Boda Association or Union Membership

The study investigated if the 'Boda Boda' riders were members of any 'Boda Boda' association or union. Table 8 presents data on the membership status of Boda Boda riders in associations or unions.

Table 8: Boda Boda Association or Union Membership

Response	Frequency	Percentage
Yes	174	59%
No	121	41%

The data indicates that most (59%) of Boda Boda riders surveyed are affiliated with a Boda Boda association or union. This membership likely provides them with collective representation, access to support services, and potential influence over regulatory and operational issues affecting their profession.

Conversely, 41% of riders do not belong to any association or union. This group may lack the benefits and advocacy that organized groups can offer, potentially affecting their ability to address concerns or access resources available to organized members. Also, these associations or unions could be useful for coordinating and disseminating healthy motorcycle riding behavior resources or materials.

Accidents and Violations Boda Boda Riders Have Been Involved in the Past Year

The study sought to determine the number of accidents 'Boda Boda' riders had been involved in while operating their motorcycles in the past year. Table 9 presents statistical summaries regarding accidents and violations involving Boda Boda riders over the past year.

Table 9: Accidents and Violations Boda Boda Riders Have Been Involved in the Past Year

Question	Mean	Median	Mode	Standard Deviation
Number of accidents Boda Boda riders have been involved in while operating their motorcycle in the past year	2.48	2.00	2.00	2.02
Number of traffic violations Boda Boda riders have been involved in while operating their motorcycle in the past year	3.07	2.00	3.00	6.37
Number of violations Boda Boda riders have been arrested and charged in the past year	1.59	1.00	1.00	1.99
Number of violations Boda Boda riders have been arrested and warned about in the past year	2.11	1.00	0.00	6.79
Number of violations Boda Boda riders escaped without arrest in the past year	1.54	1.00	0.00	2.26

Table 9 indicates that, on average, Boda Boda riders have been involved in approximately 2.48 accidents within the past year. The median and mode being 2.00 suggest a tendency towards this frequency among the riders surveyed, with a moderate variation around the mean as indicated by the standard deviation.

On average, Boda Boda riders have committed 3.07 traffic violations in the past year. The median and mode, around 2.00 and 3.00, respectively, suggest a skewed distribution towards higher values. The significant standard deviation of 6.37 indicates a wide variability in traffic violations among the riders surveyed.

On average, Boda Boda riders have been arrested and charged 1.59 times in the past year. The median and mode being 1.00 indicate that most riders have been charged once, with some variability around this average as indicated by the standard deviation.

Boda Boda riders have received warnings about violations an average of 2.11 times in the past year. The median of 1.00 suggests that warnings are commonly given once, though the mode of 0.00 indicates that many riders received no warnings. The high standard deviation of 6.79 highlights considerable variability in the number of warnings received.

On average, Boda Boda riders have escaped arrest for violations 1.54 times in the past year. The median and mode, both 1.00, indicate that many riders have escaped arrest once, with moderate variability around this average, as shown by the standard deviation.

The data reveals a concerning frequency of accidents and violations among Boda Boda riders over the past year. High averages in accidents, traffic violations, and warnings suggest potential safety risks and compliance issues within the Boda Boda sector. The variability in these figures, especially evident in the standard deviations, underscores diverse experiences among riders, with some facing more frequent incidents than others.

Boda Boda Riders Having Insurance Coverage

The researcher investigated if the 'Boda Boda' riders had insurance coverage for their motorcycle or themselves as riders. Table 10 shows the findings.

Table 10: Boda Boda Riders Having Insurance Coverage

Response	Frequency	Percentage
Yes	179	61%
No	116	39%

The data reveals that most Boda Boda riders surveyed, specifically 61%, have insurance coverage. This suggests a proactive approach among most riders towards securing financial

protection, potentially benefiting riders and passengers in the event of accidents or incidents. However, the fact that 39% of riders do not have insurance coverage highlights a notable portion of the population that may be vulnerable to financial risks associated with accidents or injuries while operating Boda Boda motorcycles. This underscores the importance of increasing awareness and potentially implementing measures to encourage more riders to obtain insurance coverage for their protection and that of their passengers.

Safety Regulations and Enforcement of Boda Boda Operations

The study sought to probe the rider's perception of the safety regulations and enforcement concerning 'Boda Boda' operations in Teso South Sub-County. A range of responses were made, as presented in Figure 1.

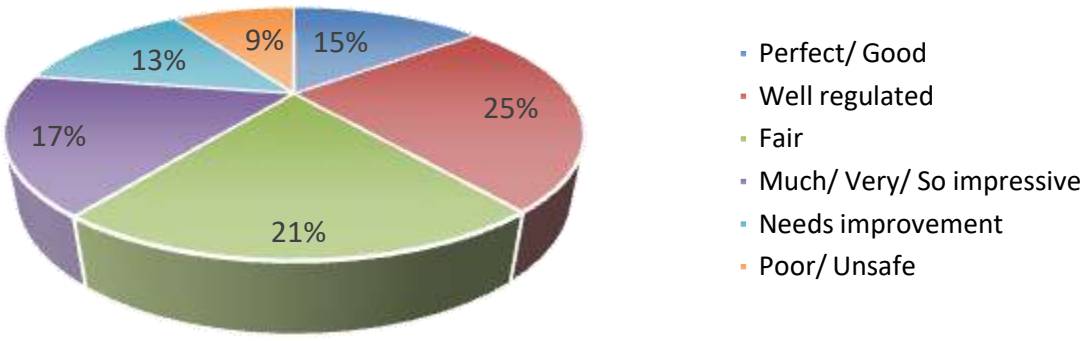

Figure 1: Safety Regulations and Enforcement of Boda Boda Operations

Generally, there is a varied perception of safety regulations and enforcement among respondents involved with Boda Boda operations. The figure revealed that 15% of the respondents perceived that the safety regulations and enforcement concerning 'Boda Boda' operations in Teso South Sub-County were perfect/ good, 25% perceived them as well regulated, 21% perceived them as fair, 17% perceived them as much/very/so impressive, 13% perceived them as needing improvement, and 9% perceived them as poor/ unsafe. This implies that the safety regulations and enforcement concerning 'Boda Boda' operations are perceived positively. Regulatory authorities can potentially improve safety standards, enhance motorcycle riders' confidence, and reduce the perceived gaps in safety regulations and enforcement within the Boda Boda industry.

Some negative comments included, "Evening hours, if you get a customer that you are taking him or her far, at least be accompanied with another 'boda boda' for safety." One respondent stated, "Boda boda regulations and enforcement sometimes it's unfair to us." Another said, "Sometimes regulation harasses us."

Challenges Faced by 'Boda Boda' Riders in Teso South Sub County

The study investigated the challenges 'Boda Boda' riders faced. Figure 2 shows the results.

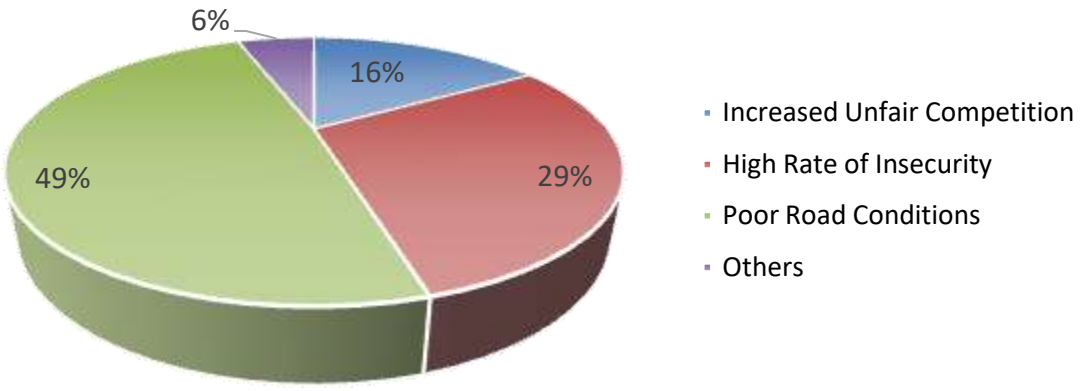

Figure 2: Challenges Faced by 'Boda Boda' Riders in Teso South Sub County

The figure revealed that 16% of the respondents indicated that increased unfair competition was their main challenge. 29% indicated a high insecurity rate, 49% indicated poor road conditions, and 6% indicated other challenges. This implies that poor road conditions are the main challenges faced by 'Boda Boda' riders in Teso South Sub County.

Other stated challenges included the operation of the 'Boda Boda' business, which contributed to the separation of families, increased school dropouts, especially boys seeking to join the business, harassment by colleagues, and a lack of personal protective gear.

Specific Support to Improve Welfare and Safety of 'Boda Boda' Riders in the Area

The study investigated if there were any specific support or services they thought would improve the welfare and safety of boda boda riders in the area. 83% of the respondents agreed they needed specific support, while 17% indicated they did not need support to improve their welfare and safety.

Table 11: Specific Support to Improve Welfare and Safety of 'Boda Boda' Riders in the Area

Suggested Specific Support or Service	Frequency	Percentage
Construction of Shades/ Stations	43	15%
Provision of License	13	4%
Provision of Legal Services	5	2%
Improving Roads	61	21%
Funding Welfare & Safety Programs	14	5%

Funding Riders Establishing Alternative Business	22	7%
Provision of Riding Safety Gears	78	26%
Enhancing Securing in the Region	33	11%
Road Safety Education	26	9%

Table 11 indicates that provision of riding safety gear is the most frequently suggested support, with 26 % of respondents emphasizing the importance of providing appropriate safety gear for riders**.** Improving roads follows closely, with 21% of the respondents highlighting the need for infrastructure improvements to enhance road safety for 'Boda Boda' operations. 15% of respondents mentioned the construction of shades/stations**,** indicating a desire for dedicated spaces or shelters for riders and their motorcycles. 11% of the respondents cited enhancing security in the region, underscoring the importance of safety measures beyond road infrastructure. 9% of the respondents suggested road safety education, reflecting the need for ongoing education and awareness campaigns among riders. Funding riders establishing alternative businesses and funding welfare and safety programs are suggested by 7% and 5% of respondents**,** respectively, demonstrating a desire for financial support to diversify income and enhance safety initiatives. 4% and 2% of respondents mentioned the provision of licenses and legal services**,** respectively, indicating specific administrative and legal needs among riders. These findings provide valuable insights into the diverse support services that 'Boda Boda' riders in Teso South Sub County believe would improve their welfare and safety. Addressing these suggestions could contribute significantly to enhancing the overall safety and well-being of riders in the region.

Updates on New Regulation or Safety Measures Related to 'Boda Boda' Operations

The study examined how the 'Boda Boda' rider stays updated on new regulations or safety measures related to boda boda operations. Table 12 shows the results.

Table 12: Updates on New Regulation or Safety Measures Related to 'Boda Boda' Operations

Update Source	Frequency	Percentage
Friends	21	7%
Fellow 'Boda Boda' Riders	32	11%
Online Platforms	26	9%
Radio & Television	51	17%
Social Media	82	28%
Local Authority	11	4%

On Phone	15	5%
Civil Society Groups	34	8%
Association Meeting	23	7%

Based on Table 12, Social Media emerges as the primary source of information, with 82 respondents (28%) relying on platforms such as Facebook, Twitter, and WhatsApp for updates on new regulations or safety measures. Radio and television are closely followed, with 51 respondents (17%) indicating that these traditional media channels are their source of information. Civil Society Groups and Fellow 'Boda Boda' Riders are also significant sources, with 34 respondents (8%) and 32 respondents (11%), respectively. This suggests that community-based and peer-to-peer communication plays a role in disseminating updates. 26 respondents (9%) and 23 respondents (7%) cite online platforms and association meetings, respectively, reflecting the importance of digital channels and formal group discussions in keeping riders informed. Friends, Local Authority, and on-phone are less frequently cited as sources of updates, with 21 respondents (7%), 11 respondents (4%), and 15 respondents (5%), respectively. These findings underscore the diverse channels through which 'Boda Boda' riders in Teso South Sub County receive updates on new regulations and safety measures. Enhancing communication through these channels could improve awareness and compliance among riders, contributing to overall safety and regulatory adherence in the region.

Improvements or Development 'Boda Boda' Riders Would Like to See

The study probed the riders' requests for improvements or developments. The responses are summarized in Table 13.

Table 13: Improvements or Development 'Boda Boda' Riders Would Like to See

Improvement or Development Needed	Frequency	Percentage
Adherence to Traffic Rules/ Road Safety Rules	71	24%
Boda Boda Riders Wearing Right Gear	46	16%
Building/ Construction of Boda Boda Shades	51	17%
Construction/Maintenance/ Improvement of Roads	93	32%
Training of Boda Boda Operators/ Safety Programs	34	11%

Table 13 revealed that adherence to Traffic Rules/Road Safety Rules is identified as the most critical area for improvement, cited by 24% of the respondents. This indicates a strong desire among riders for better compliance with traffic regulations to enhance overall road safety.

The next significant concern is the need for Boda Boda riders to wear the right gear, with 16% of the respondents expressing this preference. Proper gear is crucial for rider safety and protection.

Building/Construction of Boda Boda shades is another important consideration, with 17% of the respondents highlighting the need for adequate shelter for riders and their motorcycles, particularly in adverse weather conditions.

32% of the respondents cited road construction/maintenance/improvement. This reflects riders' widespread concern about the state of roads and emphasizes the importance of infrastructure improvements for safer and more efficient transportation.

11% of the respondents identified training of Boda Boda operators and safety programs needing attention. This underscores the importance of ongoing training and education to enhance riders' skills and awareness of safety practices.

These findings provide valuable insights into the areas where 'Boda Boda' riders in Teso South Sub County believe improvements or developments are needed. Addressing these concerns could significantly enhance the safety and overall quality of transportation services for riders in the region.

Awareness of Motorcycle Safety Programs or Initiatives in Teso South Sub County

The study probed whether boda boda riders were aware of motorcycle safety programs or initiatives in the Sub-county. The results are presented in Table 14.

Table 14: Awareness of Motorcycle Safety Programs or Initiatives in Teso South Sub County

Response	Frequency	Percentage
Yes	68	23%
No	227	77%

Table 14 indicates a relatively low level of awareness among respondents. Specifically, 23% of respondents answered "Yes" when asked if they were aware of motorcycle safety programs or initiatives in the area, while 77% responded "No." These findings underscore the need for increased efforts to promote and communicate existing motorcycle safety initiatives to the boda boda riders' community. Enhancing awareness could potentially improve participation and effectiveness of these programs in promoting safer motorcycle riding behaviours in Teso South Sub County. The highlighted initiatives were 'Linda Boda Boda' and training sponsored by politicians.

Effectiveness of Existing Motorcycle Safety Programs in Teso South Sub County

The study examined the effectiveness of the existing motorcycle safety programs in Teso South Sub County. The respondents were those aware of motorcycle safety programs or initiatives in the Sub County. The findings are presented in Table 15.

Table 15: Effectiveness of Existing Motorcycle Safety Programs in Teso South Sub County

Rate of Effectiveness	Frequency	Percentage
Very Effective	44	64%
Somewhat Effective	15	23%
Not Effective	9	13%

Table 15 indicates that most respondents perceive these programs positively. Specifically, 64% of respondents find the programs "Very Effective," while 23% consider them "Somewhat Effective." A smaller proportion, 13%, reported that the programs are "Not Effective." These findings highlight a generally favourable perception of motorcycle safety initiatives in the region, with room for further enhancement in effectiveness for those who find them less impactful.

Aspects Motorcycle Safety Programs Focus on

The study investigated aspects focused on motorcycle safety programs. Table 16 provides data on the focus areas of motorcycle safety programs.

Table 16: Aspects of Motorcycle Safety Programs Focus on

Aspect	Frequency	Percentage
Basic Motorcycle Operation	38	13%
Riding techniques	48	16%
Safety practices	16	6%
Traffic Rules and Regulations	89	30%
Advanced riding skills/ defensive riding	27	9%
Motorcycle Maintenance	21	7%
Wearing Right Gear	56	19%

The findings show that the highest focus area in motorcycle safety programs (30%)is understanding and adhering to traffic laws. These programs emphasize the need for riders to be knowledgeable about legal requirements and safe practices on the road. Some programs (19%)

emphasize the importance of wearing appropriate protective gear. They highlight the critical role of helmets, gloves, jackets, and other safety equipment in reducing injury severity in case of accidents. Some training programs focused on riding techniques (16%) that teach riders proper handling and manoeuvring techniques. This ensures that riders can operate their motorcycles safely and efficiently under various conditions. Basic Motorcycle Operations (13%) was covered in some programs and is a fundamental skill required to operate a motorcycle. New riders need to develop a solid foundation in motorcycle control. Some programs captured Advanced Riding Skills/Defensive Riding (9%), focusing on more complex riding techniques and strategies to avoid accidents. It is essential for improving overall riding safety and preparedness for emergencies. Some programs cover Motorcycle Maintenance (7%). This teaches riders how to perform routine checks and basic maintenance tasks. It ensures that motorcycles are kept in good working condition, which is crucial for safety. Safety Practices (6%) addressing general safety measures and best practices for riders were covered in some programs. They aim to instill a safety-conscious mindset among riders.

The findings imply that the varied focus areas indicate that motorcycle safety programs aim to provide a well-rounded education covering legal, operational, and safety aspects. To ensure a more balanced approach, programs emphasizing areas with lower focus, such as safety practices and motorcycle maintenance, need targeted improvement. Lastly, the high focus on wearing the right gear underscores its importance but suggests ongoing efforts to ensure riders consistently use protective equipment.

Personal Participation in Motorcycle Safety Programs or Workshop

The study investigated whether the Boda Boda riders had personally participated in any motorcycle safety programs or workshops in Teso South Sub County. Table 17 provides data on the personal participation of Boda Boda riders in motorcycle safety programs or workshops.

Table 17: Personal Participation in Motorcycle Safety Programs or Workshop

Response	Frequency	Percentage
Yes	64	22%
No	231	78%

The findings reveal a low participation rate, with only 22% of riders attending safety programs or workshops. This indicates that a significant majority (78%) have not engaged in formal safety training. The low participation rate suggests that many riders may lack essential safety training, potentially increasing the risk of accidents and unsafe riding practices. The high

percentage of non-participants may also reflect issues related to the awareness, accessibility, or availability of safety programs for Boda Boda riders.

Experiences Gained from Participation in Motorcycle Safety Programs or Workshop

The study aimed to gather insights from participants who attended motorcycle safety programs or workshops. Numerous positive responses were documented, especially regarding the benefits experienced by the riders themselves. One participant reported learning “proper road safety and the use of helmets.” Another indicated, “We were educated on the importance of wearing helmets and heavy jackets when operating motorcycles.” Another commented, “It was enjoyable and helpful. I gained knowledge on what I lacked and enjoyed interacting with different unions.” A female rider noted, “I learned that not only men should be in the Boda Boda sector. That is when I decided to join.”

Accessibility of Information on Motorcycle Safety Programs or Workshop

The respondents were asked how accessible the information on motorcycle safety programs was. Table 18 presents data on the accessibility of information regarding motorcycle safety programs or workshops for Boda Boda riders.

Table 18: Accessibility of Information on Motorcycle Safety Programs or Workshop

Accessibility	Frequency	Percentage
Somewhat Accessible	211	72%
Very Accessible	65	22%
Not Accessible	19	6%

Most (72%) of riders find information on motorcycle safety programs or workshops somewhat accessible. This suggests that while information is available, barriers may prevent it from being fully accessible to all riders. A smaller percentage of riders (22%) find the information very accessible, indicating that some riders have no significant difficulty accessing safety program information. A minority of riders (6%) report that information on motorcycle safety programs or workshops is inaccessible. This highlights a gap that needs to be addressed to ensure all riders have access to necessary safety information.

The implications could be that the high percentage of riders finding information only somewhat accessible suggests there are barriers such as language, location, or communication channels that need to be addressed. Also, the 6% of riders who find information inaccessible

indicates a critical gap that could leave some riders uninformed about important safety practices and programs.

Believe There is a Need for Motorcycle Safety Programs or Workshop

The study investigated whether respondents believed there was a need for more motorcycle safety programs in Teso South Sub County. Table 19 provides data on the perceptions of Boda Boda riders regarding the necessity of motorcycle safety programs or workshops.

Table 19: Believe There is a Need for Motorcycle Safety Programs or Workshop

Response	Frequency	Percentage
Yes	264	89%
No	23	8%
Not Sure	8	3%

A significant majority of riders (89%) believe there is a need for motorcycle safety programs or workshops. This overwhelming support highlights a strong recognition among riders of the importance of such programs for enhancing their safety and skills. A small percentage of riders (8%) do not believe there is a need for motorcycle safety programs or workshops. This opposition might stem from a lack of awareness of the benefits or perceived adequacy of their current knowledge and skills. A few riders (3%) are unsure about the necessity of safety programs. This uncertainty could indicate a need for more information and education on the benefits of these programs.

The data suggests a strong demand for motorcycle safety programs, indicating that efforts to implement or expand these programs would likely be well-received by the rider community. Also, efforts should be made to understand the reasons behind the opposition and uncertainty. Addressing these concerns through targeted information campaigns could further increase participation and support.

Motorcycle Safety Areas that Need More Attention or Improvement

The participants were asked about specific areas of motorcycle safety that they think need more attention or improvement. To improve motorcycle safety comprehensively, it's crucial to identify specific areas that require more attention or enhancement. The respondents identified some areas, including “helmet and protective gear usage.” There is a need to increase awareness of the importance of wearing helmets and other protective gear. Since most

motorcycle safety programs emphasize the importance of wearing the right gear when riders use motorcycles, enforcing laws requiring helmets and protective gear must be strengthened.

Road maintenance emerged as a critical area for improvement. Enhancing road conditions by eliminating hazards such as potholes, uneven surfaces, and debris can significantly reduce accidents. Additionally, creating dedicated motorcycle lanes can help minimize collisions with other vehicles. Improving road signage and lighting will guide riders more effectively and enhance safety.

Improved traffic law enforcement is crucial for motorcycle safety. Participants advocated stricter penalties for traffic violations, including speeding, drunk driving, and reckless riding. They also suggested increasing the presence of traffic police to monitor and enforce these laws consistently. Technology, such as speed cameras and traffic monitoring systems, can further enhance the enforcement of traffic rules.

Better education on motorcycle maintenance is needed. Riders should be educated on the importance of regular maintenance checks to ensure their motorcycles are in good working condition. Training on basic repair skills can help riders handle minor mechanical issues independently. Improving access to maintenance and repair facilities is also essential, especially in remote areas. These measures will contribute to keeping motorcycles in good condition and minimizing accidents.

The study highlighted the necessity of developing safety programs that address female riders' specific needs and challenges. More women can be encouraged to join the Boda Boda sector by providing a supportive and safe environment. Highlighting successful female riders as role models can inspire others and promote gender diversity within the industry.

Many riders lack insurance coverage, highlighting the need to raise awareness about the importance and benefits of having insurance. Transport sector authorities should collaborate with insurance providers to develop affordable and accessible insurance options tailored for motorcycle riders. Ensuring riders understand and have access to insurance will provide them with financial protection and promote a safety culture.

Focusing on these identified areas can create a safer riding environment for Boda Boda riders, reduce accident rates, and improve overall road safety. Implementing these improvements will require concerted efforts from all stakeholders, including riders, traffic authorities, and safety program developers.

Local Community Involvement in Motorcycle Safety Programs

The study investigated how involved the local community was in supporting motorcycle safety programs. Engaging the local community in supporting motorcycle safety programs can

significantly enhance their effectiveness. The respondents cited diverse ways the community supported motorcycle safety in the sub-county. Community members participate in road safety audits by identifying and reporting black spots and hazardous road conditions. In some instances, the local community erects bumps in areas perceived unsafe for pedestrians using the roads. In other cases, community complaints have led to quicker responses from local authorities to enhance safety, such as making repairs and signposts.

According to the respondents, clearing bushes and vegetation near roads is one way the local community participates in improving motorcycle safety. There are incidences where the local authority instructs community members to ensure roads next to their compounds are cleared to keep them in a good state. Clearing bushes and vegetation alongside roads is a practical and effective measure to enhance motorcycle safety. Improving visibility, reaction time, and overall road conditions helps prevent accidents and create a safer environment for all road users. This proactive approach requires collaboration between local authorities, community members, and road maintenance teams to ensure roads are clear and safe for motorcycle riders and passengers.

The participants indicated that fundraising events, particularly by politicians, had been organized to support the purchase of different clothing gear. This has involved the purchase of helmets, reflective gear, and other safety equipment for riders who cannot afford them. A more supportive and informed environment can be created by actively involving the local community in motorcycle safety programs. This collaborative approach not only enhances the effectiveness of safety initiatives but also fosters a culture of collective responsibility and care, ultimately leading to safer roads and better outcomes for all road users

Challenges or Obstacles Hindering the Effectiveness of Motorcycle Safety Programs

The study sought to determine whether any challenges or obstacles hinder the effectiveness of motorcycle safety programs in Teso South Sub County. Table 20 provides insights into the prevalence of challenges or obstacles that hinder the effectiveness of motorcycle safety programs as perceived by the respondents. Understanding these challenges is crucial for designing and implementing more effective safety programs.

Table 20: Challenges or Obstacles Hindering the Effectiveness of Motorcycle Safety Programs

Response	Frequency	Percentage
Yes	267	91%
No	28	9%

A significant majority of 91% of respondents acknowledge the existence of challenges or obstacles that impede the effectiveness of motorcycle safety programs. This high percentage indicates widespread recognition of issues that need to be addressed to improve safety outcomes for motorcycle riders.

The respondents listed challenges such as insufficient resources to launch safety programs, expensive safety clothing gear, poor road surfaces and flooded roads, semi-illiterate riders, weak boda boda associations, and leadership. Recognizing these challenges suggests that targeted interventions and reforms are needed to address the identified obstacles.

Role Local Authority Should Play to Promote Motorcycle Safety

The study investigated the role local authorities should play in promoting motorcycle safety. A range of responses were generated. The local authority should improve road infrastructure by ensuring the roads are well-maintained, free from potholes and have clear markings.

They can enhance training and education programs by developing and offering regular motorcycle safety courses. The courses can cover basic and advanced riding techniques, traffic rules, and emergency handling. Riders should be encouraged to participate frequently to acquire contemporary skills and knowledge that promote safe motorcycle riding.

The local authority can launch public awareness campaigns about the importance of motorcycle safety, the benefits of wearing protective gear, and following traffic rules. This can be through workshops, seminars, and school programs to educate riders and the general public about motorcycle safety.

They can work with manufacturers and retailers to provide riders with affordable helmets and protective gear. They can also ensure that motorcycle maintenance and repair services are accessible, especially in remote areas. They can promote regular maintenance checks and provide resources for basic repair training.

They can develop safety programs that address female riders' specific needs and challenges. They can also highlight successful female riders as role models to inspire and encourage more women to join the sector.

The local authority can rigorously enforce laws requiring helmets and other protective gear and implement penalties for non-compliance. They can increase the presence of traffic police to monitor and penalize traffic violations such as speeding, drunk driving, and reckless riding. They can also implement speed cameras, traffic monitoring systems, and other technologies to enforce traffic laws more effectively.

How Motorcycle Safety Programs Could Be Improved or Expanded

The study sought how motorcycle safety programs could be improved or expanded in Teso South Sub County. A range of responses was gathered. Raising public awareness through campaigns to educate the public on the importance of motorcycle safety using media platforms, such as social media, local newspapers, radio, and television, to reach a broad audience. Seminars focusing on motorcycle safety could be organized, and experts could be invited to discuss safe riding practices, the importance of protective gear, and the benefits of proper training.

Ideally, the Boda Boda Associations may build partnerships with local businesses, law enforcement agencies, and educational institutions to support and promote motorcycle safety initiatives. These partnerships could also help develop policy proposals for local and national government bodies advocating stricter motorcycle safety regulations.

Boda boda riders' training and certification in motorcycle safety should be encouraged and, if possible, made mandatory for all riders. The courses should be accessible and affordable. Certification programs that validate riders' skills and knowledge should be established to ensure they are well-prepared for safe riding.

Use Social Media and technology to spread safety messages, share informative videos, and engage with the community. Challenges that promote safety practices can be created. Also, apps that offer safety tips, route planning with safer roads, and reminders for maintenance checks can be promoted or developed.

Changes Noticed in Motorcycle Riders Behaviour or Attitude Towards Safety

Respondents indicated whether they had seen a change in motorcycle riders' behaviour or attitude towards safety. Table 21 presents data on the observed changes in motorcycle riders' behaviour or attitude towards safety. This data provides insights into how effective motorcycle safety programs and interventions have influenced riders' safety practices.

Table 21: Changes Noticed in Motorcycle Riders Behaviour or Attitude Towards Safety

Response	Frequency	Percentage
Yes	145	49%
No	150	51%

The nearly equal split between those who have noticed changes and those who have not suggests a mixed impact of current safety interventions. The 49% who observed positive changes might see improvements such as increased helmets and protective gear use, better

adherence to traffic laws, and more cautious riding behaviours. This indicates that safety programs are reaching and positively affecting a significant portion of the rider community.
However, 51% of those who did not notice any changes highlight an important concern: that a considerable proportion of riders may not be influenced by existing safety measures. This could be due to several factors, including inadequate outreach, resistance to behavioural change, or insufficient enforcement of safety regulations.

Additional Resources or Support Needed to Enhance Motorcycle Safety

A multifaceted approach involving various resources and support systems is necessary to enhance motorcycle safety in Teso South Sub County. The respondents cited several of them. They suggested riders be trained in first aid skills to ensure immediate assistance in the event of accidents. The availability of emergency services will go a long way toward improving motorcycle safety.

Increased insurance coverage was cited as needed to enhance motorcycle safety. Some riders argued that some passengers they carry are regular customers who know them right from home. In the event of an accident, they frequent their homes, demanding compensation that they cannot afford. Affordable and accessible insurance coverage was seen as a way of improving motorcycle safety.

Answers to Research Questions

What is the current level of education and awareness regarding motorcycle safety among Teso South Sub County riders?

Respondents have a relatively low level of awareness. Only 23% of the 'boda boda' riders knew motorcycle safety programs existed. Enhancing awareness could potentially improve participation and effectiveness of these programs in promoting safer motorcycle riding behaviours in Teso South Sub County.

How effective are the existing motorcycle safety education and awareness campaigns in Teso South Sub County?

The programs are very effective (64%), somewhat effective (23%) and not effective (13%) as presented by 'boda boda' riders. These findings highlight a generally favourable perception of motorcycle safety initiatives in the region.

What challenges are faced in implementing motorcycle safety education and awareness campaigns in Teso South Sub County?

Majority (91%) of respondents acknowledge the existence of challenges or obstacles that impede the effectiveness of motorcycle safety programs. Listed challenges included

insufficient resources to launch safety programs, expensive safety clothing gear, poor road surfaces and flooded roads, semi-illiterate riders, weak boda boda associations, and leadership.

What strategies can be recommended to improve motorcycle safety education and awareness campaigns in Teso South Sub County?

Campaigns can be employed to educate the public on the importance of motorcycle safety. Media platforms, such as social media, local newspapers, radio, and television, can reach a broad audience. Seminars focusing on motorcycle safety could be organized, and experts could be invited to discuss safe riding practices, the importance of protective gear, and the benefits of proper training.

Also, 'Boda Boda' Associations may build partnerships with local businesses, law enforcement agencies, and educational institutions to support and promote motorcycle safety initiatives. These partnerships could also help develop policy proposals for local and national government bodies advocating stricter motorcycle safety regulations.

Boda boda riders' training and certification in motorcycle safety should be encouraged and, if possible, made mandatory for all riders. The courses should be accessible and affordable. Certification programs that validate riders' skills and knowledge should be established to ensure they are well-prepared for safe riding.

Use Social Media and technology to spread safety messages, share informative videos, and engage with the community. Challenges that promote safety practices can be created. Also, apps that offer safety tips, route planning with safer roads, and reminders for maintenance checks can be promoted or developed.

CONCLUSION

The general information about the boda boda riders shows that most (42%) undertake farming as a secondary occupation, while others own businesses (13%) and work as labourers (7%). Also, 38% of the riders rely solely on boda boda riding for their income. 42% of the riders have less than one year's experience, 41% between 2 and 5 years, and 17% over 5 years. on average, Boda Boda riders spend approximately 8.77 hours operating their motorcycles daily. 68% of the riders rely on their motorcycles as their main source of income.

On average, Boda Boda riders have been involved in approximately 2.48 accidents and 3.07 traffic violations within the past year. They have been arrested and charged 1.59 times, received warnings about violations an average of 2.11 times, and escaped arrest for violations 1.54 times. 61% have insurance coverage.

There is a low level of awareness of motorcycle safety programs or initiatives. However, the majority of riders consider them very effective. Motorcycle safety programs mainly focus on

traffic rules and regulations. A larger percentage of riders have not participated in safety programs or workshops, though most riders find information on these somewhat accessible. Also, most riders (89%) believe there is a need for motorcycle safety programs or workshops.

Most (91%) of respondents recognize challenges hindering motorcycle safety programs' effectiveness. The identified obstacles include inadequate resources for launching safety initiatives, the high cost of safety gear, poor road conditions and flooding, low literacy levels among riders, and weak leadership within boda boda associations.

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REFERENCES

Abdul Manan M.M., Ho J.S, Syed Tajul S.T.M., Arif M.R., and Abdul Ghani A.V. (2017). Factors associated with motorcyclists' speed behaviour on Malaysian roads, Transp. Res. Part F Traffic Psychol. Behav. 50 (2017) 109–127, https://doi.org/10.1016/j.trf.2017.08.006.

Balami AD.(2019) Road trafc accidents, near-misses and their associated factors among commercial tricycle drivers in a Nigerian City. Ann Biostatistics Biometric Applications; 2(3) doi:https://doi.org/10.33552/abba.2019. 02.000539 13. O

Dodge L.D., Halladay M., and America I.T.S., (2018). Motorcycle Safety And Intelligent Transportation Systems, (2018) 10p. https://trid.trb.org/view/904237

Fanai S. and Mohammadnezhad M. (2022). The perception of public transport drivers (PTDs) on preventing road traffic injury (RTIs) in Vanuatu: a qualitative study in International Journal of Qualitative Studies on Health and Well-being. Volume 17, 2022.

Heinrich, H. W., Petersen, D., and Roos, N. (1980). Industrial Accident Prevention. New York:McGraw-Hill

Jevtic V., Vujanic M., Lipovac K., Jovanovic D., Pesic D., (2015). The relationship between the travelling speed and motorcycle styles in urban settings: a case study in Belgrade, Accid. Anal. Prev. 75 (2015) 77–85, https://doi.org/10.1016/j.aap.2014.11.011.

Kenya National Bureau of Statistics (KNBS). Economic Survey 2021. KNBS; 2021. Accessed December 8, 2022. https://www.knbs.or.ke/wp-content/uploads/2021/09/Economic-Survey-2021.pdf

Kinyanjui M. (2023). Bodabodas most dangerous mode of transport than vehicles – NTSA. STAR Newspaper 26th January 2023. https://www.the-star.co.ke/news/2023-01-26-bodabodas-most-dangerous-mode-of-transport-than-vehicles-ntsa/

Kitara, D.L. (2011). Understanding the emerging role of motorcyles in African cities. (Electronic version), 1-32 . Retreived 17 July, 2012 from https://siteresources.worldbank.org/EXTASFRSUBSAHTRA/Resources/1513929-1262811948762/DP13-Role-Motorcycles.pdf.

KIPPRA (2022). Five Strategies to Regulate Boda-Boda Transport Subsector in Kenya. August 2022

Mustafa T. Y., Ahmad F. M. S. and Khairil A. A, (2019) A review of behavioural issues contribution to motorcycle safety. International Association of Traffic and Safety Sciences Research. http://doi.org/10.1016/j.iatssr.2019.12001

Mutiso, W. & Behrens, R. (2013). 'Boda Boda' Bicycle taxis and their role in urban transport systems: Case studies of Kisumu and Nakuru, Kenya. Cape Town: Center for Transport Stuides, Department of Engineering, University of Cape Town.

Muguro J.K. , Sasaki M., Matsushita K., Njeri W. (2020), Trend analysis and fatality causes in Kenyan roads: a review of road traffic accident data between 2015 and 2020 Cogent Eng., 7 (1), p. 1797981, 10.1080/23311916.2020.1797981

National Crime Research Centre (NCRC) Report (2018). Boda Boda Motocycle Transport and Security Challenge in Kenya. ISBN 978-9966-7493-8-3

Nyachieo, M. G. (2013). Creating employment through transport; the youth and motorcycle (bodaboda) in Kitengela, Kajiado Couty- Kenya. Research Journal in Organizational Psychology & Educational Studies , 2 (4), 154-157.

NTSA, Director General. (2020). Press Statement on Status of Road Safety as at 31st October 2020 https://twitter.com/ntsa_kenya/status/1326524385444900864

Peden, M., McGee, K., & Sharma, G. (2002). The injury chart book: A graphical overview of the global burden of injuries . Washington: World Health Organization.

Pius, W., Wilberforce, C., Wepukhulu, M., & Victor, M. (2017) Determinants of Commercial Motorcycle Related Injuries in Butula Subcounty, IOSR Journal of Nursing and Health Science. 7(6),47-59. https://www.iosrjournals.org/iosr-jnhs/papers/vol7-issue6/Version-9/G0706094759.pdf [Google Scholar]

Ospina-Mateus H, Quintana Jiménez LA, Lopez-Valdes FJ, Salas-Navarro K. (2019) Bibliometric analysis in motorcycle accident research: a global overview. Scientometrics, 121(2):793–815. https://doi.org/10.1007/ s11192-019-03234-5.

Roberts M. (2022). 5Global Issues to watch. United Nations Foundation. Issue of 20th December 2022. Accessed in September 2023 https://unfoundation.org/blog/post/5-global-issues-to-watch-in-2023/?gclid=Cj0KCQjwmICoBhDxARIsABXkXlKxkb5aQEIdVRb5AqwuCL-9teUQVzL5kewWas-lO8fV4DVTncI2vdsaAqShEALw_wcB

Salako A, Abiodun O, Sholeye O. (2013) Risk behaviors for road trafc accidents and severe crash injuries among commercial motorcyclists in Sagamu, south west, Nigeria. Online J Med Med Sci Res.2:19–23.

United Nation Report. (2023). The Sustainable Development Goals Report 2030: Special Edition https://unstats.un.org/sdgs/report/2023/

WHO, 2017a. Powered two- and three-wheeler safety: A road safety manual for decision-makers and practitioners. Available at:http://apps.who.int/iris/bitstream/10665/254759/1/9789241511926-eng.pdf