Eastern African Journal of Humanities and Social Sciences
Vol. 3 No. 1 (2024): ISSN (Online): 2958-4558
DOI: https://doi.org/10.58721/eajhss.v3i1.605
Influence of Information, Education and Communication on Road Safety amongst Boda-boda Motorcyclists in Kenyan Cities

Influence of Information, Education and Communication on Road Safety amongst *Boda-boda* Motorcyclists in Kenyan Cities

Barbara Nthoki, Caroline Biwott & Alice Kamau
Karatina University, Kenya

Article History
Received: 2024.04.02
Revised: 2024.06.14
Accepted: 2024.06.16
Published: 2024.06.24

Keywords
Boda-boda
Communication
Education
Information
Road safety

How to cite:
Nthoki, B., Biwott, C. & Kamau, A. (2024). Influence of Information, Education and Communication on Road Safety amongst Boda-boda motorcyclists in Kenyan cities. *Eastern African Journal of Humanities and Social Sciences, 3*(1), 120-130.

Abstract
This study sought to investigate the influence of information, education and communication on road safety amongst *Boda-boda* motorcyclists in Kenyan cities. Road safety has become a major concern with over 1.35 million people losing their lives worldwide annually and over 4,000 people losing their lives in Kenya. Human behavior on the road causes 90 per cent of death and injury amongst road users with *Boda-boda* motorcyclists contributing 58 per cent of all road accidents in Kenya. This study was anchored on the social cognitive theory, the safety culture theory and the uses and gratification theory. The study used a pragmatic philosophical paradigm with a convergent parallel design of the mixed method research. Stratified sampling and simple random sampling were used to draw the target population of 399 *Boda-boda* motorcyclists from the four cities in Kenya. Interviews were conducted with twelve key informants. Quantitative data was collected from the motorcyclists by use of semi-structured questionnaires while key informant interviews were used to collect the qualitative data. Descriptive and inferential statistics was used to analyze quantitative data while qualitative data were analyzed using thematic data analysis. The findings show that influence of information, education and communication has a significant impact on predicting road safety hence showing a potential synergistic effect between the two factors. In conclusion, behavior change communication interventions aimed at *Boda-boda* motorcyclists significantly contribute to road safety. Tailored educational materials and training programs were recommended as a unique way to address the needs and literacy levels of *Boda-boda* motorcyclists.

Introduction

Boda-boda motorcycle riding in Kenya has become an attractive nationwide engagement, especially among the youth. The National Transport and Safety Authority refers to this sector as "The game changer of our economy and a last mile option" (NTSA 2023). The estimated number of riders in Kenya is more than three million (BAK, 2023). This mode of transport has proved to be a vibrant and important player in the transport business and cannot be ignored (NCRC, 2018). Motorcycles are cheap to maintain and fast, and their manoeuvrability is attractive (Nyachieo 2020). *Boda-boda* motorcycles are preferred because they enhance mobility for people and goods across different terrains. Motorcyclists' numbers increase daily, especially in the cities, because it is a form of employment and business; however, it comes with safety concerns. The riders are from diverse

backgrounds, academically and socially; hence, road safety messaging has to be strategically planned to meet their needs.

Kenya faces a burdensome road safety phenomenon whereby fatalities associated with road accidents keep soaring annually, with 4,323 people losing their lives in 2023 (NTSA,2024) and an additional 10,769 getting seriously injured. This is a worldwide concern, as stipulated by the World Health Organization, whereby an estimated 1.35 million people die annually while another 50 million are injured on the roads. The WHO (2023) posits that a big percentage of all fatalities on the road are found amongst motorcyclists; however, despite this alarming fact, more pillion passengers prefer to ride motorcycles in Kenya and across the world.

Behaviour Change Communication is a strategy that uses a wide range of tools (Kalu,2023) to effect change. These tools include Information, Education, and Communication. These strategies aim to change behaviour, skills, and attitudes (Osire &Namada, 2018). Research has shown that evidence-based interventions have a great impact on successfully changing behaviour through communication (Adewuyi & Adeyemi, 2016).

Information Education and Communication (IEC) is used in several sectors, including road safety. IEC campaigns disseminate knowledge on traffic rules and safe riding behaviour using electronic channels like radio, audiovisual content, television, and social media platforms. Educational materials are also distributed through posters, magazines, brochures, and fliers to enhance public awareness. Research-based IEC programs can play a critical role in alleviating road injury and mortality.

Behaviour change communication (BCC) has been used as a strategy worldwide (Singh et al. 2020) to enhance better lives in the community (Nwangu et al. 2020). Ngigi & Busolo (2018) posit that the government and its strategic partners use these interventions to address several challenges in the health sector. The National Transport and Safety Authority in Kenya oversees road safety enhancement, and local and international partners continually roll out several behavioural interventions for road safety for all road users (NTSA 2024). These interventions include targeted outreach, enforcement, media engagement, education and comprehensive communication. These interventions aim to change road user behaviour to alleviate mortality and injury on the road.

Regardless of the many interventions rolled out by NTSA and its partners, the loss of life continues to increase annually, with *boda-boda* motorcyclists contributing 58.4% of all road accidents in Kenya (KNBS 2021). The interventions' influence and effectiveness calls for an interrogation to highlight the challenges that may contribute to the increase in road carnage despite the road safety interrogating to highlight the challenges that may contribute to the increase in road carnage despite the road safety measures for behaviour change. Using an integrated approach to mitigate road mortality and injury through a deliberate IEC intervention program towards the *boda-boda* motorcyclists would elicit improved behaviour and fewer road fatalities.

In the national *Boda-boda* action plan 2020-2024, the focus for interventions is mostly on improving road infrastructure, establishing Saccos, community engagement and enforcement, amongst others; the area of IEC through targeted interventions amongst riders has not been fully amplified. Important to note, too, is that previous studies have not addressed the area of IEC on road safety amongst motorcyclists. Therefore, this study sought to determine the influence of Information, Education and communication on road safety amongst *Boda-boda* motorcyclists in Kenyan cities. The researcher intends to propose using IEC interventions to elicit better behaviour on the road and, in turn, enhance road safety amongst motorcyclists. It is hoped that this will aid in reducing fatalities and injuries on the roads.

This study was informed by the principles espoused in the Social Cognitive Theory (Bandura, 1986) on factors that influence behaviour, the Safety Culture Theory, which highlights the importance of knowledge and attitude (Devi 2022), as well as the Uses and Gratification Theory on the nature of communication (Parveen, 2017). The social cognitive theory posits that social interaction shapes behaviour and individuals influence the social space; this understanding can aid in designing road safety interventions. The Safety Culture Theory focuses on knowledge and attitude toward road safety. Well-informed communication interventions can be used to address specific areas of road safety. The Uses and Gratification Theory highlights how audiences choose and use media platforms. This theory informs of the importance of identifying the platforms preferred by motorcyclists to disseminate road safety campaigns.

Literature Review

The continent of Africa has the highest road traffic fatality rate in the world, with a rate of 26.6 per 100,000 population, which accounts for 20 per cent of global road traffic deaths, with nearly 272,000 deaths annually (WHO, 2020). In most African countries, there are significant shortcomings in road safety interventions, hence the continuing fatality and injury among road users (Muguro, 2020). The majority of motorists do not comply with traffic rules. Education and training were highly recommended to enhance compliance with traffic regulations (Babafemi et al. (2019).

WHO (2017) postulated that behaviour change interventions have promising results in addressing risky road behaviours, eventually leading to reduced road fatality and injury. Esse (2021) submits that for positive results, it is important to combine several modes of intervention, for instance, training, education, interpersonal communication and awareness towards various road users. The *Boda-boda* motorcyclists are a popular mode of transport in Kenya and a key recipient of behaviour change communication interventions from the NTSA and its partners. Foroutan et al. (2019) state that even short periods of these interventions can increase motorcyclists' safety.

Information, Education, and Communication (IEC) is a strategic approach used in various fields, including public health, social development, and behaviour change campaigns. It aims to disseminate accurate and appropriate information, educate individuals and communities, and facilitate effective communication through relevant media. The overarching goal of IEC is to empower people by bringing about positive behavioural and social changes (Sachdeva et al., 2015). IEC attempts to change or reinforce a set of behaviours in the target population regarding a specific problem in a predefined period, and it should be supported by interpersonal communication and group communication WHO (2017).

Information is the first component of IEC, which involves gathering, organising and disseminating information. This includes collecting data, researching, and compiling knowledge on an issue or topic. The information should be accurate, evidence-based, and tailored to the target audience. It may include facts, statistics, case studies, and other relevant data to support the messages conveyed (Sachdeva et al., 2015). IEC focuses on increasing knowledge and understanding among individuals and communities. IEC messages can be crafted to address specific road safety issues such as adherence to road signs and symbols, speeding, drunk driving or distracted driving, creating a culture of road safety and reducing the devastating impact of road accidents worldwide.

Bishop et al. (2018) underscores the importance of improving road safety through national and regional standards for professional driver training in East Africa. A driver-training curriculum was then developed and adopted by the East African Community countries member states to improve road safety in their respective countries. Similarly, Okaka (2018) profiles the benefits of a national

public awareness road safety communication strategy to applaud good practice and safety. Kemei et al. (2022) emphasise that traffic law enforcement, education and colour codes for motorcyclists were desirable in enhancing road safety. Similarly, Nyachieo (2020) argued that the training levels of riders were low and recommended that the National Transport and Safety Authority give subsidised training to the riders using a standardised training manual.

Method

This study was anchored on the pragmatic philosophical underpinning and used a mixed-method approach. The study area included four cities in Kenya, namely Nairobi, Kisumu, Mombasa and Nakuru. The study had a population of 399 motorcyclists drawn out of the 280,833 riders in the four cities using the Yamane 1967 formulae with a 95% confidence level. There were also 12 key informants, three from each city drawn from the NTSA, police and *Boda-boda* association officials. Questionnaires were used to collect the quantitative data from the motorcyclists, while Key informant interviews were done to collect qualitative data. Qualitative data was analysed through thematic analysis, while descriptive inferential statistics were used to analyse the quantitative data.

A multivariate regression model was applied to determine the relative importance of each variable concerning road safety practices. A pilot study was undertaken in Machakos, which has characteristics similar to Kenyan cities, to test the validity and reliability of the research instruments (Creswell 2018). This was followed by administering questionnaires to the *boda-boda* motorcyclists and conducting concurrent interviews in the four cities.

Results

Below are the findings.

Table 1: Level of Agreement on Aspects Describing Information, Education and Communication in the Kenyan Cities.

Statement	Distribution of Responses (%)					Mean	Std. Deviation	Skewness	Kurtosis
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Statistic	Statistic	Statistic	Statistic
Training:									
a. Face-to-face training sessions and workshops on road safety are provided.	2.8	2.8	13.4	34.6	46.3	4.186	0.967	-1.332	1.699
b. Educational videos and social media platforms disseminate motorcycle riding safety information.	2.6	2.6	9.6	37.0	48.3	4.258	0.922	-1.532	2.573
c. Road safety, campaigns, including those integrated into driving school programs, educate *Boda-boda* riders.	2.3	1.3	12.1	30.2	54.0	4.323	0.906	-1.545	2.577
Aggregate	***2.6***	***2.2***	***11.7***	***33.9***	***49.5***	***4.256***	***0.931***	***-1.470***	***2.283***
Publicity Materials:									

Statement	Distribution of Responses (%)					Mean	Std. Deviation	Skewness	Kurtosis
	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	Statistic	Statistic	Statistic	Statistic
a) Road safety posters, pamphlets, and materials in public areas provide informative resources.	3.6	2.3	12.7	30.5	50.9	4.227	1.003	-1.476	1.983
b) Easily accessible information and visually engaging materials effectively convey road safety messages.	3.4	2.8	13.2	31.5	49.1	4.202	1.000	-1.396	1.727
c) Various publicity materials, including brochures and infographics, enhance understanding of road safety practices.	3.4	3.1	11.6	34.6	47.3	4.194	0.990	-1.427	1.902
Aggregate	***3.4***	***2.8***	***12.5***	***32.2***	***49.1***	***4.208***	***0.998***	***-1.433***	***1.871***
Mentorship:									
a) Mentorship by experienced *Boda-boda* riders positively influences road safety behaviour.	4.4	6.5	22.0	36.2	31.0	3.830	1.076	-0.823	0.189
b) Seeking guidance and advice from experienced riders contributes to safer riding practices.	16.0	8.0	16.5	30.7	28.7	3.481	1.396	-0.620	-0.878
c) Mentorship programs foster a stronger sense of responsibility and adherence to road safety rules.	8.8	8.5	17.8	32.3	32.6	3.713	1.248	-0.802	-0.321
Aggregate	***9.7***	***7.7***	***18.8***	***33.1***	***30.7***	***3.674***	***1.240***	***-0.748***	***-0.337***

Source: Author 2024

Analysis and presentation

Table 1 presents the mean scores reflecting respondents' agreement level regarding various aspects describing Information, Education, and Communication (IEC) efforts related to road safety. Findings indicate a high appreciation for face-to-face training sessions and workshops on road safety among *Boda-boda* riders. A significant majority, 80.9 per cent, agreed or strongly agreed that such training sessions are provided, resulting in a mean score of 4.186 with a standard deviation of 0.967. This suggests that in-person training is well regarded and perceived as effective. Educational videos and social media platforms are also highly valued, with 85.3 per cent of respondents acknowledging their role in disseminating motorcycle riding safety information, leading to a mean score of 4.258 and a standard deviation of 0.922. This reflects the growing importance of digital platforms in road safety education. Additionally, road safety campaigns integrated into driving school programs are recognised by 84.2 per cent of the respondents as beneficial for educating *Boda-boda* riders. This results

in a high mean score of 4.323 and a standard deviation of 0.906, indicating that such integrated educational efforts are highly effective. The aggregate mean for training is 4.256, underscoring strong positive perceptions of these educational initiatives, with a low standard deviation of 0.931, indicating consistent responses across the board.

Publicity materials such as road safety posters, pamphlets, and other informative resources in public areas are widely regarded as valuable. A substantial 81.4 per cent of respondents agreed or strongly agreed on their usefulness, resulting in a mean score of 4.227 and a standard deviation of 1.003. This indicates that these materials are effective in raising awareness about road safety. Additionally, easily accessible and visually engaging materials are seen as effective in conveying road safety messages by 80.6 per cent of respondents, leading to a mean score of 4.202 and a standard deviation of 1.000. This highlights the importance of making safety information both accessible and appealing. Various publicity materials, including brochures and infographics, are also appreciated for enhancing understanding of road safety practices, with 81.9 per cent in agreement. This is reflected in a mean score of 4.194 and a standard deviation of 0.990, suggesting that a diverse range of materials can cater to different learning preferences. The aggregate mean for publicity materials is 4.208, indicating strong approval of these resources, with a standard deviation of 0.998, showing a high level of agreement among respondents.

Mentorship by experienced *Boda-boda* riders is seen as a positive influence on road safety behaviour by 67.2 per cent of respondents. This results in a mean score of 3.830 and a standard deviation of 1.076, indicating a generally favourable view of mentorship but with some variability in responses. Seeking guidance and advice from experienced riders contributes to safer riding practices, according to 59.4 per cent of respondents, with a mean score of 3.481 and a higher standard deviation of 1.396. This suggests that while many riders value seeking advice, this guidance's effectiveness may vary. Mentorship programs are believed to foster a stronger sense of responsibility and adherence to road safety rules by 64.9 per cent of respondents, leading to a mean score of 3.713 and a standard deviation of 1.248. This indicates that mentorship programs are generally effective, but there is room for improvement. The aggregate mean for mentorship is 3.674, suggesting a positive but less enthusiastic perception than training and publicity materials. The standard deviation of 1.240 reflects some diversity in responses, indicating that the mentorship impact varies amongst riders.

Statistical techniques

This section explores the statistical relationships between these variables, shedding light on the effectiveness of education and communication initiatives in enhancing road safety practices within this demographic. Key metrics such as R-squared values, ANOVA results, and model coefficients are examined to discern how much Information Education and Communication influence Road Safety outcomes among *Boda-boda* motorcyclists.

Table 2: R^2 for Information Education and Communication and Road Safety amongst Boda-boda Motorcyclists

R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
.765a	0.586	0.585	0.501	1.707
a Predictors: (Constant), Information Education and Communication on Road Safety				
b Dependent Variable: Road Safety				

Source: Author 2024

Table 2 presents the R-squared values for the relationship between Information Education and Communication (IEC) and Road Safety among *Boda-boda* motorcyclists. The coefficient of determination (R-squared) indicates the proportion of variance in road safety behaviour explained by the predictor variable, Information, Education, and Communication. An R-squared value of 0,586 suggests that the IEC interventions can account for approximately 58.6 per cent of the variability in road safety outcomes among Boda-boda riders. This indicates a moderate-to-strong relationship between IEC efforts and road safety practices among motorcyclists.

The adjusted R-squared value of 0.585 further refines the model by considering the number of predictors and the sample size. It provides a more accurate estimation of the proportion of variance in road safety behaviour explained by the predictor variable while penalising the inclusion of additional predictors. In this case, the adjusted R-squared value remains consistent with the R-squared value, indicating that the model's explanatory power is robust and not inflated by overfitting.

Additionally, Table 3 provides the Durbin-Watson statistic, which tests for autocorrelation in the regression model's residuals. A value of 1.707 suggests minimal autocorrelation, indicating that the residuals are independent and not correlated with each other. This strengthens the reliability of the regression model's estimates and enhances confidence in the inferential findings regarding the relationship between IEC efforts and road safety outcomes among *Boda-boda* motorcyclists.

Table 3: ANOVA for Information Education and Communication and Road Safety amongst Boda-boda Motorcyclists

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	136.557	1	136.557	544.004	.000b
Residual	96.643	385	0.251		
Total	233.2	386			
a Dependent Variable: Road Safety					
b Predictors: (Constant), Information Education and Communication					

Source: Author 2024

Table 3 represents the analysis of variance (ANOVA) for the relationship between Information Education and Communication (IEC) and Road Safety among *Boda-boda* motorcyclists.

The regression sum of squares (136.557) represents the variation in road safety outcome explained by the predictor variable (IEC). It assesses how much of the total variation in road safety behaviour can be attributed to including IEC in the regression model. The residual sum of squares (96.643) represents the unexplained variation in road safety outcomes after accounting for the predictor variable. It reflects the variability in road safety behaviour not captured by the regression model and is attributable to random error or other factors not included in the analysis.

The F-statistic (544.004) and its associated p-value (0.000) indicate whether the variation explained by the predictor variable is statistically significant. In this case, the p-value is less than the conventional significance level of 0.05, suggesting that the regression model with IEC as a predictor significantly improves the fit compared to a model with no predictors. Therefore, the ANOVA results provide strong evidence to support the hypothesis that Information Education and Communication significantly influences road safety outcomes among *Boda-boda* motorcyclists.

Table 4: Model Coefficients for Information Education and Communication and Road Safety amongst Boda-boda Motorcyclists

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	0.586	0.142		4.137	0.00
Information Education and Communication	0.851	0.036	0.765	23.324	0.00
a Dependent Variable: Road Safety					

Source: Author 2024

Table 4 presents the model coefficients for the relationship between Information Education and Communication (IEC) and Road Safety among *Boda-boda* motorcyclists. Model coefficients provide insight into the strength and direction of the relationship between the predictor variable (IEC) and the outcome variable (Road Safety) and the significance of this relationship. The constant term (B = 0.586) represents the estimated Road Safety score when the predictor variable (IEC) is zero. This context indicates the expected Road Safety level among *Boda-boda* motorcyclists without Information Education and Communication intervention. The coefficient for Information Education and Communication (B = 0.851) indicates the expected road safety score change for each unit increase in the predictor variable. In this case, it suggests that, on average, for every one-unit increase in Information Education and Communication, the Road Safety score increases by 0.851 units.

The standardised coefficient (Beta = 0.765) provides a measure of the strength and direction of the relationship between the predictor variable (IEC) and the outcome variable (Road Safety), standardised to a common scale. It allows for comparing the relative importance of different predictors in the model. The t-value (t = 23.324) assesses the significance of the coefficient for Information Education and Communication. In this case, the coefficient is highly significant (Sig. = 0.00), indicating that the relationship between Information Education and Communication and Road Safety is unlikely to be due to random chance. The model coefficients suggest that Information Education and Communication have a statistically significant and positive impact on Road Safety among *Boda-boda* motorcyclists. As Information Education and Communication increases, Road Safety scores also tend to increase, highlighting the importance of effective communication and education initiatives in promoting safe behaviour on the roads.

Discussion

Information, education, and communication (IEC) initiatives were well received among *Boda-boda* riders, with respondents expressing positive attitudes towards training programs, publicity materials, and mentorship initiatives. In-person training sessions, educational videos, road safety campaigns, and mentorship by experienced riders were all perceived as effective in promoting road safety awareness and behaviour. Publicity materials such as posters, pamphlets, and infographics were also valued for conveying road safety messages. The findings highlight the importance of a multifaceted approach to road safety education, combining various IEC strategies to effectively reach and engage *Boda-boda* riders.

Inferential findings focused on the statistical relationships between exposure to IEC interventions, knowledge acquisition, attitude formation, and behavioural change among *Boda-boda* motorcyclists.

Through regression analyses and correlation studies, the research elucidates the impact of IEC campaigns on riders' awareness levels, risk perceptions, and self-reported adherence to road safety guidelines. Key findings reveal significant associations between targeted messaging and cognitive and behavioural outcomes, suggesting a positive relationship between information dissemination and road safety outcomes. Furthermore, the study explores potential moderators and mediators that influence the effectiveness of IEC interventions, including socio-demographic factors, previous riding experience, and community engagement.

The qualitative findings revealed several key themes. First, they highlight the importance of targeted educational initiatives in enhancing riders' understanding of road safety regulations, traffic laws, and best practices. The findings underscore awareness campaigns' effectiveness in raising awareness about road safety issues and promoting behaviour change among *Boda-boda* motorcyclists. Participants describe the impact of media campaigns, social mobilisation efforts, and community outreach activities in disseminating safety messages, fostering a sense of collective responsibility, and fostering positive attitudes towards compliance with traffic rules.

The qualitative data sheds light on the role of IEC as an approach for empowering *Boda-boda* riders to take ownership of road safety initiatives. Participants discuss the importance of involving local stakeholders, including rider associations, religious leaders, and civic groups, in designing and implementing interventions tailored to the specific needs and challenges faced by *Boda-boda* communities. Moreover, the findings underscore the significance of culturally sensitive communication strategies in effectively reaching and resonating with *Boda-boda* riders. Participants emphasised the importance of using local languages, culturally relevant imagery, and interpersonal communication channels to convey road safety messages that are accessible, engaging, and relatable to the target audience.

Conclusions

The study concluded that 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 media channels, educational materials, and participatory activities to engage riders, enhance their knowledge and skills, and foster a culture of responsible road behaviour. This will positively influence road safety initiatives' outcomes by addressing knowledge gaps and empowering riders to make informed choices. IEC interventions can significantly reduce road accidents, injuries and fatalities. Finally, IEC requires a multifaceted strategy that targets individual, interpersonal, and environmental factors shaping riders' road behaviours. IEC efforts can create synergies, amplify impact, and influence sustainable change in *Boda-boda* riders' road safety practices to be woven into the national road safety initiatives for *boda-boda* motorcyclists.

In the domain of information, education, and communication (IEC), it is recommended that tailored educational materials and training programs be developed to address the unique needs and literacy levels of *Boda-boda* riders. Utilising interactive and participatory learning methods, such as role-playing, group discussions, and hands-on demonstrations, can enhance engagement and retention of road safety information. Moreover, leveraging existing communication channels within *boda-boda* communities, such as SACCOS and riders' associations, can facilitate the dissemination of educational materials and messages. Continuous monitoring and evaluation of IEC initiatives are essential for assessing their impact and identifying areas for refinement.

Future studies should explore the longitudinal effects of IEC interventions on *Boda-boda* riders' road safety behaviours to assess sustained behaviour change over time. Investigating the moderating role of individual differences, such as personality traits and risk perceptions, on the effectiveness of road safety interventions among *Boda-boda* motorcyclists could provide valuable insights into personalised intervention strategies.

Examining the impact of technological innovations, such as smartphone applications and GPS tracking systems, on *Boda-boda* riders' adherence to safety practices and accident prevention could offer new avenues for enhancing road safety in the context of motorcycle transportation.

References

Adewuyi, E. O., & Adefemi, K. (2016). Behaviour change communication using social media: A review. *International Journal of communication and health, 9*(1), 109-116.

Akinpelu, A., (2019). *Road Safety Education and Training (Needs, Issues and Experiences).* In Nigeria Researchgate.Net

Babafemi, A. A., Ikiomoye, B. L., & Data, A. B. (2019). Road Safety Behaviour of Motorcyclists and Their Passengers in Obafemi Awolowo University Ile-Ife, Nigeria. *Glob Environmental Health, 3*(1), 1.

Bishop, T., Barber, C., Charman, S., Porter, G., & Bradbury, A. (2018). Enhancing understanding on safe motorcycle and three-wheeler use for rural transport. *Inception Report, Amend and Transaid. ReCAP project RAF2114A*. http://www. research4cap. org

Creswell, J. W., & Creswell, J. D. (2018). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. Sage, Los Angeles.

Devi B, Lepcha N, Pradhas S (2022) Concept of Social cognitive theory and its application in the field of Medical and Nursing education: framework to guide Research Article · Researchgate.net

Elkaluby, E., Mohamed, A., & Mohamed, N. (2020). Road Safety and First Aids Educational Program among Alexandria Port Commercial Drivers. *International Journal for Research in Health Sciences and Nursing, 6*(1), 01–27. https://doi.org/10.53555/hsn.v6i1.1185

Elvik, R. (2016). *A Theoretical Perspective on Road Safety Communication Campaigns. Accident Analysis & Prevention,* 97, 292-297.

Esse, C. (2021). Communication on Road Safety in Cameroon: Representation in the Press and Government Strategy. *International Journal of Communications, Network and System Sciences, 14*(5), 55-73. https://doi.org/10.4236/ijcns.2021.145005

Foroutan, A., Heydari, S. T., Karvar, M., Mohammadi, L., Sarikhani, Y., Akbari, M., & Lankarani, K. B. (2019). Results of a Campaign for Motorcycle Helmets Advocacy in a City in Southwest of Iran: A Population-Based Intervention Study. *Bulletin of Emergency & Trauma, 7*(4), 404.

Kalu, N. (2023). *Importance of Visuals in Behaviour Change Communication*. Researchgate.Com

Kapur, R. (2018). *Barriers to Effective Communication*. Delhi University. Retrieved from www.researchgate.net/publication/323794732

Kemei, K., Sakataka, W., & Nyaboga, I. (2022). Influence of Formal Rider Training and Safety Knowledge on Motorbike Safety of Motorcyclists on Eldoret Town. *African Journal of Education, Science and Technology, 7*(1), 374-386.

Kholifaturrohmah, I., Muhdhar, M. R. I. A., Mardiyanti, L., Landriany, E., Setiawan, N. R., Nugraha, B. A., & Noerhajati, N. (2023). The relationship between social attitudes and environmental literacy of high school students. In *AIP Conference Proceedings, 2569*(1). AIP Publishing.

KNBS. (2019). Kenya population and housing census reports. *Nairobi: Kenya National Bureau of Statistics*, *49*.

Knight, E. (2018) *Current and Future Road Safety Education, Training and Publicity Provision across London Local Authorities.* London Road Safety Council.

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 Engineering, 7*(1), 17-79.

National Crime Research Centre (NCRC) (2018). Motorcycles: 2020 data (traffic safety facts. Report no. Dot 813 306). National Highway Traffic Safety Administration.

NTSA (National Transport & Safety Authority) (2023). *National Road Safety Action Plan.*

Ningal, J. B., & Oños, C. F. (2021). Traffic Education, Publicity and Training in Road Safety: Basis for Road Safety and Accident Awareness Program. *Social and Crimonol,* 9, 212.

Nwangu E., Yohanna W., Abugu L., Onunuji A., (2020) Behaviour change communication for control of tuberculosis by health care workers in DOTS facilities in Nigeria. *Pan African medical Journal.*

Nyachieo, G. (2020). Levels of Rider Training and Its Influence on Road Safety among Motorcycle (Boda-boda) Riders in Kisumu East Sub-County in Kisumu County, Kenya. *Journal of Research Innovation and Implications in Education, 4*(4), 119-129.

Okaka, W. R. (2018). *Developing Public Awareness Communication Strategy for Road Safety Good Practice Norm 4th International Psychology Congress 2018, 20 - 23 November 2018, Kwale, Kenya.*

Olumide, A. O., & Owoaje, E. T. (2016). Effect of A Road Safety Education Intervention on Road Safety Knowledge of University Drivers in Ibadan, Nigeria. *Annals of Ibadan Postgraduate Medicine, 14*(1), 6-12.

Osire, M. S., & Namada, J. (2018). *Behaviour Change Communication in Community-Based Organizations: A Case of Kibera Hamlets.* United States International University – Africa. BAK – *Boda-boda* Safety Association of Kenya (2023)

Rusli, R., Oviedo-Trespalacios, O., & Abd Salam, S. A. (2020). Risky Riding Behaviours among Motorcyclists in Malaysia: A Roadside Survey. Transportation Research Part F. *Traffic Psychology and Behaviour,* 74, 446-457.

Sachdeva, S., Kar, H., Sachdeva, R., & Tyagi, A. (2015). Information, Education, and Communication (IEC): A Revisit to Facilitate Change. *Journal, Indian Academy of Clinical Medicine.* https://ssrn.com/abstract=2967966

Singh R., Prasad R., Kumar K., (2020) Effective behaviour change communication interventions in adults by community health workers: A Scoping Review Protocol. https://doi.org/10.1101/2020.11.29.20240432

Topolšek, D., Babić, D., & Fiolić, M. (2019). The Effect of Road Safety Education on the Relationship between Driver's Errors, Violations and Accidents: Slovenian Case Study. *European Transport Research Review, 11*(1), 1-8.

Wakene, G. (2016). *A Critical Analysis of Stakeholders' Discourses on the Road Safety Problem in Ethiopia.* Unpublished Doctoral Thesis Addis Ababa University.

World Health Organization (2017*). Road Traffic Injuries [Internet]. World Health Organization,* Available At: Http://Www.Who.Int/Mediacentre

World Health Organization. (2020). *Gender and Road Traffic Injuries.* Https://Www.Who.Int/Violence_Injury_Prevention/Road_Traffic/Gender_Traffic_Injuries/En/

World Health Organization (2017*). Road Traffic Injuries [Internet]. World Health Organization,* http://www.Who.Int/Mediacentre.

World Health Organization. (2020). *Gender and Road Traffic Injuries.* https://Www.Who.Int/Violence_Injury_Prevention/Road_Traffic/Gender_Traffic_Injuries/En/