



Uninsured Motorists' Risk Attitudes and Pedestrian Road Safety: Evidence from Metropolitan Lagos, Nigeria

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ABSTRACT

With the increasing prevalence of uninsured vehicles in urban areas, motorists' behaviours on pedestrian safety are crucial for developing effective road safety strategies. This study investigated the happenings around uninsured motorists' risk attitudes and pedestrian road safety in metropolitan Lagos, Nigeria. Using the survey approach cum the two-way sampling techniques comprised of purposive and convenience, data were gathered to analyse the behavioural dispositions of uninsured motorists and their implications on pedestrian road safety. The study adopted a structured questionnaire as a research instrument for data collection from a sample population of 209. The data analytical employed was descriptive statistics comprised of simple frequency percentages presented in tabular form and bar chart description. Findings revealed, based on pedestrian opinions, that uninsured motorists display riskier driving behaviours, such as speeding and reckless driving pattern; which was found prevalent among commercial uninsured motorists. In addition, insufficient implementation of insurance regulation and socio-economic factors contributed to the proliferation of uninsured vehicles. The study also showcased the descriptive analysis of uninsured motorists' risk attitudes towards pedestrian road safety. Further finding presented a descriptive analysis of pedestrians' road safety metrics on Lagos roads. Then, the study accentuates the urgent need for comprehensive policy intervention targeting uninsured motorists, including stricter application of insurance laws, public awareness campaigns, enhanced infrastructure to improve pedestrian safety in urban environment, like metropolitan, Lagos, Nigeria and in similar contexts in other African cities and beyond. Thus, insurance practitioners, especially motor insurance providers, should synergise their efforts to improve the accessibility and affordability of insurance for motorists, particularly, the low-income individuals; by

creating flexible payment options, and subsidising insurance premiums. Lastly, local communities should engage with other stakeholders in the transport industry to ensure road safety culture, promoting responsible driving behaviour and encouraging compliance with insurance regulation.

1. Introduction

The resulting outcome of vehicle mishaps in terms of fatalities, injuries, and property destructions amount to a significant social mess (Blincoe et al., 2023; Ministry of Transport, 2021; Steinhäuser & Lancser, 2022). One facet of the all-inclusive social upshots deals with the losses of accident casualties, particularly when an at-fault motorist has restricted pecuniary resources for indemnifying the injured party. One major solution being provided is the introduction of Motor Third-Party Liability Insurance (MTPLI), where monetary protection is provided to individual person from unanticipated losses (Anna, 2018; Nkeng et al., 2020). In spite of its advantages, MTPLI is not considerably acquired by most motorists. One resulting effect from the uninsured financially constrained motorists is the inability to compensate casualties for the accidental losses. Practically, this probably endear free-riding behavioural display that eventually resulted the society into providing for the victims' losses.

Despite lawful obligation for motorists to procuring motor insurance, compliance is not flawless. The extent of defiance, that is, the percentage of uninsured motorists, differs contingent upon each country in the globe. For instance, the uninsured motorists are recorded at 14 percent in the United State (Malven, 2023); 5.1 percent in the United Kingdom (Marson & Ferris, 2023); 6.3 percent in Italy (Insurance Europe, 2019); less than 1 percent in Poland (Kosiorowski, 2022); about 65 percent recorded in South Africa (Coetzer, 2022); and around 77 percent in Nigeria (Iwunze, 2022). However, 92 percent of the global fatalities towards road occurrence were recorded in low- and middle-income countries, even with 60 percent presence of the global's vehicles; which were unsafe for African region (World Health Organisation (WHO), 2023).

In Africa, road safety remains a big problem. Africa experiences the high-level casualty rate, despite being the lowest in terms of motorisation and road infrastructure (Segui-Gomez et al., 2021). Unsafe road incidences emanating from motorists' insubordination of road safety regulations, many at times, endanger their lives and pedestrians in numerous countries of the globe. However, studies (such as Acerra et al., 2023; Uhegbu & Tight, 2021; Vitalis et al., 2022) have attested that, intercontinentally, over three thousand pedestrians are being affected day-to-day by road mishaps, logged nothing below 50 million and 3.5 million respectively for both injuries and death. In 2021, Pedestrians fatalities were said to have increased by 13 percent compared to 11 percent in 2020 in United State (National Highway Traffic Safety Administration, (NHTSA), 2021). In Europe, Poland recorded the highest percentage of pedestrians' fatalities followed by Romania, Portugal, Croatia, Bulgaria, and Italy (European Commission, 2023). In Africa, 40 percent of fatalities were recorded to be pedestrians in terms of injuries and deaths (Segui-Gomez et al., 2021). To this end, this study emphasises the need to examine the significant effects of uninsured motorists' risk attitudes on pedestrians' road safety disposition in Lagos metropolis. In specific terms, the objectives are to examine pedestrians' knowledge of the existence of uninsured motorists on Lagos roads; ascertain pedestrians' thoughts of risk exposures on Lagos roads; provide descriptive analysis of uninsured motorists' behavioural dispositions among pedestrians within the Lagos metropolis; and present descriptive analysis of pedestrians' road safety metrics within the Lagos metropolis.

2. Literature Review

2.1 Uninsured Motorists and Policy Coverages

According to Insurance Research Council (2023), uninsured motorists (UM) are drivers operating motor vehicles without possessing liability insurance policy to indemnify others for bodily injuries or physical damage to property resulting from accidents whereby they were at fault. However, a more effective solution is uninsured (and underinsured) motorist coverage that provides indemnification to policyholders when an at-fault motorist has no liability insurance when the at-fault motorist is a hit-and-run driver (Insurance Information Institute, 2021). Earlier study of Kramer et al. (2012) stipulated that UM policy, therefore, is with the intention providing indemnification to motor insurance policyholders for personal injuries or a property damage suffered in a catastrophe necessitating an operating motorist who is at fault, and/ or one who does weird third-party motor liability insurance. Edmonds (2015) averred that underinsured motorist (UIM) coverage is comparable to UM coverage, except that the insurance procured by the person who caused the accident is inadequate to copiously compensate the injured party(ies) for their losses.

2.2. Uninsured Motorists and Risk Attitudes

The accidental risks of insured motorists are uncertain. Some studies (such as Hsu et al., 2018; Yarmukhamedov, 2020) indicated that uninsured motorists constitute higher risks of engendering misfortune juxtaposed to insured motorists, whereas others (such as Coetzer, 2022; Brobeck et al., 2013) revealed that uninsured motorists are more incentivised to be careful on the road to avert costly accidents and legal redress for noncompliance with compulsory motor insurance. Yarmukhamedov (2020) reinstated that uninsured motorists are a high-risk element and a considerable threat to traffic safety. However, threat to traffic safety motivating motorists' risk attitudes had been echoed in many continents such as Europe (Alonso et al., 2022; Brooks & Williams, 2023); Asia (Dinh et al., 2022; Tanglai et al., 2022); South America (Narveaz et al., 2019); and Africa (Abdul-Azeez & Ajemunigbohun, 2022; Bantjes et al., 2024). According to Glanz et al. (2016), risk attitude is delineated as peoples' education regarding risk avoidance or preference when making decisions in an uncertain situation. Motorists' risk attitudes then are the level of risk exposures encounter by motorists including the third-party risks (Magri et al., 2019).

2.3. Uninsured Motorists and Asymmetric Information

In selecting appropriate motor insurance policies and their providers, a potential motor insurance policyholder would desire to have access to and ponder upon information relating to the financial performance of a motor insurer, its conditional terms, and historical records of quality claims to be able to decide on his/her choices of motor insurance policies. According to Feinman as cited in Ajemunigbohun et al. (2022), there existed an information inequality which had reduced the motor insurance policyholders' capacities to predict insurers' performance hence influenced by moral hazard and adverse selection. An adverse selection dispute that insurance is only purchased by high-risk motorists might be inapt in so far as motor insurance is at least partly obligatory (Yarmukhamedov, 2020). However, the existence of alternative type of adverse selection, where high-risk motorists may desire high insurance coverage, cannot be erased. Therefore, Moral hazard, which may also be compelling, due to the concern for accident costs is passed on to an insurer (Avraham & Porat, 2023). This, then, differs from the subsisting argument that the uninsured motorists. Based on the adverse selection theory, motorists which are risk-conscious may procure insurance and be cautious on the road (De Donder et al., 2022); which suggests that the insured motorists' risk of instigating an accident is unspecified.

2.4. Pedestrian Safety and Road Infrastructure

Walking is a vital from of transport for most African people. In spite of its crucial role, there seems to be negligible investment in pedestrian infrastructure (Frimpong, 2022; Mesfin & Denbi, 2022; Rowangould & Corning-Padilla, 2019). It was further stressed that roads in many African cities are without sidewalks, congested roads with motorists, and vendors, poor road markings, absence of streetlights, and pedestrians grappling for spaces. However, predictions, as emphasised by Frimpong (2022) that five hundred and

fourteen thousand (514,000) pedestrian road fatalities are expected to occur in Africa by 2030. According to Kitosi (2023), subsisting government policies are needed to be drawn at enhancing road infrastructure in a bid to sustain road safety. Pedestrian safety is noted as one of the most stimulating glitches in municipal transport. Therefore, it should be mutually pondered upon in line with the motorised transport system in many cities (Nkurunziza et al., 2023).

2.5. Theory of Planned Behaviour (TPB) as Applicable to Uninsured Motorists' Behaviour and Pedestrian Road Safety

This theory was advocated to elucidate behavioural desire of mankind and its espousal verdicts. It is thus called the theory of reasoned action, with an assumption that human character is wholly reflective and the intimated commitment, compressed by idiosyncratic norms, attitudinal expressions, and perceived behavioural control (Fishbein & Ajzen, 1975; Zeweld et al. (2017). Under this hypothetical context, intent is a one-sided function of human disposition, subjective norms, and supposed control. Attitudinal expressions make up an individual expression of either positive or negative and favourable or unfavourable expression on specific factors, reasons, and environment (Hashemiparast et al., 2016; Zainal et al., 2023). For subjective norms, focus had been on perceived social pressure that possibly affect and help shapes an individual's judgment of performing a specific behaviour (Li et al., 2023). For perceived behavioural control, it is concerned with a human evaluation relating to his/her precise behaviour contingent upon their own strength either on easy or hard manner (Hong et al., 2022). This aspect of the theory explains situation where an individual pedestrian intends to cross the road when his/her thought was that it would be easy when there are chances of actions leading to a road accident. Then, a past experience can affect his/her expectation and present obstacle is faced with. All the constructs making up the TPB measure behavioural intentions, which are predictors of an exact behavioural performance of individual uninsured motorists and pedestrians on the road.

3. Research methods

This study employed a survey methodology based on quantitative methods to provide a deeper understanding of pedestrians' perceptions on the behaviour of uninsured motorists, with implications for road safety in Lagos. This design facilitated the delineation and execution of the study to anticipate outcomes and establish a connection with real-world contexts (Creswell & Creswell, 2018). The sample consisted of pedestrians present on Lagos highways during peak and off-peak hours. The selection of Lagos State was due to its status as a commercial and economic centre for West African States (Osho & Adishi, 2019). The data collection instrument was a structured questionnaire. The sample population consisted of two hundred and nine (209) participants whose views were represented in the data analysis. The selection of this survey method was based on its suitability for the specified research design, cost-effectiveness, extensive sample representation, ease of supervision, and its applicability to similar subjects (Asenahabi, 2019). The study utilised two-way sample strategies, comprising purposive and convenience sampling. Purposive sampling necessitated the judgement and skill of pedestrians for the distribution of instruments. The data gathering technique for convenience sampling took into account the researchers' preparedness and the availability of respondents.

The study examined validity tests, including theoretical, content, internal, and external validity. Furthermore, test-retest reliability was employed to assess the subjects in this study on two occasions to ensure consistency of results (Fallon, 2016). The reliability test yielded a Cronbach alpha exceeding the acceptable threshold of 0.7 for the road safety measures affecting motorists' behaviours in the Lagos city. These results aligned with statistical assumptions regarding the scale's validity and the inviolability of its internal consistency. The alpha values aligned with the statistical assumptions regarding the scale's validity (Leavy, 2017).

4. Descriptive Analysis of Participants' Responses

Table 1: Demographic Information of Participants

Variable	Response	Frequency (%)
Gender	Male	121 (57.9%)
	Female	88 (42.1%)
Age	18 but less than 30	30 (14.4%)
	30 but less than 40	115 (55.0%)
	40 but less than 50	56 (26.8%)
	50 but less than 60	08(3.8%)
Marital Status	Single	132 (63.2%)
	Married	69 (33.0%)
	Separated	08 (3.8%)
Educational Qualification	SSCE/GCE/OND	77 (36.8%)
	HND/BSc	106 (50.8%)
	Postgraduate	18 (8.6%)
	Professional Certificate	08 (3.8%)

Source: Field Survey (2024)

Table 1 provided substantial insights into the composition of the examined population. The gender distribution indicated a near-equal representation, with 57.9 percent classified as male and 42.1 percent as female. The age distribution statistics indicated a varied age range among the sample. The primary age categories of participants were 30 to under 40 years, 40 to under 50 years, and 18 to under 30 years, accounting for 55.0 percent, 26.8 percent, and 14.4 percent, respectively. Reduced proportions were observed in the older age demographic, with 3.8 percent from the 50 and above cohort. This distribution indicates that active categories prevail within the sample. The marital status disclosed a significant aspect of the demographic profile. A majority, including 63.2 percent, were categorised as single, while 33.0 percent were likewise single. Separated individuals constitute a negligible segment, representing 3.8 percent of the sample. The educational qualifications of the sample population exhibited varied levels of attainment. A substantial portion, including 50.8 percent, holds HND/BSc qualifications, followed by 36.8 percent with SSEC/GCE/OND qualifications, while the remaining 12.4 percent comprises of postgraduate and professional certificate holders.

Table 2: Participants' Demographic Information

Variable	Response Label	Frequency	Percentages (%)
How do you perceive risks on Lagos roads?	Low	28	13.4
	Average	70	33.5
	High	35	16.7
	Very high	76	36.4
Have you at any point experienced road mishap on Lagos roads?	Not at all	53	25.4
	Rarely	94	45.0

	Frequently	62	29.6
Are you expose to risks on Lagos roads?	Yes	190	90.9
	No	19	9.1
How often do you think motorists endanger pedestrians on Lagos roads?	Not at all	09	4.3
	Rarely	50	23.9
	Frequently	150	71.8
How can you scale motorists' risk attitudes on Lagos roads?	Poor	39	18.2
	Average	97	46.4
	Fair	65	31.1
	Good	09	4.3
Are you aware of uninsured motorists on Lagos roads?	Yes	162	80.6
	No	47	19.4
Who among these motorists do you think may not possess motor insurance policies on Lagos roads?	Private vehicles	12	5.7
	Company vehicles	05	2.4
	Long haul vehicles (trucks)	18	8.6
	Commercial vehicles	143	68.4
	Government vehicles	14	6.7
	Others	17	8.2

Source: Field Survey (2024)

Table 2 gave substantial insights into the composition of the analysed representation. The participants' responses as to how they perceive risks on Lagos roads indicated that while 13.4 percent expressed 'low' responses, 33.5 percent was recorded for 'average', and 53.1 percent showed 'high' responses. This is an indication that Lagos roads are not really safe for the pedestrians. Concerning the participants' experiences on Lagos roads' mishaps, 25.4 percent implied 'not at all'. While 45 percent rarely experienced it, 29.6 percent indicated 'frequent' risk occurrence on Lagos roads. This is an indication that road mishap although occurred but at rare occasions. As for those participants' responses of their risk exposures on Lagos roads, while 90.9 percent expressed a 'Yes' response, 9.1 percent gave a 'No' reaction. As for motorists endangering pedestrians on Lagos roads, 4.3 percent was recorded for 'not at all'. While 23.9 percent expressed rare judgments, 71.8 percent revealed that pedestrians are frequently faced with danger. As for the scale of motorists' risk attitudes, majority of the pedestrians rated motorists' risk attitudes as average and fair with 46.4 percent and 31.1 percent respectively. As for the pedestrians' awareness of uninsured motorists on Lagos roads, 80.6 percent recorded 'Yes', while 19.4 percent said 'No'. As for the pedestrians' knowledge of motorists who do not possess motor insurance policies on Lagos roads, commercial vehicles were recorded highest with 68.4 percent, followed by long haul vehicles (8.6 percent), others (8.2 percent), government vehicles (6.7 percent), private vehicles (5.7 percent), and company's vehicles (2.4 percent). This is an indication that most commercial vehicles are hazardous to pedestrians' safety on Lagos roads.

Table 3: Uninsured Motorists' Behavioural Dispositions

Variable	Response Label	Frequency	Percentages (%)
Do motorists risk attitudes put the pedestrians at high risks on Lagos roads?	Yes	176	84.2
	No	33	15.8
Are you aware that motor insurance protects pedestrians on Lagos roads?	Yes	162	80.6
	No	47	19.4
Do you think most motorists hold motor insurance for pedestrians' road safety?	Yes	58	27.8
	No	151	72.2
	Yes	44	21

Are pedestrians' road safety guaranteed with the government regulation of third-party motor insurance?	No	165	79
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Source: Field Survey (2024)

In Table 3 (Fig. 1), the uninsured motorists' behavioural dispositions towards pedestrians' road safety survey items for which data were collected from all participants were *motorists' risk attitudes put the pedestrians at high risks*, *motor insurance protects pedestrians*, *motor insurance possession for pedestrians' road safety*, and *government regulation of MTPLI guarantees pedestrians' road safety*. The participants responded to the various items, in which 84.2 percent demonstrated their acceptance regarding *motorists' risk attitudes put the pedestrians at high risks*, while 15.8 percent expressed their indifference. For *motor insurance protects pedestrians*, while 80.6 percent of responders expressed support for this issue, 19.4 percent indicated their discontent. As for *motor insurance possession for pedestrians' road safety*, 27.8 percent of all participants expressed their agreement, while 72.2 percent disagreed. For *government regulation of MTPLI guarantees pedestrians' road safety*, 21 percent concurred, but 79 percent articulated their dissent. The mean and standard deviation scores corroborated the results for all surveyed items. This indicates that pedestrians' evaluations of the survey items were normally distributed and centred around the mean. The descriptive statistics on uninsured motorists' behavioural attitudes towards road safety indicate that all metrics exhibit similar evaluations on the participants' assessments.

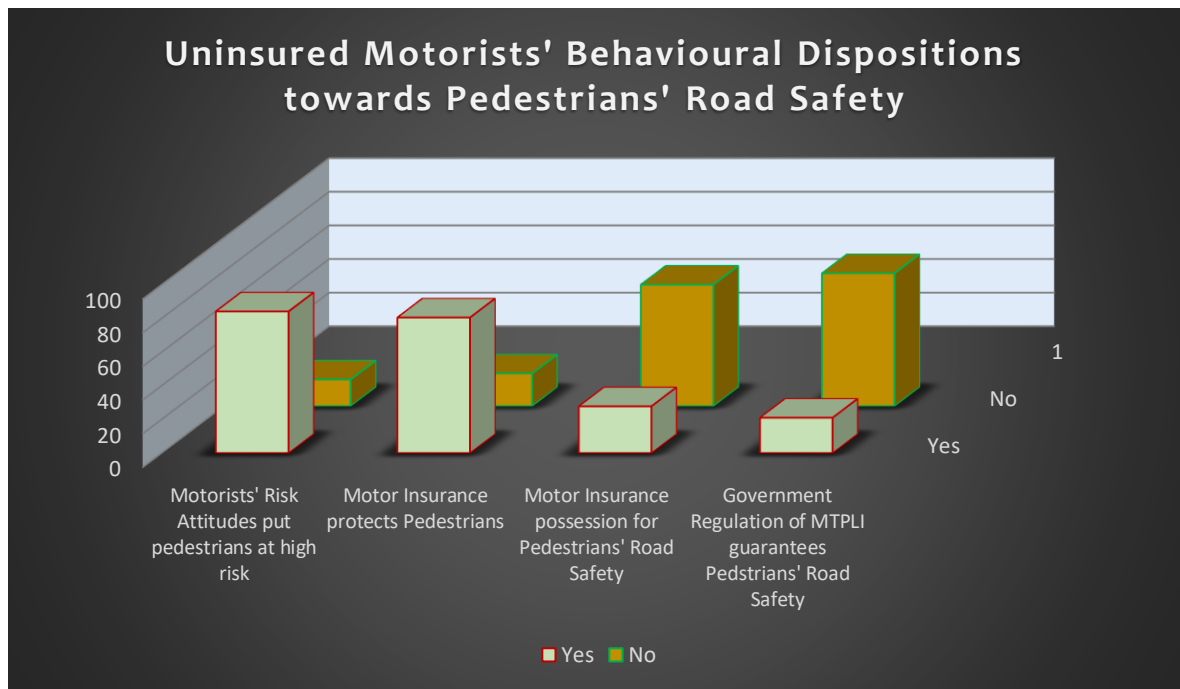


Figure 1: The graphical model of uninsured motorists' behavioural dispositions towards pedestrians' road safety

Table 4: Pedestrians' Road Safety Metrics

Variable	Response Label	Frequency	Percentages (%)
I enjoy a safe walking route on Lagos roads	Yes	48	23
	No	161	77
I use sidewalks whenever on Lagos roads to ensure safety compliance with traffic regulation	Yes	147	70.3
	No	62	29.7
I do not like walking when facing traffic on Lagos roads even if the sidewalks are not available	Yes	103	49.3
	No	106	50.7
I obey all signs and signals on Lagos roads in order to avoid traffic penalty	Yes	204	97.6
	No	05	2.4
I only cross on Lagos roads at any designated locations	Yes	158	75.6
	No	51	24.4
I do stay on easily identifiable paths whenever I am on Lagos roads at night to get to where I had intended to be	Yes	179	95.2
	No	30	4.8
I wear bright colours during the day and reflective tape at night whenever I am on Lagos roads in order to avoid being hit by a vehicle	Yes	73	34.9
	No	136	65.1
I do normally watch for vehicles that are turning or backing up when on Lagos roads in order to ensure safe trips	Yes	184	88.0
	No	25	12.0
I avoid taking drugs and alcohol whenever I plan to walk on Lagos roads so as to journey safely on the pathways	Yes	199	95.2
	No	10	4.8
I endeavour to walk defensively whenever I am on Lagos roads to ensure safe trips and avoid reckless motorists	Yes	192	91.9
	No	17	8.1

Source: Field Survey (2024)

In Table 4 (Fig. 2), the uninsured motorists' behavioural dispositions towards pedestrians' road safety survey items for which data were collected from all participants were *enjoying safe walking*, *using sidewalk*, *dislike facing traffic*, *obedient to signs and signals*, *crossing designated locations*, *staying on easily identifiable path*, *wearing bright colours*, *watching turning/back up vehicles*, *avoidance of drugs/alcohol*, and *walking defensively*. The participants responded to the various items, with 23 percent demonstrating their acceptance regarding *enjoying safe walking*, while 77 percent indicated their disagreement. For *using sidewalk*, while participants articulated 70.3 percent in supporting this item, 29.7 percent showed their displeasure. As for *dislike facing traffic*, 49.3 percent of the participants expressed their concurrence, 50.7 percent disapproved. For *obedient to signs and signals*, 97.6 percent concurred, whilst 2.4 percent articulated their dissent. For *crossing designated locations*, while 75.6 percent of responders expressed support for this issue, 24.4 percent indicated their discontent. As for *staying on easily identifiable path*, 95.2 percent of all participants expressed their agreement, while 4.8 percent disagreed. For *wearing bright colours*, 34.9 percent agreed, while 65.1 percent expressed their disagreement. For *watching turning/back up vehicles*, 88.0 percent agreed, while 12.0 percent expressed their disagreement. For *avoidance of*

drugs/alcohol, while 95.2 percent of responders expressed support for this issue, 4.8 percent indicated their discontent. As for *walking defensively*, 91.9 percent of the participants expressed their agreement, while 8.1 percent disagreed. The mean and standard deviation scores corroborated the results for all surveyed items. This indicates that pedestrians' evaluations of the survey items were normally distributed and centred around the mean. The descriptive statistics on pedestrians' road safety metrics clearly indicate that all metrics exhibit similar evaluations across the participants' assessments.

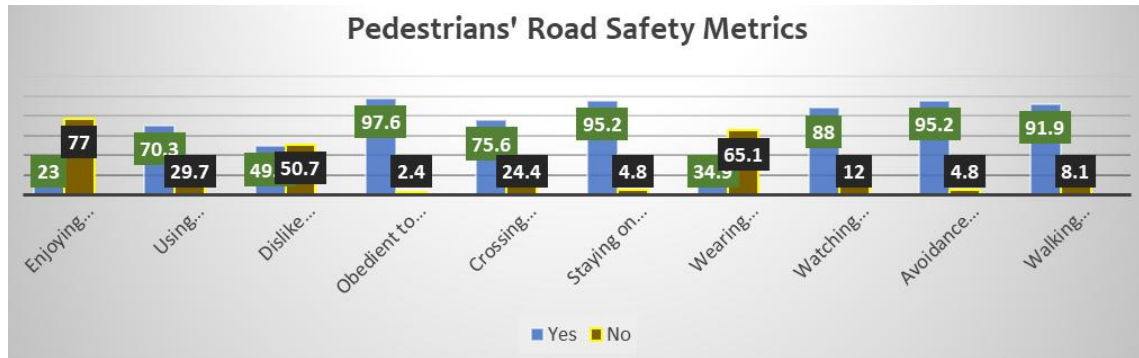


Figure 2: The graphical model explains the pedestrians' road safety metrics on Lagos roads

5. Conclusion and Recommendations

The findings of the study underscore the significant effect of uninsured motorists' risk attitudes on pedestrian's road safety in metropolitan Lagos, Nigeria. Uninsured motorists display riskier driving behaviours, posing a considerable threat to pedestrians. Inadequate enforcement of insurance regulations and socio-economic factors further exacerbate the problem, contributing to the proliferation of uninsured motorists on the roads. A further confirmation of the descriptive analysis of uninsured motorists' risk attitudes and pedestrians' road safety metrics were presented in the study. The descriptive evidence showcased the divergent opinions of the pedestrians who participated in the study.

Consistent with the aforementioned findings, the study advised that governmental authorities should intensify the implementation of insurance legislation to guarantee that all motorists on the road possess proper insurance coverage; which is achievable through increased monitoring, penalties for defiance, and leveraging technology for effective enforcement. However, launching targeted public awareness campaigns is vital to enlighten motorists about the essence of insurance and its implication for road safety. Government and other stakeholders should collaborate to investment massively on road infrastructure, such as sidewalks, pedestrian crossings, and traffic signs, in a bid to enhance pedestrian safety and mitigate the risks posed by uninsured motorists. Insurance practitioners, especially motor insurance providers, should synergies their efforts to improve the accessibility and affordability of insurance for motorists, particularly, the low-income individuals; by creating flexible payment options, and subsidising insurance premiums. Lastly, local communities should engage with other stakeholders in the transport industry to ensure road safety culture, promoting responsible driving behaviour and encouraging compliance with insurance regulation.

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Conflict of Interest Statement

The authors affirm that no conflicts of interest whatsoever exist.

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