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Behaviour Change Communication Interventions on Road Safety amongst Boda-Boda Motorcyclists in Kenyan Cities

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Abstract: *Behavior change communication (BCC) interventions have been widely used to address challenges in various sectors, including transport, where road safety remains a critical concern. With over 1.3 million global fatalities annually, and more than 4,000 in Kenya, human behavior on the road is responsible for 90% of deaths and injuries. Boda-boda motorcyclists contribute to 58% of these accidents in Kenya. This study sought to explore the impact of BCC interventions on road safety among Boda-boda motorcyclists in Kenyan cities. The specific objectives were to assess the influence of media campaigns, participatory communication, traffic visual communication, and information, education, and communication (IEC) on road safety. Additionally, the study examined how attitude moderates the relationship between BCC interventions and road safety. The study was guided by Social Cognitive Theory, Safety Culture Theory, and Uses and Gratification Theory. A pragmatic paradigm with a convergent parallel design of mixed-method research was employed. The target population of 399 Boda-boda motorcyclists from Nairobi, Mombasa, Kisumu, and Nakuru was determined using the Yamane (1967) formula, resulting in a final sample of 387 respondents. Stratified and simple random sampling methods were used for sample selection, while interviews were conducted with nine key informants from each city, including officials from the NTSA, Boda-boda associations, and senior traffic police officers. A pilot study was carried out in Machakos to pre-test data collection tools. Quantitative data were gathered using semi-structured questionnaires, and qualitative data were obtained from key informant interviews. Descriptive and inferential statistics analyzed the quantitative data, while thematic analysis was applied to the qualitative data. The findings revealed a positive relationship between BCC and road safety. For each objective, the results were as follows: media campaigns ($R^2 = 0.504$, p-value = 0.000), participatory communication ($R^2 = 0.609$, p-value = 0.000), IEC ($R^2 = 0.586$, p-value = 0.000), and traffic visual communication ($R^2 = 0.608$, p-value = 0.000). Attitude as a moderator showed $R^2 = 0.801$, p-value = 0.000, indicating a significant impact on road safety, with a potential synergistic effect between BCC interventions and attitudes. In conclusion, BCC interventions significantly contribute to road safety. The study underscores the importance of integrating BCC theories into practical road safety initiatives and recommends multifaceted communication strategies to enhance safety and promote responsible behavior among Boda-boda motorcyclists. These findings offer valuable insights for stakeholders in crafting effective road safety campaigns.*

Keywords: Media campaign, road safety, participatory communication, traffic visual communication, communication, attitude, behavior change communication

I. Background of the Study

Road safety is a critical global concern, with the World Health Organization (WHO, 2022) highlighting the alarming number of road fatalities, particularly in Africa. Many accidents stem from human behavior and attitudes, making behavior change communication (BCC) a crucial tool for intervention (Nwangu et al., 2020). BCC strategies employ various communication methods, including media campaigns, information education and communication (IEC), and participatory communication, to promote positive change (Kalu, 2023). The WHO (2018) reports high road fatality rates in East Africa, underscoring the need for targeted BCC interventions, especially among vulnerable road users like *boda-boda* motorcyclists. Ndungu (2022) highlighted the importance of effective BCC strategies in addressing health challenges in Kenya, further emphasizing the potential of BCC in improving road safety.

BCC interventions have been implemented globally to address diverse issues. Studies in Indonesia (Rochimah et al., 2021) demonstrated the effectiveness of BCC in promoting early cancer screening among women, while research in Nepal (Awasthi and Awasthi, 2019) highlighted its success in HIV prevention through mass media campaigns and peer communication. Regarding road safety, Hamelin et al. (2019) emphasized the impact of emotional and informational elements in communication campaigns on motorists' behavior towards vulnerable road users. Community-based initiatives, like the one in Australia (Journal of Road Safety, 2020), have also shown the value of stakeholder engagement and community consultations in designing effective BCC interventions for road safety. These examples illustrate the adaptability and potential of BCC in various contexts.

Regionally, BCC has been successfully applied in various African countries. In Mozambique, the FAO (2019) implemented a BCC campaign to combat malnutrition, resulting in positive dietary changes among mothers. Tanzania's "Zinduka! Malaria haikubaliki" campaign (Kahenga et al. 2020) demonstrated the effectiveness of BCC in malaria prevention through mass media and community engagement. Similarly, a study in Uganda (Helinski et al., 2015) showed the positive impact of BCC programs on the proper use and maintenance of mosquito nets. These examples highlight the impact of BCC interventions in addressing specific regional challenges.

In Kenya, BCC has been utilized across various sectors. Machira (2017) explored its effectiveness in HIV/AIDS prevention in workplaces, while Kinyua et al. (2020) studied its role in promoting environmental sustainability through waste management initiatives. Kimani (2019) investigated the impact of culturally relevant BCC approaches on family planning, and Otieno (2021) examined its use in promoting road safety awareness among drivers. These studies showcase the versatility of BCC in addressing diverse issues within the Kenyan context. *Boda-boda* motorcycles have become a significant mode of transport in Kenya (BAK, 2023), playing crucial roles in the economy and healthcare (Muluya et al., 2021). However, they are also associated with road safety challenges, often due to negative attitudes towards road safety (Irawati 2020). Addressing these attitudes through targeted BCC interventions is essential for improving road safety among *boda-boda* motorcyclists in Kenyan cities.

II. Statement of the Problem

Boda-boda motorcycle business in Kenya has become an attractive nationwide engagement especially among the youth. There is purchase of motorcycles and spare parts, fuel, spending money earned from the sector on household responsibilities, licences and other engagements. In short, this sector has become very vibrant economically, socially and even culturally. With evidence of spiralling momentous unemployment crisis among the youth, *boda-boda* incorporation has provided a superficially easy, exciting and socializing career. Ever since the *boda-boda* trade became customary, youth from across the country have elected to vacate formal education as well as other previously traditional patterns of livelihood to engage in this business which promises instantaneous financial recompense.

This exponential growth in the sector happens even without prior institutionalized training in the road attitudes, information, etiquette and other critical considerations among the operators, a trend gravely detrimental to road safety. The National Transport and Safety Authority in its annual reports admits that *Boda-boda* transport, despite its rising uptake, continues to be a major cause of road carnage surpassing those caused by other forms of transport by a wide margin. Despite several intentional government interventions including strategic, regulatory, and behavioural responses towards road usage designed to structure accidents caused by *boda-boda* cyclists, accidents remain on an upward trajectory. A notable one is the Road Safety Action Plan in Kenya (RSAP), which aims at reducing fatalities and injury as per the World Health Organization guidelines. Other interventions rolled out on road safety include media campaigns, information education and communication, traffic visual communication and participatory communication.

However, there appears to be little evidence that these existing interventions though laudable, have focused on behavioural predispositions among the riders. They have been instructive in imparting knowledge, which mostly revolves around traffic regulations and signs. It was the view of this study that knowledge in traffic regulations alone cannot be a solution to road mishaps caused by *boda-boda* operators. A more comprehensive approach that combines these written regulations with an intentional focus on behaviour change required a robust empirical investigation. Having all forms of written traffic regulations and illustrated signs without a corresponding behavioural shift might not be sufficient.

Kenya National Bureau of Statistics [KNBS] (2021) established that motorcyclists have increased road accidents in Kenya by 58.4 per cent. *Boda-boda* motorcyclists cause death and injury on Kenyan roads through their behaviour which contributes to 90% of accidents by flouting traffic rules, carrying excess pillion, over-speeding and majority do not wear helmets (Nyachieo, 2020). A National Transport Safety Authority [NTSA] report (2021) observed that failure to wear reflective jackets to boost visibility, speeding, drunkenness and distracted riding all contributed to an increase of 17.5% of road accidents. It is revealing that benefits of behaviour change communication interventions amongst road users including an increase in knowledge, change in attitude and improvement in skill acquisition still appears to be an area overlooked by road transport policy-makers as well as available literature on road safety among operators of different forms of road transport. It was on this basis that this study purposes to fill this gap by establishing the influence of behaviour change communication interventions on road safety amongst *boda-boda* motorcyclists in Kenyan cities.

III. Objectives

This study was guided by the following objectives.

3.1 Main objective

The main objective of this study was to establish the influence of behaviour change communication interventions on road safety amongst *Boda-boda* motorcyclists in Kenyan cities.

3.2 Specific Objectives

The specific objectives of this study were to:

i. Establish the influence of media campaign on road safety amongst *Boda-boda* motorcyclists in Kenyan cities.

ii. Examine the effect of participatory communication on road safety amongst *Boda-boda* motorcyclists in Kenyan cities.

iii. Determine the influence of traffic visual communication on road safety amongst *boda -boda motorcyclists* in Kenyan cities.

iv. Investigate the influence of information, education and communication on road safety amongst *Boda-boda* motorcyclists in Kenyan cities.

v. Determine the moderating influence of attitude on the relationship between behaviour change communication interventions and road safety amongst *Boda-boda* motorcyclists in Kenyan cities.

IV. Research Questions

The study was guided by the following research questions:

i. How do media campaigns influence road safety amongst *Boda-boda* motorcyclists in Kenyan cities?

ii. What is the influence of participatory communication on road safety amongst *Boda-boda* motorcyclists in Kenyan cities?

iii. How does traffic visual communication influence road safety amongst *Boda-boda* motorcyclists in Kenyan cities?

iv. What is the influence of information, education and communication on road safety amongst *Boda-boda* motorcyclists in Kenyan cities?

v. What is the moderating influence of attitude on the relationship between behaviour change communication interventions and road safety amongst *Boda-boda* motorcyclists in Kenyan cities?

V. LITERATURE REVIEW

5.1 Theoretical framework

This study draws upon three key theories: Social Cognitive Theory (SCT), Safety Culture Theory, and Uses and Gratification Theory. SCT (Bandura, 2006, 1997) emphasizes observational learning, reciprocal determinism, and self-efficacy in shaping behavior. It provides a framework for understanding how *boda-boda* riders' road safety practices are influenced by their social environment, peer observations, and personal beliefs about their ability to control their behavior (Devi, 2022; Stajkovic & Stajkovic, 2019). The Safety Culture Theory (Thompson et al., 1996; Benoit et al., 2018; Hudson, 2000) highlights the importance of shared values, attitudes, and practices in creating a safe environment. It suggests that fostering a strong safety culture within the *boda-boda* community through training, community engagement, and effective communication can improve road safety. Finally, the Uses and Gratification Theory (Katz et al. 1974; Wimmer and Dominic, 1994) focuses on how individuals actively choose and use media to satisfy their needs. Understanding these motivations can help tailor road safety interventions to reach *boda-boda* riders through their preferred media channels, maximizing message effectiveness and promoting behavior change.

5.2 Empirical review

Empirical studies globally and locally highlight the effectiveness of Behavior Change Communication (BCC) interventions in road safety. In the UK, Fosdick (2019) studied road safety behavior change interventions, revealing that many lacked a theoretical foundation, leading to ineffective outcomes. The study recommended integrating behavior change models and external evaluations to enhance intervention success. In South East Iran, Setoodehzadeh et al. (2021) examined self-reported motorcycle riding behavior, finding that despite awareness of safety rules, compliance remained low, necessitating training interventions. Similarly, Babafemi et al. (2019) investigated motorcyclists' helmet use, concluding that most riders disregarded safety regulations, highlighting the need for targeted education and enforcement strategies. The World Health Organization (WHO, 2017) reinforced that BCC interventions significantly reduce risky road behaviors and ultimately lower injury and

fatality rates when multiple intervention strategies, such as media campaigns, interpersonal communication, and community engagement, are combined (Esse, 2021).

Regionally, Siya et al. (2019) analyzed the causes of *boda-boda* accidents in Uganda, finding that 78% of riders neglected road safety rules, while 62% failed to wear helmets, emphasizing the role of behavioral factors in accidents. In Kenya, Odhiambo et al. (2017) assessed motorcycle helmet use in Naivasha, reporting a low compliance rate of 31%, particularly among female passengers. The study underscored the need for stronger enforcement of safety regulations. Kabue (2018) examined road user awareness of safety initiatives in Kenya, recommending increased safety awareness efforts, while Muguro et al. (2020) supported similar conclusions, advocating for structured safety campaigns. McOpiyo et al. (2019) assessed road safety awareness in Kisumu, revealing that urban residents were more informed than their rural counterparts, partly due to better traffic signage and communication infrastructure.

2.3 Conceptual Framework

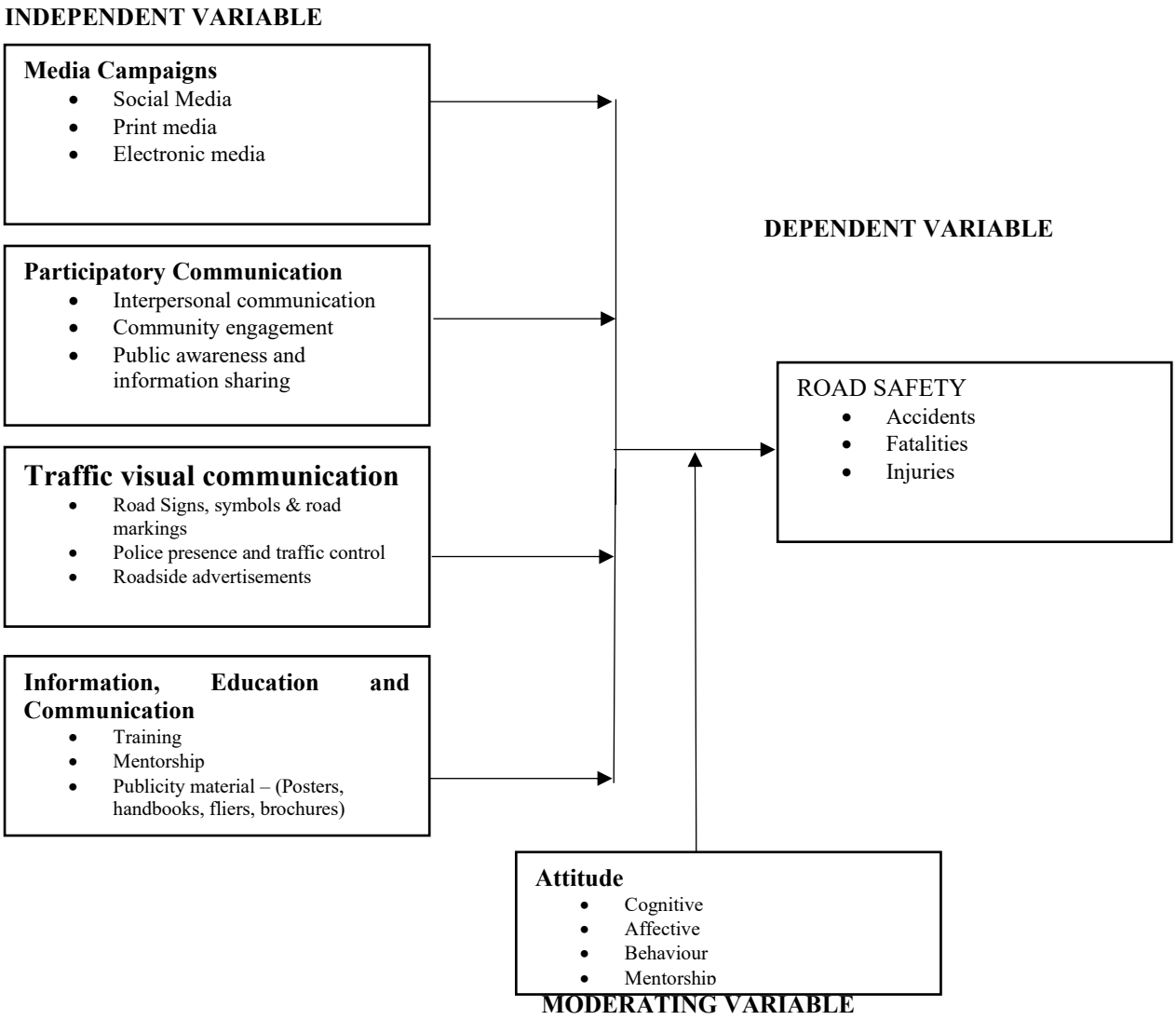

Figure 1: Conceptual framework (Source Author 2024)

VI. RESEARCH METHODOLOGY

This study employed a pragmatic research philosophy, allowing for a mixed-method approach to comprehensively examine behavior change communication (BCC) interventions and road safety among *boda-boda* motorcyclists in Nairobi, Mombasa, Kisumu, and Nakuru—Kenya's busiest cities with the highest accident rates. A convergent parallel design was used, enabling simultaneous collection of qualitative and quantitative data, ensuring cross-validation and enhanced credibility of findings. The study targeted 280,833 registered *boda-boda* riders across the four cities, with a sample size of 399 riders, determined using Taro Yamane's (1967) formula at a 95% confidence level. A combination of purposive sampling (for city selection), proportional stratified sampling (to reflect sub-county distributions), and simple random sampling (to select individual respondents) was used to ensure representativeness and minimize bias. This methodology provided a rich, multi-dimensional understanding of road safety behaviors, allowing for evidence-based recommendations on BCC interventions targeting *boda-boda* motorcyclists.

VII. RESULTS AND DISCUSSIONS

7.1 Demographic Information

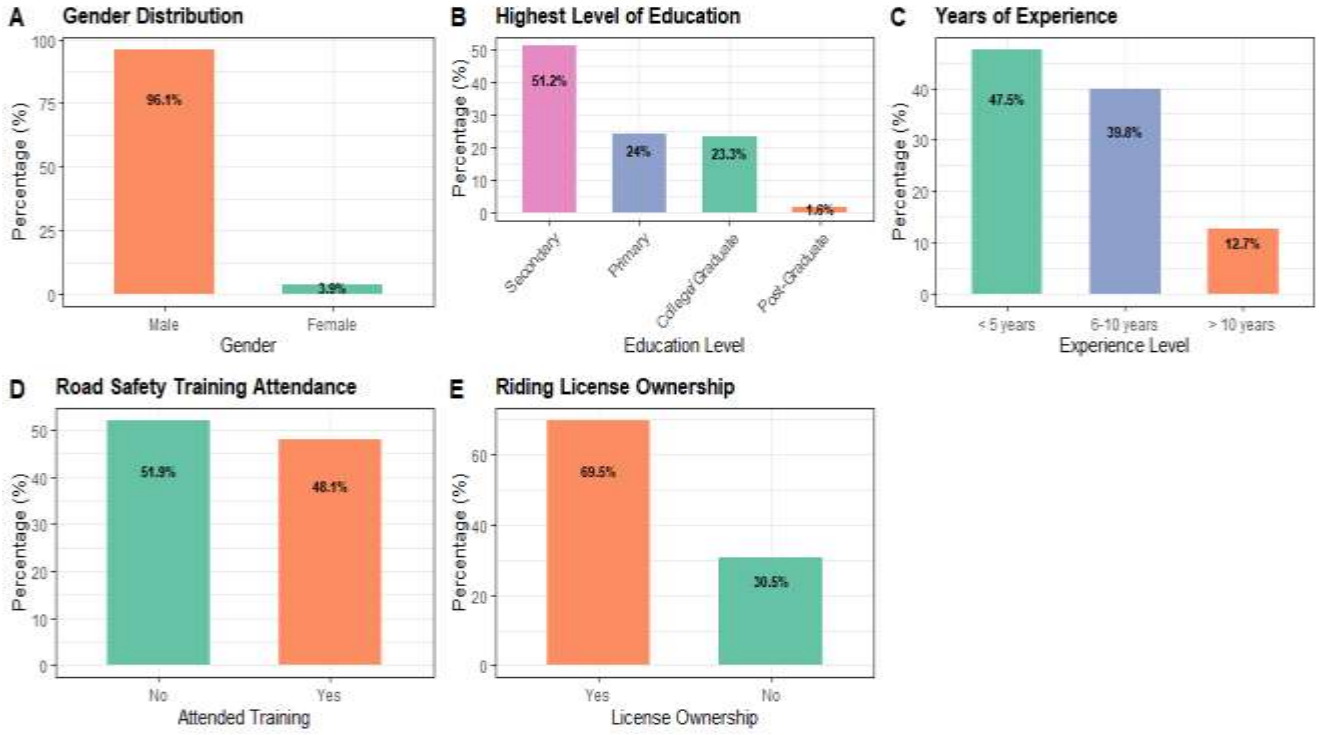

Figure 2: Demographic Information

The demographic data reveals a predominantly male (96.1%) *boda-boda* rider population, with the majority having attained secondary education (51.2%), followed by primary education (23.9%). A significant portion of riders have less than 5 years of experience (47.5%), while others have between 6-10 years (39.8%) and over 10 years (12.7%). Road safety training attendance is almost evenly split, with 48.1% having received training and 51.9% not. Finally, while a good portion of riders possess a license (69.5%), a substantial minority (30.5%) are unlicensed. These findings highlight the need for targeted interventions, considering the riders' gender, education level, and experience, training status, and licensing status to improve road safety within the *boda-boda* community.

7.2 Diagnostic Statistics

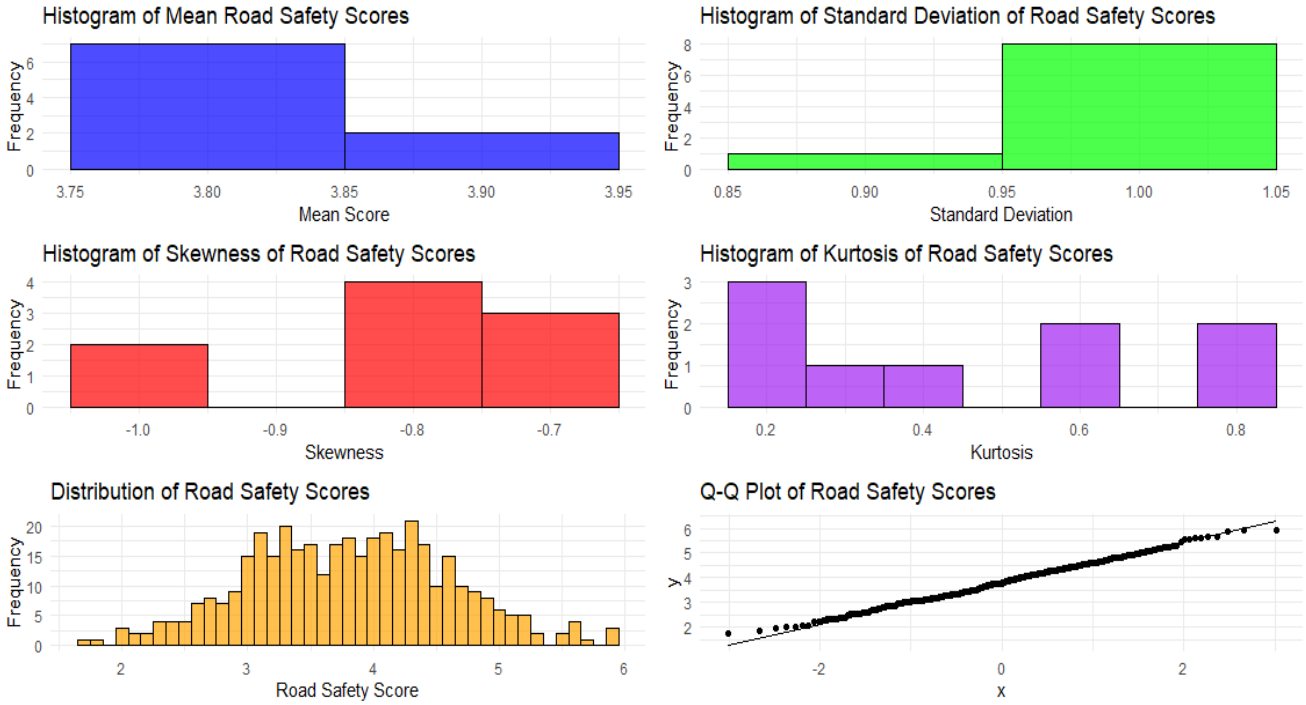

Figure 2: Diagnostic Statistics

The diagnostics reveal a well-rounded distribution of road safety perceptions, with the mean scores suggesting a generally positive view of road safety efforts. The histograms show moderate spread around the central tendency for the mean, standard deviation, and skewness, indicating that the data are not heavily skewed or exhibiting extreme outliers. The kurtosis histograms suggest a relatively normal distribution with slight peakedness, indicating a moderate presence of values clustered around the mean. The road safety scores histogram further supports this, showing a distribution close to normal. The Q-Q plot confirms the normality of the data, as most points lie along the reference line, suggesting that the underlying assumption of normality holds true. These diagnostics indicate that the data can be considered for further analysis without significant issues of non-normality or outliers.

7.3 Descriptive Statistics

Table 1: Summary of Descriptive Statistics on Road Safety Aspects

Category	Subcategory	Statement	Mean Agreement	Standard Deviation
Road Safety Perceptions	Accidents	Decrease in accidents	3.842	0.958
	Fatalities	Reduction in fatalities	3.848	1.000
	Injuries	Reduction in injuries	3.802	1.019
Media Campaigns	Print Media	Newspapers/Magazines enhance awareness	3.974	1.025

Category	Subcategory	Statement	Mean Agreement	Standard Deviation
	Electronic Media	Radio/TV effectively deliver messages	3.997	1.019
	Social Media	Social Media impacts awareness	3.809	1.064
Participatory Communication	Interpersonal Communication	Valuable information from peers	3.734	1.081
	Community Engagement	Collective approach essential for safety	3.671	1.047
	Public Awareness/Info Sharing	Campaigns and info exchange enhance understanding	4.045	0.974
Traffic Visual Communication	Road Signs and Symbols	Understanding of signs and symbols	2.710	1.417
	Road Markings	Road markings enhance safety	3.876	1.067
	Roadside Ads/Police Presence	Ads and police presence contribute to awareness	3.663	1.105
Information, Education, Comm.	Training	Training sessions and materials are provided	4.256	0.931
	Publicity Materials	Informative resources in public areas	4.208	0.998
	Mentorship	Mentorship influences safety behavior	3.674	1.240
Attitude	Cognitive Attitude	Well-informed about road safety rules	4.344	0.845
	Affective Attitude	Concern for safety is paramount	4.345	0.813
	Behavioral Attitude	Adherence to rules and safe practices	4.203	0.864
Media Interest	TikTok	Interest in TikTok campaigns	3.063	1.574
	WhatsApp	Interest in WhatsApp campaigns	3.410	1.525
	Facebook	Interest in Facebook campaigns	3.683	1.360
	Twitter	Interest in Twitter campaigns	2.120	1.347
	Instagram	Interest in Instagram campaigns	2.081	1.310
	YouTube	Interest in YouTube campaigns	3.354	1.560
	Other	Interest in other platforms	2.400	1.497

Table 1 presents a summarized overview of the mean agreement levels among *Boda-boda* motorcyclists regarding various aspects of road safety. The data, categorized into areas such as Road Safety Perceptions, Media Campaigns, Participatory Communication, Traffic Visual Communication, Information, Education, and Communication (IEC), Attitude, and Media Interest, reveals varying levels of agreement. While respondents generally showed strong agreement with statements related to cognitive and affective attitudes towards road safety (means above 4.0), agreement was less pronounced for aspects like Traffic Visual Communication, particularly regarding the understanding of road signs and symbols (mean of 2.71). Media interest also showed a wide range,

with significantly lower interest in platforms like Twitter and Instagram compared to Facebook and WhatsApp. These findings highlight areas of strength and potential areas for intervention in promoting road safety among *Boda-boda* motorcyclists.

7.4 Inferential Statistics

Table 2: Model Summary for Communication Strategies and Road Safety

Predictor	R	R^2	Adjusted R^2	Std. Error of Estimate	Durbin-Watson
Media Campaigns	0.710	0.504	0.503	0.548	1.568
Participatory Communication	0.780	0.609	0.608	0.487	1.758
Traffic Visual Communication	0.780	0.608	0.607	0.487	1.522
Information Education and Communication	0.765	0.586	0.585	0.501	1.707
Behaviour Change Communication	0.895	0.801	0.800	0.347	

Table 2 provides an overview of the goodness of fit for different communication strategies in influencing road safety among *Boda-boda* motorcyclists. The R-squared values for each predictor show how well the model explains the variance in road safety. Media campaigns and traffic visual communication have the lowest R^2 values (0.504 and 0.608), suggesting moderate effectiveness in influencing road safety. Participatory communication and information education and communication strategies exhibit stronger effects, with R^2 values of 0.609 and 0.586, respectively. The highest R^2 value (0.801) is associated with behavior change communication, indicating that this strategy explains the largest proportion of the variance in road safety, demonstrating its significant impact on road safety behavior among *Boda-boda* motorcyclists.

Table 3: ANOVA for Communication and Road Safety

Predictor	Sum of Squares	df	Mean Square	F	Sig.
Media Campaigns	117.643	1	117.643	391.953	0.000
Participatory Communication	141.942	1	141.942	598.825	0.000
Traffic Visual Communication	141.755	1	141.755	596.816	0.000
Information Education and Communication	136.557	1	136.557	544.004	0.000
Behaviour Change Communication	186.752	1	186.752	1547.95	0.000
Attitude	46.448	1	46.448	772.152	0.000
Interaction Term	45.062	1	45.062	533.021	0.000

Table 3 shows the analysis of variance (ANOVA) for each communication strategy's impact on road safety, focusing on the significance of the regression models. The extremely low p-values (all less than 0.05) for the

regression models in each case indicate that the communication strategies have a statistically significant effect on road safety. The F-values in the regression models are very high, particularly for behavior change communication (1547.95), highlighting the strong explanatory power of the models. These findings suggest that media campaigns, participatory communication, traffic visual communication, and other strategies are all crucial contributors to improving road safety, with behavior change communication having the most substantial effect.

Table 4: Model Coefficients for Communication and Road Safety

Predictor	Unstandardized Coefficients	Std. Error	Standardized Coefficients	t	Sig.
Media Campaigns	B = 0.654	0.033	Beta = 0.710	19.798	0.000
Participatory Communication	B = 0.791	0.032	Beta = 0.780	24.471	0.000
Traffic Visual Communication	B = 0.789	0.032	Beta = 0.780	24.430	0.000
Information Education and Communication	B = 0.851	0.036	Beta = 0.765	23.324	0.000
Behaviour Change Communication	B = 1.068	0.027	Beta = 0.895	39.344	0.000
Attitude	B = 0.008	0.031	Beta = 0.007	0.275	0.784
Interaction Term	B = 0.040	0.012	Beta = 0.242	3.421	0.001

Table 4 presents the coefficients for the various communication strategies in predicting road safety outcomes. The unstandardized coefficients (B) represent the change in road safety for each unit change in the predictor variable. The highest B-value is for behavior change communication (B = 1.068), indicating a substantial positive impact on road safety, followed by information education and communication (B = 0.851). These coefficients suggest that these strategies have the most pronounced effect on improving road safety among *Boda-boda* motorcyclists. The t-values and corresponding p-values for all predictors are significant ($p < 0.05$), confirming that the communication strategies are reliable predictors of road safety. Additionally, the standardized coefficients (Beta) show the relative importance of each predictor, with behavior change communication and media campaigns having the highest Beta values (0.895 and 0.710, respectively), demonstrating their strong influence on road safety outcomes.

The significant coefficient for the interaction term (B = 0.040, p = 0.001) suggests that the relationship between behavior change communication interventions and road safety is influenced by another variable, likely attitudes or other contextual factors. This means that the effectiveness of behavior change communication in improving road safety can vary depending on the presence or absence of certain attitudes or conditions, which amplify or mitigate the impact of the communication strategies. This moderating effect underscores the complexity of road safety interventions, indicating that communication strategies are more effective when combined with a favorable attitude or supportive contextual factors among the *Boda-boda*.

The analysis indicates that both media campaigns and participatory communication have significant effects on road safety among *boda-boda* motorcyclists. Media campaigns, with their broad reach and strategic messaging, are effective tools in raising awareness about road safety. This is consistent with findings in recent studies which

emphasize the role of media campaigns in educating individuals about safety protocols and promoting responsible behavior (Njiru & Mutua, 2022). Media outlets, through consistent and targeted campaigns, help shape public perceptions and increase the likelihood of behavior change in risk-related activities, such as motorcycling. As indicated by the regression analysis, the significant positive relationship between media campaigns and road safety suggests that these campaigns play a crucial role in mitigating road accidents and enhancing safety measures among *boda-boda* motorcyclists.

On the other hand, participatory communication has been found to have a similar positive impact on road safety, highlighting the effectiveness of involving the target audience in discussions about safety practices. Participatory communication fosters engagement by actively involving motorcyclists in dialogue and decision-making processes about safety measures (Kibet, 2021). This engagement leads to greater ownership and understanding of the safety issues, encouraging motorcyclists to adhere more closely to road safety regulations. Previous research supports this, showing that involving communities in safety campaigns increases their commitment to the cause and results in improved safety outcomes (Chirwa et al., 2020). The positive correlation between participatory communication and road safety underlines the value of this approach in creating sustainable safety practices.

These findings are also supported by other studies that have examined the intersection of communication strategies and road safety behaviors. Effective communication strategies, whether through media campaigns or participatory approaches, are essential in addressing behavioral issues that contribute to road accidents. The importance of media in shaping behaviors has been well-documented, with scholars noting that information dissemination through accessible channels, including television, radio, and social media, can significantly alter how individuals perceive and act on safety messages (Okello & Mwai, 2020). Participatory communication, on the other hand, has been recognized for its ability to build trust and encourage collective action among motorcyclists, fostering an environment where safety is a shared responsibility.

In conclusion, both media campaigns and participatory communication are integral in promoting road safety among *boda-boda* motorcyclists. These strategies align with the broader literature on road safety interventions, which highlight the role of communication in influencing behavior and reducing risk (Kigen et al., 2023). By integrating these communication strategies into road safety programs, stakeholders can enhance their effectiveness and contribute to the broader goal of reducing road accidents in Kenya. The findings from the regression analysis reinforce the importance of using diverse communication channels to address the challenges of road safety and to encourage positive behavioral changes among *boda-boda* motorcyclists.

VIII. CONCLUSION OF THE STUDY

From the findings, it can be concluded that the media campaigns play a crucial role in shaping the attitudes and behaviours of *Boda-boda* motorcyclists towards road safety. These campaigns, whether through traditional channels like radio and television or modern platforms like social media, serve as powerful tools for disseminating information, raising awareness, and promoting behavioural change. The research reveals that effective media campaigns require tailored messaging, cultural sensitivity, and sustained efforts to maximize their impact on *Boda-boda* motorcyclists' road safety practices.

In terms of participatory communication, the findings suggest that community engagement and stakeholder collaboration are essential for fostering ownership of road safety initiatives among *Boda-boda* motorcyclists. Participatory approaches, such as community meetings, workshops, and grassroots mobilization efforts, facilitate dialogue, trust-building, and the co-creation of solutions tailored to local contexts. By empowering communities to take an active role in road safety, participatory communication strategies hold promise for driving sustainable behaviour change and enhancing road safety outcomes.

Regarding visual communication strategies, the research underscores the importance of clear, intuitive signage, symbols, and visual aids in conveying safety messages to *Boda-boda* motorcyclists. Visual cues, when designed effectively and strategically placed along roadways, can enhance motorcyclists' awareness, comprehension, and adherence to road safety protocols. However, the study also highlights the need for ongoing evaluation and adaptation of visual communication materials to ensure their relevance and effectiveness in diverse settings.

In the realm of information, education, and communication (IEC), the findings underscore the importance of targeted messaging, interactive learning experiences, and community-based interventions in promoting road safety among *Boda-boda* motorcyclists. Effective IEC initiatives leverage a mix of media channels, educational materials, and participatory activities to engage motorcyclists, enhance their knowledge and skills, and foster a culture of responsible road behaviour. By addressing knowledge gaps, changing attitudes, and empowering motorcyclists to make informed choices, IEC interventions can contribute significantly to reducing accidents, injuries, and fatalities on the roads.

Finally, concerning behaviour change communication (BCC) interventions, the research highlights the complexity of influencing *Boda-boda* motorcyclists' attitudes and behaviours towards road safety. Successful BCC initiatives require vigorous multifaceted strategies that target individual, interpersonal, and environmental factors shaping motorcyclists' road behaviours. By combining media campaigns, participatory approaches, visual communication strategies, and IEC interventions, BCC efforts can create synergies, amplify impact, and drive sustainable change in *Boda-boda* motorcyclists' road safety practices.

IX. RECOMMENDATIONS

Given the findings of this study, it is crucial to tailor content to the unique needs of motorcyclists, which requires comprehensive audience research. This can ensure that road safety messages resonate more effectively with the target audience. Furthermore, fostering partnerships with media outlets, community organizations, and government agencies can amplify the reach of these campaigns, making them more impactful. In terms of participatory communication, community-driven approaches are emphasized, which involve motorcyclists in shaping the safety initiatives, leveraging social networks, and enhancing peer-to-peer accountability. Collaborative efforts can drive behavior change, particularly if community leaders are trained to mobilize support effectively. Additionally, improvements in visual communication strategies, such as road signage, can be achieved by conducting regular audits and collaborating with urban planners and traffic experts to ensure clear, culturally relevant signage that improves safety.

The policy recommendations outlined suggest a multi-faceted approach to road safety, including strengthening regulations, improving road infrastructure, and enhancing training for *Boda-boda* motorcyclists. A focus on comprehensive regulatory frameworks, such as implementing safety gear mandates and licensing requirements, can reduce accidents and increase safety awareness. Policymakers are also encouraged to invest in road infrastructure tailored for motorcyclists, such as dedicated lanes and better signage, alongside using technology like intelligent traffic systems to improve traffic flow and reduce congestion. Further, collaboration between government, NGOs, and private sector entities is essential for creating holistic interventions that address road safety. The study also emphasizes the importance of data collection and analysis, advocating for real-time incident reporting systems to help policymakers make evidence-based decisions and adapt strategies based on outcomes.

The study also contributes to several theoretical frameworks, such as Social Cognitive Theory (SCT), Safety Culture Theory (SCT), and Uses and Gratifications Theory (UGT), by exploring how social influences, collective efficacy, cultural norms, and media engagement shape *Boda-boda* motorcyclists' safety behaviors. SCT highlights the role of peer interactions and social norms in promoting safer practices, while Safety Culture Theory examines how shared beliefs within the *Boda-boda* community influence safety decisions. Additionally, UGT sheds light on the motivations behind media consumption and the gratification motorcyclists derive from safety-related

content. These insights can guide the development of targeted communication strategies and interventions that align with the behaviors and preferences of the *Boda-boda* community, ultimately contributing to the design of more effective road safety initiatives.

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