

## **Assessing Physical Risk Control Techniques Influencing Motorists' Behaviours towards Road Safety Compliance in Lagos State, Nigeria**

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### **Abstract**

*Physical risk control techniques are essential elements in the development of any country's transportation. Therefore, ensuring that the road environment is safe is a positive step to changing rightly motorists' behaviour for compliance's sake. This study evaluates physical risk control techniques for road safety compliance, with specific reference to the perceptions of motorists in Lagos, Nigeria. The study employed a survey research design anchored on a quantitative method. The study also adopted a cross-sectional survey research design. A survey-based questionnaire was applied to 287 registered motorists. The results showed evidence of the Friedman rank analysis of the physical risk control techniques towards road safety compliance with a chi-square outcome of 198.162 at p-value Of 0.000. Therefore, the study recommends that efforts at implementing the rank analytical outcome should be taken seriously to further encourage collaboration among stakeholders (such as Federal Road Safety Corps, Nigeria Police Force, and other State Transport Authorities) in a bid to ensure that adequate road safety compliance is sustained. From the safety perspective, this study has contributed by developing a ranking for the selected physical risk control techniques that can improve road safety in Lagos State.*

**Keywords:** *physical risk control techniques, road safety compliance, motorists behaviours, Nigeria*

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### **1. Introduction**

Risks emerging from the non-compliance of road safety regulations, oftentimes, endangered the lives of many motorists and other road users in different countries of the world. However, studies (such as Deme, 2019; Uhegbu & Tight, 2021;

Vitalis, Runyoro, & Selemani, 2022; World Bank, 2021) had affirmed that, globally, more than three thousand people are being affected daily by road mishap, recorded nothing less than 3.5 million and 50 million for both death and injuries respectively. More so, non-compliance to road safety breeds possible road crashes, which would not only result in peoples' demise, but adversely imparted on their properties, environments, and the economy at large (Isa & Siyan, 2016; Siyan, Oyeyemi, & Agunbiade, 2019). Individual risk behaviour to road traffic accidents causes a disjunction in the ability of the motorists to understand the consequences of causing an accident and the economics of paying for those consequences. Meanwhile, road safety compliance level towards motorists' liability risks is at low ebb (Ajemunigbohun & Ipigansi, 2022; Baginska, 2014).

Risk, as a phenomenon, is being a necessary setback that pervades every facet of an individual life. It is seen as the uncertainty about outcomes, some of which can be negative (Redja, McNamara, & Rabel, 2022). The existence of risk has been as a result of the inability of mankind to accurately predict the outcome of human actions. These human behavioural factors, which comprise both the cognitive and affective factors, could be significant variables in understanding individual dispositions (Chinois & Karanikas, 2018). While several studies have shown that individual behaviours have significant implications on their individual risk for economic decisions (Ajemunigbohun, Isimoya & Elegunde, 2020; Olowokudejo, Aduloju, & Ajemunigbohun, 2020; Taofeeq, & Adeleke, 2019); the study of Vieider, Lefebvre, Bouchouicha, Chmura, Hakimov, Krawczk, and Martinsson, (2014) noted that behaviour displayed towards risk and uncertainty determine not only investment disposition, but also choice of job, decisions concerning education, and interactions of social background. Concina (2014) posited that having knowledge of people's behaviour to risk is germane for many purposes as they have implications for economic, investment levels, insurance choices, and public decision making.

However, human factors, which remain a major cause of road crashes, accounting for 90 percent, have been considered to claiming lives and destroying properties due to motorists' recklessness, insensitivity, and negligence (Boboye, 2021; Obakemi, 2018; Uhegbu & Tight, 2021). Although, it is believed that roads can be better built and motor vehicles enhanced to endure mistakes, road risks can never be stamped out. Much attention might have been given to a more conducive environment for road transport to succeed, but redirecting motorists' focus at maintaining physical risk control techniques remain a huge challenge (Deme,

2019). Therefore, educating motor users on the various physical risk control techniques is imperative to protect against road accidents and ensuring proper road safety compliance. Earlier and recent studies (such as Malik, 2017; Okafor, Azuike & Okojie, 2018; Salaudeen, Durowade, Yusuf, & Adeyemi, 2019; Uzundu, 2019) had revealed many road safety compliance measures with respect to road crashes ranging from traffic sign, land marking, speed breaker, traffic camera, traffic circles to pedestrian crossing. All these compliance measures are physical risk control techniques suitable for mitigating feasible road crashes. To this end, there seems to be a limited number of studies conducted to address the rank analysis of the physical risk control techniques influencing motorists' behaviours towards road safety compliance in Lagos, Nigeria. This study, therefore, necessitate the need to carry out this study to reflect the rank analysis of physical risk control techniques influencing motorists' behaviours towards road safety compliance in Lagos, Nigeria.

The study objective is aimed at assessing the physical risk control techniques influencing motorists' behaviour towards road safety compliance in Lagos, with specific references to ranking traffic light, traffic signs, road marking, speed bumps, traffic circles, traffic camera, pedestrian crossing, and road lighting.

## **2. Literature Review**

### **2.1. Conceptual Review**

#### **2.1.1. Physical Risk Control Techniques**

Risk is seen as an uncertainty with regards to the happenings of loss situation (Redja, McNamara, & Rabel, 2022). It is a construct that depicts any situation causing an organisation to lose its valuable image (Turner, 2010 as cited in Alaka, Ajemunigbohun, & Balogun, 2022). It is an event occasioning an outcome full of uncertainties and possibilities of losses (Arunajatesan & Viswanathan, 2017). However, physical risk control techniques are vital to the survival of both human mankind. According to Teale (2013), physical risk control techniques comprised risk avoidance, and risk minimisation. While risk avoidance is depicted as the abandonment of an existing loss situations or non-acquaintance of it (Aven, 2020; Yoe, 2019); risk minimisation encompasses activities revolving reduction of loss severity (Apostolik & Donoghue, 2015). Since risk cannot be totally avoided, it is therefore important to mitigate it by deploying necessary measures.

#### **2.1.2. Motorists' Behaviour and Road Safety Compliance**

Assessing motorists' behaviour and their influence in road safety is such a complex one. More so, the act of driving is mutually related with motorists' behavioural factors (Latif, Eusoff, Zubair, Mat Som, & Wahab, 2017). However, behavioural disposition towards non-compliance refers to an action displayed by motorists either intentionally or otherwise to disregard customarily or cordially stated procedures of road traffic behaviour (Malomo, 2020). King (2015) refers to non-compliance as absence of compliance with traffic signs and signals.

According to Laurent, Sangnier and Treibich (2021), compliance towards road traffic procedures serve two coordinated effects on safety around the road environment. On one hand, it shows that an increased tendency to adhere to procedures reduces the probability of perilous circumstances, thereby curtailing the frequency of road traffic mishaps. On the other hand, it thus decreases motorists' alertness attempt, as each motorist expects that vicious circumstances will be occasional, which increases the frequency that an accident happens sometimes on a severe condition.

Dewi (2017) stressed that in as much as motorists are unaware of the constituted risky behaviour related to road traffic, they are unlikely be able to attend positively to safety of the road environment. Safety does not only involve being safe on the road environment, but also entails feeling safe. Therefore, investigating behavioural disposition of motorists and their perceptions will help create policies and introducing effective procedures to ensure that road safety is achieved. Road safety, traditionally, is built around statistical proof regarding road traffic crashes, especially losses. Williamson (2021) evidently highlighted motorists' mistakes predominantly causing crashes ranging from speeding, distraction, inattention, perceptual mistakes, falling asleep while driving, among others.

## **2.2. Theoretical Review**

This study is anchored on the human factor theory of accident causation. The accident causation theory was practically developed by Heinrich. In 1930, Heinrich came up with the postulation based upon accident's reports that 88 percent of all accidents were due to insecure activities of individuals, 10 percent aligned with insecure conditions, while the remaining 2 percent were attributable to God's plans in terms of natural happenings. In 1950, he expounded this theory in relation to domino's theory spanning through social milieu and parentage, carelessness, unsafe conditions, accidents to injuries (Hosseinian & Torghabeh, 2012). According to Pryor and Capra (2012), Heinrich's postulation regarding accident causation is

characterised by the sequence of actions ranging from accident to an injury. This sequence spelt out unsafe activities of individuals or their physical hazard as a component in the midst of accident prevention.

It was also stated, according to Adhikari (2017), that the sequence of events, which could culminate in human error, leads to accidental outcomes. Earlier submission of Salmon, Regan, and Johnston (2005) noted that human error is one major component of accident-prone situations. Saxena (2017) noted behavioural aspects of human factors as major supporters of at least 95 percent of road traffic crashes with respect to the drivers. He buttressed further that perceived elements encapsulating accidents-prone situation comprises motorist's state of mind, risk identification, drivers' preparedness and road utilisation, state of road networks, vehicles' nature, and implementation of traffic regulation. According to Elvik (2005) as cited in Hermitte (2012), if individual road users were perfectly rational, and usually in perfect control of hazards within the human control, there would have been very few cases of critical accidents. This theory is majorly concerned with motorists' risk attitudes and road risk control methods.

### **2.3. Review of Previous Studies**

Several surveys have been devoted both in Nigeria and other countries of the world to identify various road safety measures and how they are in relations to safety compliance among motorists.

Bella, Natale, and Silvestri (2017) conducted their study on driver-pedestrian interaction under different road environment, while assessing the effectiveness of Advanced Driving Assistance System (ADASs) for pedestrian detection among numerous road environs. This study was conducted among 45 participants. The findings revealed that ADAS effect among the road environments was identical for urban and sub-urban.

Kharde, Jain, Phulambrikar, and Kharde (2018) examined the awareness of road traffic rules among drivers of rural area in India. This study adopted cross-sectional design cum simple random techniques. Information regarding variables of the study was collected from 207 participants by face-to-face interview. This study employed descriptive statistics in the analysis of data. The findings revealed that many drivers displayed poor driving practices such as over speeding, drinking and driving, and telephoning. The study concluded that lack of awareness among drivers regarded the various traffic rules will encourage wrong driving practices the more.

Rhanizar and Akkaoui (2019) examined the predictive framework of speed camera locations for road safety, with the adoption of classification algorithm for proper road network prediction in Morocco. This study gave a descriptive analysis of the Automated Speed Enforcement (ASE) system (called speed cameras) and evaluated their contributive effects to road safety. The Random Forest Classifier technique was employed to predict an accuracy of between 88% and 95% for Moroccan road network map in a bid to support authorities in decision-making process.

Babic, Babic, Cajner, Sruk, and Fiolic (2020) embarked upon a study aimed at examining the effect of road markings and traffic signs presence on young driver stress level, with an evaluation of driving simulator. The study was descriptive in its design and employed equipment for data collection, which included driving simulator, eye tracing glasses, and portable electrocardiogram among 32 younger participants. In an attempt to decisively analyse the collected data, a t-test statistical technique was adopted. The study established that road markings, and traffic signs provide timely and vital information to drivers concerned with upcoming circumstances, in a bid to enable them adjust accordingly. The study posited that traffic signaling improves motorists' behaviour on the road to ensure overall traffic safety.

Tekes, Solmazer, and Alkan (2021) conducted their study on the relationship between traffic sign understanding and risky traffic behaviours, with specific investigation among selected drivers and pedestrians. The study employed descriptive research design with the sample size of 275 participants. Both descriptive and inferential statistics were adopted for data analysis. This study established that increase in people's understanding of traffic signs will reduce or avoid behavioural disposition that can culminate in road accident. This study suggested early introduction of traffic signs to children in their early age will contribute in a positive manner to road safety.

Hassan, Sani, Anwar, Mamman, Shehu, and Abdulrahman (2022) research was based on the evaluation of compliance response of road users to traffic signs in Kaduna metropolis. While a structured questionnaire was used to gather relevant information from 100 participants, descriptive statistical tools were adopted for data analysis. The study stressed the importance of compliance to road traffic signs by road users in a bid for road safety. In conclusion, the study revealed vital interrelationship among age, education, and drivers' years of experience with

respect to their understanding of traffic signs, while no significant effect was posed by marital status and gender.

### **3. Research Methods**

This study adopted survey design pedestaled on numeric method to provide an improved perception of necessary resolutions for physical risk control techniques influencing motorists' behaviour in Lagos State, Nigeria. This design thus helped to map out and accomplish the study in a fashion to derive predetermined outcomes and generated an association with the factual world scenario (Creswell & Creswell, 2018; Gray, 2017). The population of the subjects for this study consisted of 757,952 motorists registered by Motor Vehicle Administration Agency in Lagos State as at 2020 (Motor Vehicle Administration Agency (MVAA, 2020). The choice of Lagos state, as a study area, was because it housed a greater number of motor insurance policyholders in Nigeria in terms of business volume, premium income generation, and aggregate claims incurred (Nigeria Insurers Association, 2020). The sampling technique employed was multistage in nature comprised of stratified, quota, and convenience. A sample size of 399 was determined with the Taro Yamane's sample determination formulae.

The data collection instrument chosen for this study was a questionnaire, being a primary source technique. The choice of the survey technique was due to its appropriateness to the selected research design, its inexpensive nature in terms of costs and time, large sample representation, ease of administration, and its generalisability to similar subjects (Cooper & Schindler, 2014; Kothari & Garg, 2016). The research instrument was into two divisions made up of section A and B. For section A, participants' profiles were stated, while section B is designed in line with the variables in the study. The study observed tests of validity comprised of congruent, logical, internal and external validity. While the congruent validity was conducted in relation to study concepts, logical validity was measured based on the judgment made by experts in the field of transport and insurance. For internal validity, precautions were taken to protect against extraneous variables that might influence the study results. External validity was measured to ensure that the findings were generalisable only to populations supported by the tests (Kuada, 2012; Leavy, 2017). More so, test-retest reliability was conducted to test the subjects or participants in this study twice for results consistency (Fallon, 2016). Also, the reliability test was conducted with a Cronbach alpha above the standard 0.7 for the physical risk control techniques influencing motorists' behaviour in

Lagos State. These outcomes were in line with statistical inferences of the validity of the scale, and the sacrosanctity of the internal consistency. The results of the alpha values were in consonance with statistical inferences of the statistical validity of the scale (Leavy, 2017).

#### **4. Results, Analysis, and Discussion**

##### **4.1. Descriptive Analysis of Participants Responses**

**Table 4.1: Physical Risk Control Techniques Influencing Motorists' Behaviour**

<b>Variables</b>	<b>Response Label</b>	<b>Frequency</b>	<b>Percentages</b>
Traffic Light	Not important	00	0.0
	Fairly important	43	15
	Important	76	26.5
	Extremely important	168	58.5
Traffic Sign	Not important	00	0.0
	Fairly important	14	4.9
	Important	87	30.3
	Extremely important	186	64.8
Pedestrian Crossing	Not important	00	0.0
	Fairly important	08	2.8
	Important	77	26.8
	Extremely important	202	70.4
Road marking	Not important	02	0.7
	Fairly important	15	5.2
	Important	83	28.9
	Extremely important	187	65.2
Speed bumps	Not important	00	0.0
	Fairly important	18	6.3
	Important	60	20.9
	Extremely important	209	72.8
Traffic Circle	Not important	11	3.8
	Fairly important	25	8.7
	Important	83	28.9
	Extremely important	168	58.6
Traffic Camera	Not important	02	0.7
	Fairly important	19	6.6
	Important	73	25.4
	Extremely important	193	67.3
	Not important	00	0.0

Road Lighting	Fairly important	23	8.0
	Important	75	26.1
	Extremely important	189	65.9

**Source:** Field Survey, 2021

Table 4.1 above revealed the participants' attributable responses about their level of importance attached to the motor insurance underwriting factors. For *traffic light*, 58.5 percent of participants see it as extremely important, 26.5 percent attached some level of importance, 15 percent and no percent fairly important and not important respectively. For *traffic sign*, 64.8 percent account for extremely important and 30.3 percent important. While 4.9 percent fairly important, zero percent did not see it as important. For *pedestrian crossing*, 70.4 percent of the entire motorists see it as extremely important, 26.8 percent account for some level of importance. While just 2.8 percent see it as fairly important, none of the motorists see it as important. For *lane marking*, 65.2 percent of the entire participants see it as extremely important, 28.9 percent account for its importance. While just 5.2 percent see it as fairly important, only 0.7 percent never saw it as important. For *speed bumps*, 72.8 percent of the entire participants see it as extremely important, 20.9 percent account for its importance. While 6.3 percent see it as fairly important, none of the participants saw it as important. For *traffic circle*, 58.6 percent of the entire participants see it as extremely important, 28.9 percent account for its importance. While 8.7 percent see it as fairly important, 3.8 percent did not see it as important. For *traffic camera*, 67.3 percent of the entire participants see it as extremely important, 25.4 percent account for its importance. While 6.6 percent see it as fairly important, 0.7 of the participants saw it as not important. For *road lighting*, 65.9 percent of the entire participants see it as extremely important, 26.1 percent account for its importance. While 8.0 percent see it as fairly important, none of the participants ever saw it as important. The choices of adopted factors are consistent with studies (such as Al-Rousan & Umar, 2021; Babic, Fiolic, Babic, & Gates, 2020; Buba & Taiwo, 2021; Juteikiene, Andriejauskas, Lingyte, & Jasiuniene, 2016) regarding road safety compliance.



**Figure 1:** *Physical Risk Control Techniques*

#### 4.2. Friedman's Rank Test

For the Friedman's two-way analysis of variance by rank, the null hypothesis stipulates that K repeated measures or matched groups come from an identical population or populations with the same median (Eisinga, Heskes, Pelzer, & Grotenhuis, 2017). The Friedman's test, under a null hypothesis, presumes that the response variable has an identical underlying continuous distribution. It thus requires at least ordinal measurement of the variable. The data are usually casted in a two-way tabular representation comprising n rows and K columns. While the rows are representation of the individuals/blocks or matched sets of individuals, the column is representing the numerous treatments/conditions.

The data of the tests are ranked ( $R_{ik}$ ,  $i=1, \dots, n$ ;  $k=1, \dots, k$ ) of the conditions by blocks; so,  $1 \leq R$ ;  $k \leq K$ ,  $i=1, \dots$ ). In situation of ties, average ranks are adopted. The underlying presumptions of Friedman's test are (Conover, 1999 as cited in Pereira, Afonso, & Medeiros, 2015):

- i. The n K-variate random variables are mutually independent, i.e., the results within one row do not influence the results within the other rows;
- ii. The observations in each row can be ranked separately according to some criterion of interest.

Friedman's test determines if the rank totals for each of the treatments/conditions conducted are different significantly from the values which could be anticipated by chance (St. Laurent & Turk, 2013).

**Table 4.2: Results of Friedman's Rank Test on Physical Risk Control Techniques towards Road Safety Compliance**

S/N.	Survey Items	Mean Rank	Rank
1.	Traffic Light	3.76	4
2.	Traffic Sign	4.13	1
3.	Pedestrian Crossing	3.32	6
4.	Road Marking	4.02	2
5.	Speed Bumps	3.93	3
6.	Traffic Circle	3.21	7
7.	Traffic Camera	3.07	8
8.	Road Lighting	3.51	5

*Source: Authors' Computations, 2021*

**Tables 4.3: Test Statistics<sup>a</sup>**

N	287
Chi-Square	198.162
Df	7
Asymp. Sig.	.000

**a. Friedman Test**

The results of the Friedman Test indicated that there exists a statistically significant difference in physical risk control techniques influencing motorists' behaviour towards road safety compliance (traffic light, traffic sign, pedestrian crossing, road marking, speed bumps, traffic circle, traffic camera, road lighting,  $X^2(2, n=287) = 198.162, p < 0.05$ ). Thus, taking critical inspection of the mean values showed a descending layer in providers' perceptions from traffic sign (M= 4.13) to road marking (M=4.02) to speed bumps (M=3.93) to traffic light (M=3.76) to road lighting (M=3.21) to pedestrian crossing (M=3.32) to traffic circle (M=3.21), and a further decrease to traffic camera (M =3.07). The importance of these various physical risk control techniques characterising motorists' behaviour were significantly ranked to justify the above explanations.

### **4.3. Discussion of Findings**

This study confirms motorists' perceptions of physical risk control techniques in road safety compliance in Lagos State, Nigeria.

The results showed that traffic sign is ranked first which noted the highest perceived importance attributed by the selected motorists in Lagos State, Nigeria. This result corroborates the study of Tekes et al. (2021) which noted that increase in peoples' understanding of traffic signs will reduce or avoid behavioural disposition that result in road accidents. This result is thus supported by Babic et al. (2020) findings noting that traffic sign provides timely and vital information to drivers concerned with upcoming events in a bid to assist them adjust accordingly. The results further showed that road marking is perceived as important by the motorists in Nigeria; hence it is ranked second. The result is supported by recent studies (such as Babic et al., 2020; Fors & Johansen, 2021; Mosbock & Burhardt, 2016) who noted the significant contribution of road marking in the consideration of road safety. Mosbock & Burhardt (2016) stressed further that an improved road marking in the modern traffic management dimensions will enhance vehicle-to-infrastructure communication among all the road users. The results thus established that speed bumps are critical to road safety compliance among motorists; hence it was ranked third. The result is supported by recent studies (such as Antic, Pesic, Vujanic, & Lipovac, 2013; Kosakowska, 2022; Sudiro & Pondaag, 2021).

The studies of Jateikiene et al. (2016) pinpointed at speed bumps as required determining variable for motorists' behaviours towards road safety compliance. The results further proved that the traffic light is important to road safety among motorists; hence it is ranked fourth. This result is in consonant with recent studies (such as Bridger & King, 2012; Dukiya & Owoeye, 2014; Sobota & Klos, 2016) who affirmed the significant essence of traffic light in road safety compliance by motorists. Dukiya and Owoeye (2014) posited that traffic light is an important road mishap technique in compliance with ensuring safety on the road corridor.

The results affirmed that road lighting is ranked fifth among the road safety compliance measures by motorists in Lagos, Nigeria. The result supported recent studies (such as Bridger & King, 2012; Jakkett & Firth, 2013; Marchant, Hale, & Sadler, 2019) who affirmed this approach as significant variable in the road network; and thus, a radiance that allows motorists to be better calculative with

safety benefits of different cadres of lighting culminating in an enhanced safety ambiance.

The results ranked pedestrian crossing, among the various physical risk control techniques, of road safety compliance measures, as sixth. The result supported studies of Chebanyuk, Prasolenko, Burko Galkin, Lobashov, Shevchenko, Usami, & Persia (2020); Levulyte, Baramyai, Sokolovskij, & Torok (2014); and Pashikevich, & Nowak (2017) who noted that a safe extent for pedestrians, through the pedestrian crossing, will assist lessen the drivers' stress levels in the traffic movement.

The results affirmed that traffic circle is ranked seventh among the physical risk control techniques considered by the respondents for motor insurance. The result is supported by earlier studies (such as Ziolkowski, 2014; Chijioke, & Ekene, 2014; Pratelli, Sechi, & Souleyrette, 2018) who noted effectiveness of selected traffic smoothing techniques in relations to effective roundabouts will enhance safety improvements in terms of types, shapes, and geometry of the junction. Aucamp (2014) noted further that a higher daily of traffic volume triggers an increasingly rate of accidents around traffic circle.

Lastly, traffic camera was taken by the respondents as the eight physical risk control technique in ensuring road safety compliance. The result supported by studies (such as Al-Masaeid, Mujalli, & Al-Hal, 2020; Pineda-Jaramillo, Barrera-Jimenez, & Mesa-Arango, 2022; Rhanizar, & Akkaoni, 2019) who noted instalment of speed cameras as corrective measures that will reduce the probability and severity of road accidents by instilling and recurring safety in the hearts of drivers and other road users. Pineda-Jaramillo et al. (2022) affirmed that an improved understanding of the nexus of collisions between vehicles and pedestrians can efficiently results in sustaining the correct measures to avert possible risk occurrence.

## **5. Conclusion and Recommendations**

Findings from the study have evidently shown the significance of motorists' perceptions of different physical risk control techniques necessary for road safety compliance. It proved further that traffic sign towards road safety compliance is the most important physical risk control measure, followed by road marking, speed bumps, traffic light, road lighting, pedestrian crossing, traffic circle, and traffic cameras. Imperatively, structuring the physical risk control techniques in the most scientific and acceptable manner will attract and endear road safety compliance among motorists. Therefore, embracing the appropriate physical risk control

measures provided for in this study and their ranking will upscale motorists' desires for road safety compliance.

In a bid to support the findings of the above, the study recommended that motorists should ensure high level compliance with the various physical risk control measures in order to endear safety around the road environment. Efforts should be made to ensure that collaborations are encouraged among stakeholders (such as Federal Road Safety Corps, Nigeria Police Force, and other State Transport Authorities) in a bid to see that adequate road safety compliance is sustained.

## **6. Contributions to Knowledge and Suggestions for Future Research**

This study contributes to knowledge in that it sensitises the motorists of the importance of ensuring that physical risk control measures are taken seriously and handled passionately while on the road environments. This study has contributed by developing a ranking for the selected physical risk control techniques that can improve road safety in Lagos State. It further avails the transport authorities the opportunity to come up with road safety regulatory measures which would better enhance safety compliance around road environments among motorists.

Despite the recommendations highlighted above, the study has some limitations. First, the study's findings are viewpoints of motorists in Nigeria; specifically, Lagos State. This is just a sample of the study population, which may affect the generalization of the entire population. This signifies that the generalization of the findings should be made with utmost circumspection. Given this implication, the current study's findings should be replicated in other transportation modes like aviation, maritime and railway within the national setting.

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