



Stress Triggers among Motorcycle Taxi Riders and their Effect on Road Safety Behaviour within Bungoma South Sub-County, Bungoma County, Kenya

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Abstract

Motorcycle taxi riders popularly, known as *boda-boda* riders in Kenya, have become a unique segment within the transport system in urban and rural areas since the early 2000s in Kenya. While their operations remain largely informal, their impact on the economy is significant in terms of employment creation and ease of movement of goods and services. Despite their contribution, *boda-boda* riders encounter a high-pressure environment and susceptibility to stress. The study examined stress triggers among motorcycle taxi riders and their effect on road safety behaviour within Bungoma South Sub-County, Kenya. The theories of Reasoned Action (1975) and Planned Behaviour (1991) underpinned the study. The sample size of the study was 134 *boda-boda* riders out of the target population of 450. A descriptive survey design was used. Questionnaires were the principal instrument used for data collection. Demographically, the majority of *boda-boda* riders fall within the age brackets of 18 to 30 years (77%), the majority had attained secondary education (54%), and a few had a tertiary level of education (29%). Stress triggers that made *boda-boda* riders susceptible to risky behaviour, hence compromised road safety, were: - inability to save for the future (47%), fatigue and mental overload (40%) and high daily remittance for 'rented' motorcycles (29%). Authors argue that given *boda-boda* riders' prime ages and level of education, their option to take *boda-boda* enterprise as a form of self-employment and source of livelihood can be supported through a subtler policy approach anchored on targeted financial literacy, key on prudent spending and investment choices.

Introduction

Motorcycle taxis have evolved globally as a fast, affordable, and efficient transportation alternative within the transportation ecosystem, both in rural and urban areas (Girma et al., 2022; KNBS, 2023). Popularly known as *boda-boda* riders in Kenya, this mode of transport plays a crucial role in bridging transportation gaps, especially in inaccessible areas where public transport is either limited or non-existent (Kumar, 2015; Porter, 2016; Starkey, 2011). This sector provides a livelihood to hundreds of thousands of youths and has significantly improved mobility in both urban and rural areas. Over 1.2 million *boda-boda* riders are estimated to operate *boda-boda* taxis across the country, providing



employment opportunities to a significant segment of the youthful population (Muiruri, 2021; KNBS, 2022).

The National Transport and Safety Authority (NTSA) report that boda-boda riders and their passengers consistently make up a significant proportion of road traffic accidents and fatalities. In 2023, motorcycle-related crashes accounted for over 30% of the total road traffic deaths in Kenya, making this demographic one of the most at-risk groups on Kenyan roads (NTSA, 2023; KNBS, 2023). The high incidence has been attributed to multiple factors that include, among others, risky riding behaviour, economic pressures that push riders to prioritise income over safety, peer pressure, stress-related decisions, and poor road infrastructure, in addition to a lack of protective gear (Guerrero et al., 2013; Opondo & Kiprop, 2018; Ozkan et al., 2019). Research suggests that risky behaviour among motorcycle riders is often driven by a mix of socio-economic pressure, lack of affordable financing, frequent encounters with law enforcement, and peer pressure to engage in unsafe practices such as overloading and speeding (Ozkan et al., 2019). Furthermore, a substantial number of riders operate without valid licences or formal training, increasing their vulnerability to accidents (Guerrero et al., 2013; Matheka et al., 2015; Nasongo, 2015; NTSA, 2023). Additionally, there is a lack of comprehensive data that reflects the lived experiences of *boda-boda* riders, particularly from a behavioural and psycho-social perspective (Matheka et al., 2015; Nyachieo, 2016).

The psycho-social well-being of *boda-boda* riders is also a growing concern. Stress from financial instability, job insecurity, and social expectations may lead them to engage in high-risk behaviour as a coping mechanism (Kiken et al., 2015; Hafenbrack, 2017). Many *boda-boda* riders enter the business due to limited access to formal employment. While the flexible nature of the job offers an attractive livelihood, it often comes with precarious working conditions. *Boda-boda* riders frequently report harassment by law enforcement, unfair loan repayment conditions, and a lack of support systems for health, insurance, and career development (Matheka, 2015; Kumar, 2015).

The motorcycle taxi (*boda-boda*) transport sector in Kenya has rapidly grown into a significant source of development, particularly among young people. The industry has emerged as a vital mode of transportation in both urban and rural areas, providing employment opportunities to many young people. While initiatives to improve motorcycle rider safety and mitigate risk behaviour in the sector that have included rider training, safety gear requirements, and regulations for carrying passengers and loads, awareness campaigns, community policing efforts, among others, are laudable, the high number of accidents attributable to *boda-boda* riders is indicative of unresolved road safety challenges. Stress, peer pressure, inadequate enforcement of regulations, and insufficient support systems have exacerbated these risky behaviours. The study examined stress triggers among motorcycle taxi riders and their effect on road safety behaviour within Bungoma South Sub-County, Bungoma County, Kenya.

The main objective of this study was to investigate stress triggers among motorcycle taxi riders and their effect on road safety behaviour within Bungoma South Sub-County, Bungoma County, Kenya. The specific objectives were to i). To determine demographic characteristics of motorcycle taxi drivers within Bungoma South Sub-County, Bungoma County, Kenya, ii) To identify circumstances contributing to susceptibility of motorcycle taxi riders to stress and risky road safety behaviour within Bungoma South Sub-County, Bungoma County, Kenya.

Literature Review

Empirical Review

Studies in Sub-Saharan Africa have documented the growing prevalence of motorcycle taxis (*boda-boda*) as a response to both rural and urban mobility challenges (Amoh-Gyimah & Saberi, 2016; KNBS,



2022; NTSA, 2023; Salifu & Ackaah, 2012). A study by Howe and Davis (2019) on the role of motorcycle taxis in urban transportation highlighted the growing reliance on boda-bodas in urban transportation across Kenya and other Sub-Saharan countries, focusing on both the socio-economic benefits and the inherent risks in the sector. Equally, Kumar (2015), in a study on understanding the political economy of motorcycles in urban Africa, revealed that motorcycles fill a critical transport gap and recommended integrating boda-boda into formal transport planning.

Psycho-social influences such as peer pressure, financial stress, and emotional fatigue have been linked to unsafe behaviour (Ozkan et al., 2019). According to Ochieng and Owuor (2020), many riders engage in risky actions, such as overloading, over-speeding, and riding under the influence, often driven by the desire to maximise income under tight economic conditions. Ochieng and Owuor (2020) explored how financial stress, peer pressure, and emotional fatigue contribute to unsafe behaviour among Nairobi's boda-boda riders, underscoring the need for behaviour change programs. Effective implementation of selected legislation on motorcycle road safety, as documented by NTSA (2023), remains questionable, as revealed by Nyachieo (2016) in his study on boda-boda motorcycle safety in Kenya, which highlighted a strong disconnect between policy and rider behaviour and emphasised participatory approaches to road safety, advocating for culturally relevant safety training. Given the widespread nature of the boda-boda sector, its challenges represent a national concern requiring evidence-based interventions. Previous studies have focused mainly on accident statistics or shortcomings (KNBS, 2022 & NTSA, 2023), but few have examined rider behaviour triggered by stress. The study sought to fill that gap by collecting first-hand information on demographics, stress triggers and observable risky behaviours.

Theoretical Review

The study is grounded in two complementary behavioural theories: The Theory of Reasoned Action (TRA) and the Theory of Planned Behaviour (TPB). These theories offer robust models for understanding how individual attitudes, social pressures, and perceived control influence behavioural intentions and actual behaviours, especially in health and safety contexts (Lucidi et al., 2019; Zhou & Wu, 2014; Yaghoubi & Bahrami, 2015). The theories frame human behaviour as a dynamic response to adversity and are particularly useful in underpinning how *boda-boda* riders navigate adversity, manage stress, and make safety-related decisions (Lucidi et al., 2019).

Theory of Reasoned Action (TRA)

Developed by Fishbein and Ajzen (1975), the TRA posits that an individual's behavioural intention is the immediate determinant of action, influenced mainly by attitude towards behaviour and subjective norms. In this context, for *boda-boda* riders, attitude towards behaviour may involve how they perceive the benefits or drawbacks of road safety practices (e.g. wearing helmets, obeying traffic laws). As for subjective norms, premised on the perceived social pressures to perform or not perform the behaviour, *boda-boda* riders may be driven by peer influence or customer expectations that encourage risky behaviour (e.g., speeding, overloading to attract passengers). Based on TRA, if *boda-boda* riders have a positive attitude towards safe riding and perceive that important people (e.g. fellow riders, customers, family) support it, they are more likely to ride safely.

Theory of Planned Behaviour (TPB)

Ajzen (1991) extended the Theory of Reasoned Action (TRA) to include Perceived Behavioural Control (PBC), resulting in the Theory of Planned Behaviour (TPB). Perceived Behavioural Control refers to an individual's perception of their ability to perform a behaviour, considering both internal and external constraints. In this context, these constraints relate to stress triggers affecting the *boda-boda* riders' enterprise. This may include factors such as road conditions, financial pressure, fatigue, mental overload, or a lack of training. By including PBC, the TPB accounts for situations where individuals



may intend to behave safely but feel unable to do so due to external barriers and/or stress triggers (e.g., economic pressure, lack of support, or poor infrastructure). The Theory of Planned Behaviour underpins a deeper understanding of not just why boda-boda riders engage in risky behaviours, but also how their intentions and behaviours can be shaped through interventions such as a nuanced policy approach anchored in tailored financial literacy.

Methodology

Research Design

The study employed a descriptive survey design, which is appropriate for collecting data on demographics, practices, stress triggers and perceptions at a single point in time (Cohen et al., 2011). This approach was ideal for understanding patterns in road safety behaviour and the impact of stress triggers among *boda-boda* riders.

Study Area

The study area was the Chwele-Mayanja-Kanduyi highway in Bungoma South Sub-County, Bungoma County, Kenya. Practical considerations dictated the selection of this area. In recent years, there has been high traffic from trucks, cane tractors, passenger vehicles, and motorcycle taxis, posing a significant road safety concern.

Target Population and Sample Size

A sample of 134 *boda-boda* riders was selected out of the target population of 450 regular *boda-boda* riders operating along Chwele-Mayanja-Kanduyi highway in Bungoma South Sub-County, Bungoma County, Kenya. Regarding sampling, a combination of purposive, stratified, and multi-phase approaches was utilised as the sampling strategy.

Data Collection and Analysis

The research instruments employed were structured questionnaires, document analysis and observation checklists. The structured questionnaire, which served as the main tool, included both closed-ended and open-ended questions, divided into the following categories: general information, challenges, risky behaviour, support needs, and future aspirations. Observation checklists included items that required capturing *boda-boda* riders while they were doing their trade, but also indicated risk behaviour. This is shown in the results section as plates. Descriptive statistics were employed to analyse the data, in addition to qualitative data that reflected the voices of key informants and observations from the researcher.

Results and Discussion

Demographic Characteristics

Demographic characteristics, especially age, level of education, gender, training, and experience, are crucial when considering an individual's susceptibility to stress, risk, and decisions on whether to engage in or avoid risky behaviour. The authors sought to establish some of these indicators by focusing on age, level of education, training and experience in motorcycle riding.



Table 1: Stress Triggers as Rated by Boda-boda Riders Based on Age

Stress Trigger Variables	Age bracket	Frequency (%)	Stress Triggers ratings by Age
High Daily remittance for 'rented' motorcycles	Below 18	4 (3)	0 (0)
	18-25	46 (34)	15 (11)
	26-30	57 (43)	10 (7)
	Above 30	27 (20)	4 (3)
	Total	134 (100)	29 (21)
Inability to save for future investment	Below 18	4 (3)	2 (2)
	18-25	46 (34)	12 (9)
	26-30	57 (43)	17 (12)
	Above 30	27 (20)	0 (0)
	Total	134 (100)	31 (23)
Lack of access to loans	Below 18	4 (3)	2 (2)
	18-25	46 (34)	5 (3)
	26-30	57 (43)	3 (2)
	Above 30	27 (20)	2 (2)
	Total	134 (100)	12 (9)
High repair and maintenance cost for their motorcycles	Below 18	4 (3)	2 (2)
	18-25	46 (34)	10 (8)
	26-30	57 (43)	5 (4)
	Above 30	27 (20)	4 (3)
	Total	134 (100)	21 (17)
Fatigue and Mental overload	Below 18	4 (3)	2 (2)
	18-25	46 (34)	9(6)
	26-30	57 (43)	15 (11)
	Above 30	27 (20)	15 (11)
	Total	134 (100)	41(30)

Source: Research Data (2025); N=134

According to Table 4.1, the study found that the largest age group among boda-boda riders is between 26 and 30 years, comprising 43% of the sample. This suggests that the profession is primarily attractive to young adults who may be at a transitional stage in their economic or career development. The second-largest group is 18 to 25 years old, at 34%, indicating a strong youth presence in the industry, possibly due to limited formal employment opportunities. Riders over 30 years old comprise 20%, while only 3% are below 18 years old, suggesting relatively few underage operators; however, this still raises potential legal and safety concerns. Overall, 77% of the respondents were between 18 and 30 years, reinforcing the idea that boda-boda riding is a youth-dominated sector in Kenya. The Kenya National Bureau of Statistics (KNBS, 2022) highlighted, in its insight on youthful boda-boda riders, the growing population of young boda-boda riders in Kenya, reflecting the sector's importance in youth employment and transportation. Behaviourally, young riders may be more prone to peer pressure, risk-taking, or emotional distress due to financial instability. Age-specific support and mentorship programmes could be beneficial. The high proportion of riders under 30 years may warrant targeted training campaigns for newer and younger riders. Regulatory frameworks and support programmes should be age-sensitive, primarily to address early entry into the informal transport sector.



Table 2: Stress Triggers as Rated by Boda-boda Riders Based on Level of Education

Stress Trigger Variables	Educ. Level	Frequency (%)	Stress Triggers ratings by Educ.
High Daily remittance for 'rented' motorcycles	Primary	19 (14)	10 (8)
	Secondary	72 (54)	15 (11)
	Tertiary	39 (29)	4 (3)
	Other	4 (3)	0 (0)
	Total	134 (100)	29 (21)
Inability to save for future investment	Primary	19 (14)	15 (11)
	Secondary	72 (54)	20 (15)
	Tertiary	39 (29)	10 (8)
	Other	4 (3)	2 (2)
	Total	134 (100)	47 (36)
Lack of access to loans	Primary	19 (14)	5 (3)
	Secondary	72 (54)	2(2)
	Tertiary	39 (29)	0 (0)
	Other	4 (3)	0 (0)
	Total	134 (100)	7 (5)
High repair and maintenance cost for their motorcycles	Primary	19 (14)	2(2)
	Secondary	72 (54)	5 (3)
	Tertiary	39 (29)	2 (2)
	Other	4 (3)	2 (2)
	Total	134 (100)	11 (9)
Fatigue and Mental overload	Primary	19 (14)	5(3)
	Secondary	72 (54)	20 (15)
	Tertiary	39 (29)	10 (8)
	Other	4 (3)	5 (3)
	Total	134 (100)	40 (29)

Source: Research Data (2025); N=134

As indicated in Table 4.2, most boda-boda riders (54%) have completed secondary education, indicating that a significant proportion of riders likely entered the workforce after finishing high school. This group makes up the largest segment of the sample. Tertiary or college education is the qualification of 29% of the riders, suggesting that a reasonable portion of riders possess post-secondary education. This group may be seeking alternative employment due to a lack of formal opportunities in their field of study. Primary education is held by 14% of riders, which indicates that a smaller portion of riders have only completed basic education before entering the boda-boda industry. Given that a large proportion have at least secondary education, interventions aimed at improving road safety could incorporate more advanced training and vocational skills to appeal to riders with varying levels of education. Tertiary-educated riders may also benefit from business management and entrepreneurial skills to manage their motorcycle taxi businesses more effectively. Programmes aimed at riders with only primary or secondary education may need to focus on basic road safety awareness.

In contrast, programmes targeting riders with tertiary education may also include strategies for reducing emotional stress, financial management, and leadership within the rider community. Policy makers could tailor support programmes and subsidies for riders based on their educational background. For example, tertiary-educated riders may benefit from entrepreneurial grants to establish larger, safer operations, while secondary and primary riders may require basic safety training and financial literacy support.

As indicated in tables 4.1 and 4.2, the most reported stress trigger based on age was fatigue and mental overload (30%), followed by the inability to save for future investment at 23% and high daily remittance for 'rented' motorcycles at 21%. Based on the level of education, the most reported stress trigger was the inability to save for future investment at 36% followed by fatigue and mental overload (29%), and high daily remittance for 'rented' motorcycles at 21%. This suggests that many *boda-boda* riders are caught in a cycle of daily expenses without accumulating capital, which is essentially a form of financial stress. High daily remittances could also significantly affect financial freedom, likely due to rental or loan repayment arrangements for motorcycles. A study by Porter (2016) found that low levels of ownership by users meant that *boda-boda* riders often paid a daily or weekly fixed fee to the owner, and then retained the balance. This encourages long hours and high-speed driving, contributing to higher road traffic incident rates, as well as fatigue and mental overload.



Plate 1: A youthful boda-boda rider carrying school pupils

The behaviour depicted in the plate reflects an attitude of optimising returns without regard for safety. The rider's sitting position, for example, makes it practically impossible to control the motorcycle in the event of an emergency. The authors argue that overloading equally creates stress and mental fatigue due to the continuous discomfort associated with such situations, consistent with findings by Ozkan et al., (2019).



Plate 2: A *boda-boda* rider carrying farm produce for a customer

The behaviour depicted in Plate 2 equally reflects the attitude of optimising returns without caring about safety. The rider's luggage makes it very difficult to see any vehicle coming from behind. Equally, the rider can be observed to be riding at the centre of the road, which, in the circumstances, makes him vulnerable in the event of an emergency. Overall, the findings as indicated in the plates and tables 1 and 2 underscore a complex web of triggers to *boda-boda* riders' unsafe behaviour on the road, expressed below:

"Most *boda-boda* riders don't care when on the road, they even don't care whether they are carrying human beings or commercial merchandise..., what matters to them is the money they can earn from each trip they make..., not even their safety and comfort worries them" (A key informant).

Behaviours exhibited in plates 1 and 2 and supported by the key informant's voice above confirm the tenets of the Theory of Reasoned Action (TRA) and the Theory of Planned Behaviour (TPB) which offer robust models for understanding how individual attitudes, social pressures, and perceived control influence behavioural intentions and actual behaviours, especially in safety contexts (Lucidi et al., 2019; Zhou & Wu, 2014; Yaghoubi & Bahrami, 2015).

High maintenance and repair costs cited by only 2% of the *boda-boda* riders by age and level of education could be a result of the good state of roads in the selected study site. Lack of access to loans, as cited by 2% of the *boda-boda* riders, by age and level of education, could be a result of restrictions on borrowing in formal lending institutions, in addition to the reality that most of them rely on informal sources of borrowing. The lack of a savings culture undermines intentions to invest in education, better bikes, or other income-generating activities, reinforcing a cycle of short-term thinking. High daily remittances may lead riders to view their work as a financial burden rather than a stepping stone to stability, especially if remittances consume a significant portion of their daily income. When Riders lack access to loans, it may make them lose confidence in formal institutions and develop scepticism about their usefulness. If peer riders also face rejection, reliance on informal sources (e.g. friends or shylocks) becomes normalised. This weakens motivation to build credit history, approach financial institutions, or formalise business activities. To improve riders' safety



behaviour, interventions should aim to shift attitudes by demonstrating achievable savings and success stories of investment. Programmes should reshape norms by encouraging financial peer mentorship, cooperative saving models, and recognition of disciplined financial behaviour.

The inability to save for future investments and high daily remittances for 'rented' motorcycles are key triggers of financial stress. This likely reflects the economic pressures associated with the profession, such as earnings not being enough to meet daily expenses, paying for maintenance and fuel, and managing loan repayments for their motorcycles. These stressors are related to the unpredictable nature of passenger expectations, such as impatience and unreasonable demands, as well as the inherent risks associated with motorcycle riding. Other studies have also revealed that two-wheeler motorised vehicles present a challenge when comfort is an issue, which may be related to reported fatigue and mental overload (Lucidi et al., 2019; Porter et al., 2013). Where boda-boda riders experience chronic stress and emotional exhaustion, it contributes to their impulsive decisions that compromise safety. Mental health support and counselling services, possibly through SACCOs or rider cooperatives, can be initiated or provided. Integration of stress management modules into rider training is critical, as well as the development of peer mentorship programmes to promote positive rider role models.

Conclusion

The findings of this study underscore the critical role of stress triggers among motorcycle taxi riders and their effect on road safety behaviour within Bungoma South Sub-County, Bungoma County, Kenya. While motorcycle taxi riders may be putting on brave faces in pursuit of self-employment under the Kenyan 'kazi ni kazi' slogan, many of them are susceptible to stress and risky road safety behaviours. They should be cushioned or assisted under affirmative initiatives unique to the industry.

Improve road safety behaviour among *boda-boda* riders by ensuring enhanced enforcement by traffic officers and the National Transport and Safety Authority. Support *boda-boda* riders within *boda-boda* enterprises as a form of self-employment and a source of livelihood through a more nuanced policy approach anchored on tailored financial literacy as a key to prudent spending and investment choices.

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