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PSYCHOMETRICS, RISK PERCEPTIONS, AND TRAVEL BEHAVIOUR: EMPIRICAL EVIDENCE FROM SELECTED MOTORISTS IN LAGOS STATE, NIGERIA

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ABSTRACT

Perceived risk perceptions and psychometrics of motorists are key instruments in their travel mode. The behavioural dispositions of the traveling motorists are essential to measuring their travel cost, distance and time at any given journey. This study investigated the nexus between psychometrics, risk perception, and travel behaviour of selected motorists in Lagos State, Nigeria. Using the survey approach cum the multiphase sampling techniques which comprised of purposive and convenience, data were gathered through a structured questionnaire from the selected registered motorists. The sample size of two hundred and eighty-nine (289) was estimated. The data analytical techniques employed were descriptive statistics and inferential statistics. The findings revealed positive relationships among psychometrics, risk perceptions, and travel behaviour of selected motorists in Lagos State. The study concluded that motorists' psychometrics and risk perceptions influenced their travel behaviour in Lagos State. The study recommended that traffic regulators should adopt psychometrics assessments in a bid to identify high risk motorists and provide them with specialised training that addresses their specific psychological tendencies. However, government and other transport stakeholders should encourage motorists to collaborate with traffic officers so as to minimise road traffic accidents regularly. This study contributes to literature, knowledge, and theoretical gaps; since it provided more conceptual clarifications, theoretical background and infusion of expert knowledge approach.

Keywords: Psychometrics, Risk Perceptions, Travel Behaviours, Motorists, Nigeria

1. Introduction

Transportation is key to the development stride of mankind. Human elements, in any of the transportation mode, are major stake hence they account for ninety (90) percent of road accidents which may claim lives and destroy properties due to their insensitivity, negligence, and recklessness (Boboye, 2021; Uhegbu & Tight, 2021; Abdul-Azeez & Ajemunigbohun, 2022). However, studies (Such as Bucsuhazy et al, 2020; Lakhan et al., 2020; Luke, 2023). Had affirmed that human elements' insensitivities and recklessness caused, globally, not less than 3.5 million and 50 million persons to death and injuries respectively. This, in itself, has continuously affected the psychometrics, risk perceptions, and travel behaviour of motorists in the road environment.

Motorists' psychometrics toward managing the road environment are in terms of attitude, personalities, knowledge, and driving abilities. This cannot be overemphasized hence they have critical impact on road accident. However, road traffic accidents are major expected outcomes of driving system disorder which can be established in components such as vehicles, road infrastructure, road users, and their interactions (Cabera-Arnau et al., 2020; Touahmia, 2018). Studies (such as Buscuhazy et al., 2020; Cociu et al., 2023; Onyemaechi & Ofoma, 2017) had noted human errors as major road accident influencer which cause injuries, physical bodily damages, death, and destruction of all kinds. Human errors, then, have effects on the driving performance of motorists based on their risk perception of the road environment. The perceived risk value of the motorists is influenced by overconfidence, inexperience, poor attitudinal disposition, low level intelligence quotient etc (Chen et al., 2023; Oppong, 2022). All these risk factor indicators affect the travel behaviour of the motorists.

Travel behavior is defined as the allocation of resources to activity participation and travel among places where these activities happen, it is more appropriate to understand travel behavior as the all-encompassing combinations of activity participation and movement from one place to another (Dewi, 2021). Travel characteristics are dependent on factor that influences the travel. There are many factors including environment, infrastructure, time, cost and others. Among the factors that influences travel characteristics are location, land users and

distance (Joseph et al., 2018; Wei et al., 2018).

Although, it is believed that roads can be better built and motor vehicles enhanced to endure mistakes, but road risks can never be erased. Much attention might have been given to a more conducive environment for road transport to succeed, but redirecting motorists' focus at controlling their psychometrics and developing risk high level risk perception maintaining remain a huge challenge (Deme, 2019). Therefore, educating motor users on the various psychometric techniques, risk perceptions metrics, and travel behaviour metrics are imperative to protect against road accidents and ensuring proper road safety compliance. Earlier and recent studies (such as Joseph et al., 2018; Uzondu, 2019, Cabera-Arnau, et al., 2020) had revealed many motorists' psychometric metrics in terms of their personalities, abilities, experiences and attitudes and that of their risk perceptions regarding dread, trust, and vulnerability. All these measures are techniques suitable for mitigating against unpleasant travel behaviour from motorists such as feasible road crashes. To this end, there seems to be a limited number of studies conducted to address the effects of the psychometrics, and risk perceptions techniques influencing motorists' travel behvaiour in Lagos, Nigeria. This study, therefore, necessitate the need to carry out this study to reflect the possible relationship of motorists' psychometrics, risk perceptions, and travel behaviour in Lagos state, Nigeria.

The main aim of this study is to examine the effect of psychometrics and risk perceptions on the travel behaviour of selected motorists in Lagos State, Nigeria. The specific objectives are to ascertain the significant influence of psychometrics on the travel behaviour of selected motorists in Lagos, Nigeria; examine the relationship between risk perceptions and travel behaviour of selected motorists in Lagos, Nigeria; and evaluate the joint effects of psychometrics and risk perceptions on the travel behaviour of selected motorists in Lagos, Nigeria. This study is structured with the inclusion of introduction, literature review, methodology, results, discussion, and recommendations

2. Literature Review

2.1. Conceptual Review

2.1.1 Driving Psychometrics and Motorists' Behaviours

Psychometric is the approximation of latent psychological processes by means of

stochastic analysis at both the individual and population levels. It is thus noted as the scientific discipline concerned with the construction of assessment tools measurement instruments, and formalised models that may serve to connect observable constructs (that is, reaction to items in IQ-Tests) to theoretical attributes (i.e., intelligence). Drivers' attitudes, drivers' mental and cognitive abilities influence their driving dispositions, which invariably has effect on road accidents. Previous studies (such as Przepiorka et al., 2020; Tavallaii et al., 2015) have demonstrated that different drivers' behaviours such as cognitive errors and deliberate violations of traffic rules could predict and discriminate drivers with high rate of accidents. One of the major psychological factors that could contribute to road traffic accidents is anxiety (Alavi et al, 2017). Previous studies (such as Alharbi et al., 2019; Kovacevic et al., 2020; Rewal et al., 2024) have shown that individual motorists with higher levels of anxiety are more prone to engage in road accidents, and anxious style in driving is related with low consciousness and higher level of neuroticism. Rewal et al. (2024) noted that while existed an increasing trend of mental illness and road traffic accidents (RTA), neuro-psychiatric sequel to RTA added to the death rate.

2.1.2 Risk Perception and Motorists' Travel Behaviour

Risk perception can be explained as a subjective evaluation of a threat situation based upon its characteristics and severity (Slovic, 1987 as cited in Wang et al., 2024). Risk perceptions vary with personal characteristics, social structure and cultural beliefs (Neuburger & Egger, 2021). Perceived travel risk is seen as the probability that ban action may expose an individual person to danger that can influence travel decisions if the perceived danger is considered to be beyond an acceptable level (Mandina, & Preez, 2022).

However, perceived risks in travel, whether generally or specifically to the desirable destination are highly correlated with the mindsets to modify travel behaviours, such as averting specific destination or altering the transport mode as desired (Chen et al., 2022; Kong et al., 2022). Additionally, when perceived risks are considered likely or severely, self-protection becomes imperative, prompting actions leading to trip revocation or travel mode alteration. In this wise, perceived risks may influence noy only the

choice of travel destination but thus the transport modality (Parady et al., 2020; Rahimi et al., 2021).

2.2 Theoretical Review

2.2.1 Psychological Safety Climate (PSC) Theory

The psychological safety climate (PSC) theory creates a valuable knowledge into how the psychosocial environment affects driving behaviours. Safety, and overall road safety outcomes. This theory was developed by Dr. Michael Dollard and his colleague Dr. Andrew J.B.H. Bakker (Zadow et al., 2023). This theory emphasises the influence of societal factors on individual motorists' behaviours and mental wellness, which can be extended to fathom how driving environments impact motorists (Fattori et al., 2022). This theory (.i.e., PSC theory) applies to motorists with regards to the impact of road safety policies. This happens when effective road safety policies can be a reflection of a strong PSC. These policies help prioritise mental health awareness and address stressors affecting drivers contributing to a safer driving environment (Amoadu et al., 2023). PSC theory, according to Silla and Gamero (2018), creates cultural attitude and norms that influence driving and road safety among motorists. With culture, openness in discussion regarding mental health is most often achieved, and thus, promote safer driving behaviours.

PSC theory creates psychosocial factors influencing driving behaviour including stress, anxiety, and fatigue, which have huge impact on driving safety and performance. However, enlightenment programmes concerning handling fatigue or any sign of stress can assist motorists in sustaining focus and making safer decisions (Amoadu et al., 2024; Disassa & Kebu, 2019). With PSC theory, effective communication is made essential among motorists. Public awareness campaigns, uninterrupted traffic laws, and enlightenment regarding the essence of mental wellbeing with compliance to safety practices. Conclusively, PSC theory help motorists by creating framework for fathoming how psychosocial factors influence driving behaviour and sustain road safety.

2.3. Empirical Review

Wang et al. (2024) evaluated the influence of perceived risk on travel mode choice during coiv-19 focusing on public transport in China. The study adopted a hybrid choice model structure, which incorporated a multiple discrete-continuous extreme value

model. The study employed a risk perception that visually explicate which risk elements felt unfamiliar and uncontrollable to travellers. The model outcome revealed that increase perceived risk seems to curtail travellers' adoption of public transport and therefore, increase the usage of shared bikes and private cars. Further findings indicate that as travellers show significant heterogeneity, governments should focus at designing targeted intervention strategies to motivate various travellers to return to public transport when pondering risk communication.

Kemmerer et al. (2023) investigated the nexus between risk perception and transport mode during the temporary closure of a major inner-city road bridge in Germany. The study adopted both binary and multinomial regression model. With the adoption of survey design from 679 respondents, findings revealed that 22 percent of motor users switched to alternatives. It further indicated that the higher the perceived health risk from traffic-related air pollution, the more likely motor users switched to alternatives. It was discovered that attitude, perceived behavioural control, and subjective norms were closely connected with sustaining but not with switching transport modes. The study affirmed that to explicate mode choice, risk perception is a possible extension to the theory of planned behaviour.

Mandina and Du Preez (2022) examined travellers' risk perceptions and their intentions to visit African destinations during Covid-19 in both South Africa and Zimbabwe. The study adopted a quantitative approach using online survey, with data gathered from 250 past visitors in the two designated countries. This study is exploratory in nature. The study employed exploratory factor analysis and moderated multiple regression in the data analysis. The findings indicate that even if visitors hold positive brand perceptions, risk perceptions weakened the nexus between specific dimensions of brand image. The study affirmed that risk perceptions are country specific and stipulated the relevance of effectual brand awareness and competitive destination to cushion the effects of perceived risk.

Rahimi et al. (2021) investigated perceived risk of using shared mobility services during the Covid-19 pandemic. The study explained substantially major factors towards individuals' behaviour changes to be personal risk perceptions adopting shared

mobility solutions. The study designed and implemented a multidimensional travel-behaviour survey in the metropolitan area of Chicago; eliciting socio-demographic information cum retrospective questions related to dispositions and travel behaviour during and before the pandemic era. The study gave a better account of the possible nexus between unobserved factors using bivariate ordered probit modeling approach. The study found a huge range of factors to be influential on the perceived risk using shared mobility services, including built environment settings, socio-demographic features, and the virus spread.

Parady et al. (2020) assessed travel behaviour changes during covid-19 pandemic in Japan, with critical analyses of the effect of risk perception and social influence on going-out self-restriction. This study focused attention on modeling behavioural changes of four core non-work-related activities, namely (i) eating out; (ii) grocery shopping; (iii) leisure; and (iv) other type of shopping. Upon the basis of observed distributions of activities, the regression model of going-out probability was calculated for shopping, while the eating-out and leisure showed very small probabilities. The findings revealed that as a measure of social influence, there existed a small proportion of extent of self-restriction in shopping probabilities. The findings further suggested that soft measure as awareness creation would advance a reduction of vital travel which might be more effective if they (i) relate threat severity posed by covid-19 to coping techniques adopted; and (ii) group appeal rather than personal one creates more emphases on the behaviours of others.

3. Methodology

This study utilised a cross-sectional survey design using quantitative methods to gain a deeper understanding of the important choices made by selected motorists in metropolitan Lagos regarding the nexus between their psychometrics, risk perceptions and travel behaviours. This strategy facilitated the mapping and execution of the study in order to obtain specified results and establish a connection with real-world situations (Creswell & Creswell, 2018; Grey, 2017). The study included a population of 897,982 motorists who were registered by the Motor Vehicle Administration Agency in Lagos State as of 2022 (Motor Vehicle Administration Agency (MVAA, 2022). Lagos state was selected as the study location due to its high

concentration of motorists in Nigeria (Fowode et al., 2023)

The selected data gathering instrument for this study was a structured questionnaire, which is a primary source method. The survey technique was chosen for its suitability to the research design, cost and time efficiency, ability to represent a large sample, ease of administration, and generalizability to similar topics (Kothari & Garg, 2016). The study employed a multi-phase sampling technique comprising quota sampling and convenience sampling techniques. For quota sampling, the respondents were selected proportionately from the 52 existing licensing stations of the MVAA based on the number of motorists registered at each station in 2022. The respondents were comprised of both private and commercial vehicle owners. In a quest to collect additional information, convenience sampling technique was adopted at all licensing stations based on the availability and readiness of the respondents to complete the research instrument; as carried out by the researcher. Since the target population comprised of all registered motor users in Lagos metropolis, the total sample size for the study was statistically determined by Taro Yamane's (1967) formula given as:

$$n = \frac{N}{1+Ne^2}$$

$$n = \frac{897{,}982}{1 + 897{,}982\ \ (0.05)^2} = 399$$

The sample size for the study was 289 having distributed copies of 399 questionnaire giving a response rate of 72 percent

The study examined tests of validity, including theoretical, content, internal, and external validity. In addition, test-retest reliability was employed to assess the consistency of results by administering the study's tests or measures to the subjects or participants on two separate occasions (Fallon, 2016). In addition, the reliability test was carried out using a Cronbach alpha value that above the normal threshold of 0.7 for assessing the impact of road safety measures on motorists' behaviours in Lagos city. These results were consistent with the statistical assumptions regarding the scale's validity and the importance of internal consistency. The alpha values obtained were consistent with the statistical inferences regarding the scale's statistical validity (Leavy, 2017).

4. Results and Discussions

4.1. Analytical Descriptions of Participants Opinions

Table 1:
Participants' Bio-Data Information

Variable	Response Label	Frequency	Percentages (%)
Gender	Male	193	66.8
	Female	96	33.2
Age	18 but less than 30	35	12.1
	30 but less than 40	95	32.9
	40 but less than 50	51	17.6
	50 but less than 60	85	29.4
	60 & above	23	8.0
Marital Status	Single	61	21.1
	Married	213	73.7
	Separated	07	2.4
	Widow	08	2.8
Educational Qualifications	SSCE/GCE/OND	90	31.2
	HND/BSC	151	52.2
	Postgraduate Certificate	13	4.5
	Professional Certificate	16	5.5
	Others	19	6.6

Source: *field survey (2024)*

The data presented in Table 1 provides insights into various demographic variables. These statistics offer a sight into the configuration of the surveyed population, allowing for valuable observations and implications. The gender distribution reveals it is highly skewed towards males, constituting 66.8 percent of the sample compared to 33.2 percent of females. This gender disparity might influence perspectives on various aspects, potentially affecting responses and attitudes towards the survey's subject matter. Regarding age demographics, the data illustrates high percentages with regard to those aged 30 but less than 40 years and 50 years but less than 60 years with 32.9 percent and 29.4 percent respectively. It was followed by those aged 40 but less than 50 amounted to 17.6 percent while 12.1 percent and 8 percent were accounted for those aged 18 but less than 30 years and 60 years and above. The responses from the participants are indications of the maturity encompassing their opinions regarding the subject matter. Marital status revealed a high-level maturity displayed with respect to the participants opinions which recorded 73.7 percent to have been married. While 21.2 was recorded for those single, 2.8 percent and 2.4 percent were both recorded for those widows and separated. Educational qualifications showcase a notable distribution, with the majority (52.2 percent) holding a BSc/HND. This high percentage suggests a well-

educated sample population, potentially indicating a higher level of expertise among respondents.

Table 2: Participants' Bio-Data Information

Variable	Response Label	Frequency	Percentages (%)
Type of vehicle you use	Urban bus	55	19
	Intercity bus	09	3.1
	Company vehicle	70	24.3
	Long haul vehicle	23	8.0
	Private vehicle	128	44.3
	Others	04	1.4
Transportation Modalities	Passengers	71	24.6
	Cargoes	25	8.7
	Private	189	65.3
	Others	04	1.4
Risks associated with Vehicles on Lagos road	Not at all	26	9.0
	Rarely	25	8.7
	Often times	206	71.3
	Frequently	32	11.1
Perceived risks on Lagos road	Very low	00	0
	Low	00	0
	Average	142	49.1
	High	58	20.1
	Very high	89	30.8

Source: *field survey (2024)*

In Table 2, the types of vehicles used by motorists were classified into urban buses (19 percent), intercity buses (3.1 percent), company vehicles (24.3 percent), long haul vehicles (8 percent), private vehicles (44.3 percent), and other vehicles (1.4 percent). For transportation modalities adopted by motorists, passengers' carrying vehicle accounted for 24.6 percent. While cargoes carrying vehicles recorded at 8.7 percent, both private carrying vehicles and others were recorded at both 65.3 percent and 1.4 percent respectively. With the level of risks associated with vehicles on Lagos road, it was recorded oftentimes at 71.3 percent. For risks perceived on Lagos road, it was recorded to be on the average.

4.2. Descriptive Analysis of Research Variables

Table 3: Psychometrics Results

Variables	Scale Level					Mean	Std Dev.
	SD	D	U	A	SA		
	1	2	3	4	5		
I display satisfactory attitude, as a motorist, to ensure road safety compliance (attitude)	17.0	4.2	3.5	42.2	33.1	3.71	1.407
My personality as a patient driver makes me remain calm in traffic (personality)	0.0	0.0	0.0	49.1	50.9	4.51	.501
My knowledge of the Lagos Road environment is important for me to maintain safety compliance (knowledge)	0.0	0.0	0.0	41.5	58.5	4.58	.494
I drive within my driving ability for me to maintain road safety (driving ability)	0.0	0.0	0.0	33.6	66.4	4.66	.473

Source: Researcher's Computations, 2024

In Table 3, survey items projecting the psychometrics include attitude, personality, knowledge, and driving ability. The responses from the participants that participated in their study showcased that majority, in references to attitude (75.3%), personality (100%), knowledge (100%), and driving ability (100%) all agreed. For contrasting view, the followings were noticed for the survey items attitude (21.2%), personality (0%), knowledge (0%), and driving ability (0%). For participants views depicting their indecision, the followings were recorded – attitude (3.5%), personality (0%), knowledge (0%), and driving ability (0%). The mean scores and that of standard deviation agreed with the results. The outcomes imply that psychometric metrics plainly indicate the identical decisions regarding all subject areas in the distribution.

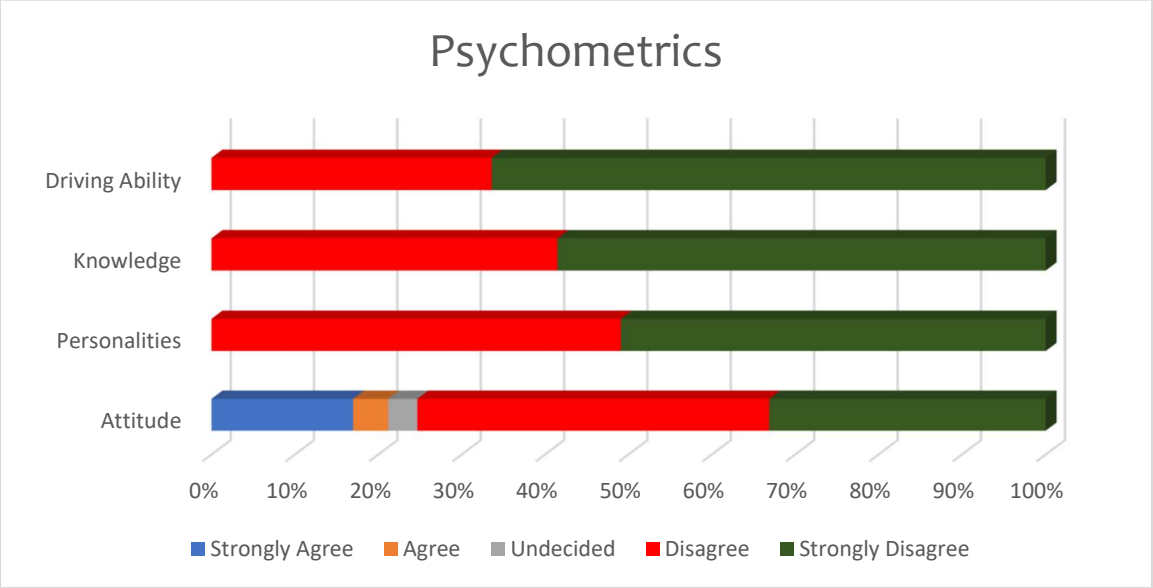


Figure 1: The graphical model explains the psychometrics among selected motorists in Lagos State

Table 4: Risk Perception Metrics Results

Variables	Scale Level					Mean	Std Dev.
	SD	D	U	A	SA		
	1	2	3	4	5		
I usually developed fear when driving on the Lagos Road due to the unpredictable risky conditions (fear)	14.5	14.9	0.0	38.4	32.2	3.59	1.436
I do not completely trust the safety of vehicle movement on Lagos Road because of the road risk (trust)	9.6	6.6	2.1	38.1	43.6	3.99	1.264
Most drivers, on the Lagos Roads, are exposed to high level vulnerabilities (vulnerabilities)	0.0	1.4	1.0	39.8	57.8	4.54	.595
The structural design of Lagos Roads has not given drivers choices over their usage (choice)	0.0	6.9	2.8	29.1	61.2	4.45	.849

Source: Researcher's Computations, 2024

In Table 4, survey items projecting the risk perception metrics include fear, trust, vulnerabilities, and choices. The responses from the participants that participated in their study showcased that majority, in references to fear (70.6%), trust (81.7%), vulnerabilities (97.6%), and choices (90.3%) all agreed. For contrasting view, the followings were noticed for the survey items fear (29.4%), trust (16.3%), vulnerabilities (1.4%), and choices (6.9%). For participants views depicting their indecision, the followings were recorded – fear (0%), trust (2.1%), vulnerabilities (1.0%), and choices (2.8%). The mean scores

and that of standard deviation agreed with the results. The outcomes imply that risk perception metrics plainly indicate the identical decisions regarding all subject areas in the distribution.

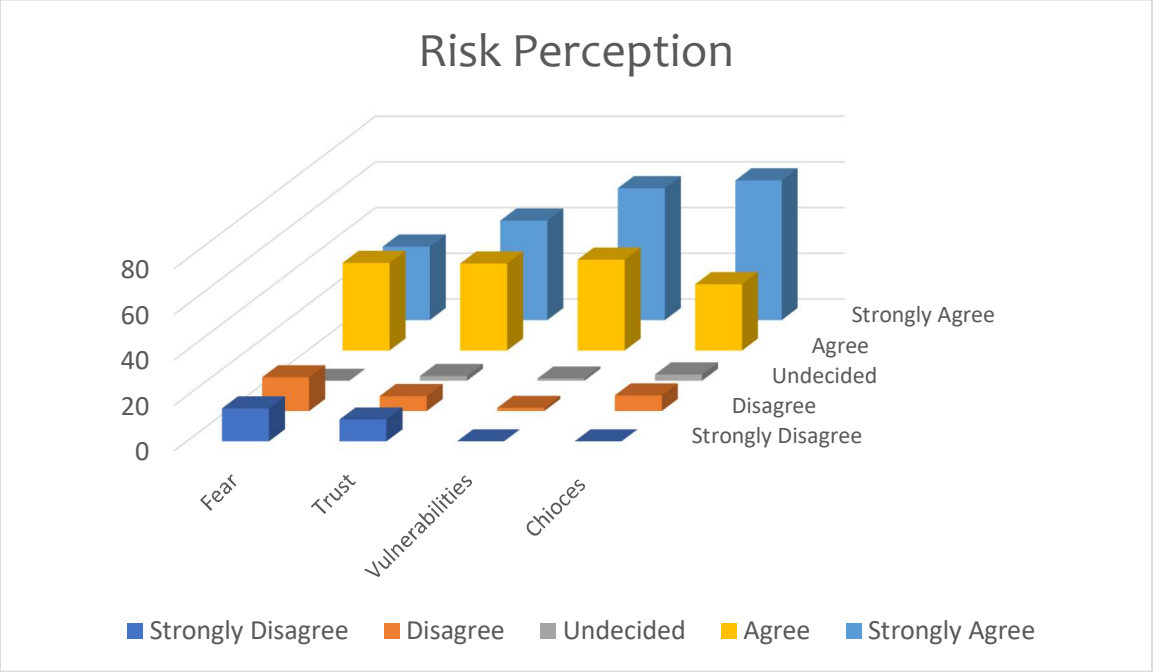


Figure 2: The graphical model explains the risk perception metrics among selected motorists in Lagos State

Table 5: Travel Behaviour Metrics Results

Variables	Scale Level					Mean	Std Dev.
	SD	D	U	A	SA		
	1	2	3	4	5		
More travel time are spent on Lagos roads due to the level of traffic congestion (travel time)	0.0	0.0	0.0	52.6	47.4	4.47	.500
The cost of traveling from one location to the other on Lagos roads is high due to bad road design (travel costs)	1.0	5.5	0.0	43.7	49.8	4.36	.830
Travel modes, on the Lagos Roads, have given road users the opportunity to access many locations within shortest possible time (travel modes)	10.7	12.5	2.1	34.2	40.5	3.81	1.364
The quality of transport services design, on the Lagos Roads, have given road users ease of traveling (travel quality)	13.5	13.1	3.1	29.1	41.2	3.71	1.452
Travel distance, on the Lagos Road, has given road users opportunity to regularly meet up with their desired expectations (travel distance)	14.2	12.5	1.4	24.3	47.6	3.78	1.494

Source: Researcher's Computations, 2024

In Table 5, survey items projecting the risk perception metrics include travel time, travel costs, travel modes, travel quality, and travel distances. The responses from the participants that participated in their study showcased that majority, in references to travel time (100%), travel costs (93.5%), travel modes (97.6%), travel quality (70.3%). and travel distances (71.9%) all agreed. For contrasting view, the followings were noticed for the survey items travel time (0%), travel costs (6.5%), travel modes (23.2%), travel quality (26.6%). and travel distances (26.7%). For participants views depicting their indecision, the followings were recorded – travel time (0%), travel costs (0%), travel modes (2.1%), travel quality (3.1%). and travel distances (1.4%). The mean scores and that of standard deviation agreed with the results. The outcomes imply that travel behaviour metrics plainly indicate the identical decisions regarding all subject areas in the distribution.

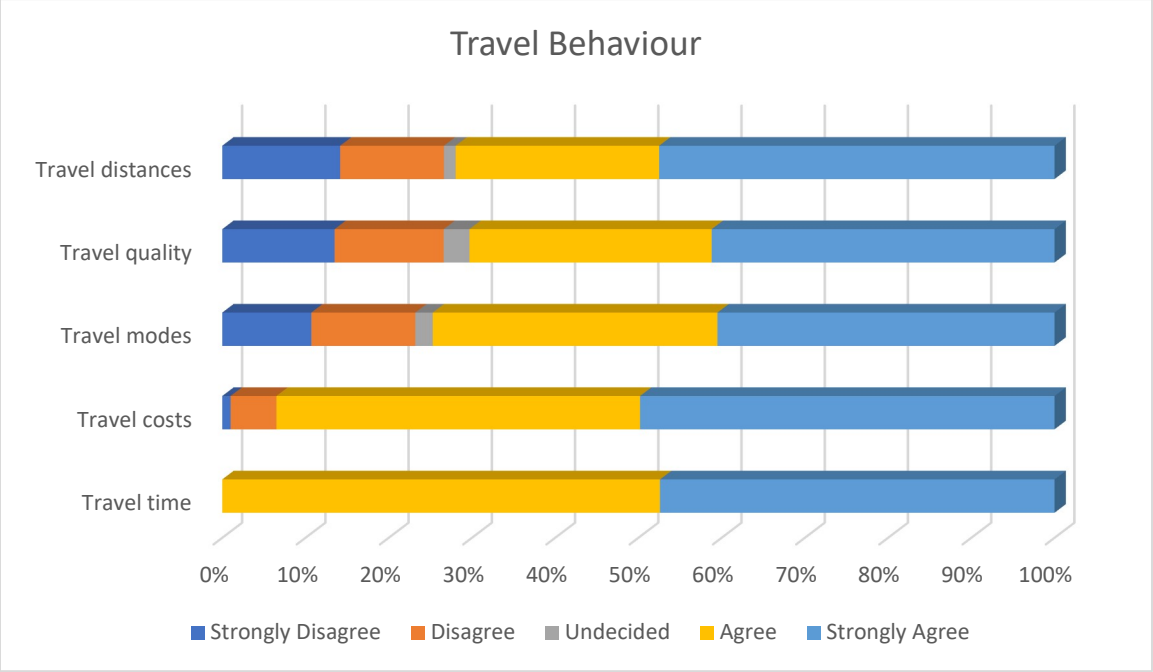


Figure 3: The graphical model explains the travel behaviour metrics among selected motorists in Lagos State

4.3 Test of Hypotheses

Ho_1: Psychometrics have no significant effect on travel behaviours among selected motorists in Lagos State

Table 6: Simple Regression Results for Psychometrics vs Travel Behaviour

Table 6. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	. 151[a]	.023	.019	3.693	.023	6.685	1	286	.010

a. Predictors: (Constant), Psychometrics
b. Dependent Variable: Travel Behaviours

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	91.153	1	91.153	6.685	.010[b]
	Residual	3899.833	286	13.636		
	Total	3990.986	287			

a. Dependent Variable: Travel Behaviours
c. Predictors: (Constant), Psychometrics

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	25.155	1.955		12.868	.000	21.307	29.002
	Psychometrics	-.287	.111	-.151	-2.586	.010	-.506	-.069

a. Dependent Variable: Travel Behaviours

Source: *Researchers' Computations, 2024*

From the Table 6 results of the regression analysis presented above, it is clear that there is positive relationship between psychometrics and motorists' travel behaviour. The model also shows the variations experienced by the dependent variable that could be explained by the independent variable (R square) which shows that psychometrics is responsible for about 2.3 percent of variance in travel behaviour. This means that 97.7 percent of the travel behaviour enjoyed among motorists in Lagos State comes from other factors other than the predictor used in this model (psychometrics). The generalisation of the results (Adjusted R square) indicates that true 1.9 percent of the variation in motorists' travel behaviour is explained by psychometrics (attitude,

personality, knowledge, and driving ability*)*. This result is almost close to reality as the difference between R Square and Adjusted R Square is not high. The standard error fit, which is a measure of the precision of the model, shows how wrong the statistical outcomes could be at 4 percent if one uses this model to make real life predictions. The above result is statistically significant as seen in the ANOVA table (p-value = 0.010) as it is greater than the 0.05 confidence interval used in this study. A value greater than 1 show that F-ratio yield an efficient model but 6.685 F-ratio indicates that this model is not very efficient.

Ho2: Risk perception have no significant effect on travel behaviours among selected motorists in Lagos State

Table 7: Simple Regression Results for Risk Perceptions vs Travel Behaviour

Table 7. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	. 584[a]	.341	.338	3.033	.341	147.733	1	286	.000

d. Predictors: (Constant), Risk Perceptions
e. Dependent Variable: Travel Behaviours

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1359.360	1	1359.360	147.733	.000[b]
	Residual	2631.626	286	9.201		
	Total	3990.986	287			

a. Dependent Variable: Travel Behaviours
f. Predictors: (Constant), Risk Perceptions

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	8.461	977		8.663	.000	6.538	10.383
	Risk Perceptions	.705	.058	.584	12.155	.000	.590	.819

a. Dependent Variable: Travel Behaviours

Source: *Researchers' Computations, 2024*

From the Table 7 results of the regression analysis presented above, it is clear that there is positive relationship between risk perceptions and motorists' travel behaviour. The model also shows the variations experienced by the dependent variable that

could be explained by the independent variable (R square) which shows that risk perception is responsible for about 34.1 percent of variance in travel behaviour. This means that 65.9 percent of the travel behaviour enjoyed among motorists in Lagos State comes from other factors other than the predictor used in this model (risk perceptions). The generalisation of the results (Adjusted R square) indicates that true 33.8 percent of the variation in motorists' travel behaviours is explained by risk perceptions (fear, trust, vulnerabilities, and choices*).* This result is almost close to reality as the difference between R Square and Adjusted R Square is not high. The standard error fit, which is a measure of the precision of the model, shows how wrong the statistical outcomes could be at 3 percent if one uses this model to make real life predictions. The above result is statistically significant as seen in the ANOVA table (p-value = 0.000) as it is greater than the 0.05 confidence interval used in this study. A value greater than 1 show that F-ratio yield an efficient model but 147.733 F-ratio indicates that this model is not very efficient.

Ho3: Psychometrics and risk perception have no combined effects on travel behaviours among selected motorists in Lagos State.

Table 8: Simple Regression Results for Psychometrics and Risk Perceptions vs Travel Behaviour

Table 8. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	. 590[a]	.349	.344	3.020	.349	76.266	1	285	.000

g. Predictors: (Constant), Psychometrics, Risk Perceptions
h. Dependent Variable: Travel Behaviours

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1391.333	1	695.667	76.266	.000[b]
	Residual	2599.653	285	9.122		
	Total	3990.986	287			

a. Dependent Variable: Travel Behaviours
i. Predictors: (Constant), Psychometrics, Risk Perceptions

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound

1	(Constant)	11.644	1.959		5.945	.000	7.789	15.500
	Psychometric	-.171	.091	-.090	-1.872	.062	-.351	.009
	Risk Perceptions	.693	.058	.574	11.939	.000	.579	.807
a. Dependent Variable: Travel Behaviours								
Source: *Researcher's Computation, 2024*								

From the Table 8 results of the regression analysis presented above, it is clear that there is positive relationship between psychometrics, risk perceptions and motorists' travel behaviour. The model also shows the variations experienced by the dependent variable that could be explained by the independent variable (R square) which shows that the combined effect of psychometrics and risk perception are responsible for about 34.9 percent of variance in travel behaviour. This means that 65.9 percent of the travel behaviour enjoyed among motorists in Lagos State comes from other factors other than the predictor used in this model (psychometrics and risk perceptions). The generalisation of the results (Adjusted R square) indicates that true 34.4 percent of the variation in motorists' travel behaviours is explained by psychometrics and risk perceptions (attitude, personality, knowledge, and driving ability, fear, trust, vulnerabilities, and choices*).* This result is almost close to reality as the difference between R Square and Adjusted R Square is not high. The standard error fit, which is a measure of the precision of the model, shows how wrong the statistical outcomes could be at 3 percent if one uses this model to make real life predictions. The above result is statistically significant as seen in the ANOVA table (p-value = 0.000) as it is greater than the 0.05 confidence interval used in this study. A value greater than 1 show that F-ratio yield an efficient model but 76.266 F-ratio indicates that this model is not very efficient.

5. Conclusion and Recommendations

Findings from the study have affirmed the significant influence of psychometrics on the travel behaviour of selected motorists in Lagos, Nigeria. Further findings revealed the opinions of the selected participants where the relationship between risk perceptions and travel behaviour of selected motorists in Lagos, Nigeria was founded. The study thus established the joint effects of psychometrics and risk perceptions on the travel behaviour of selected motorists in Lagos, Nigeria. Conclusively, motorists are advised to observe these psychometrics and risk

perception metrics that possible influence their travel behaviours in and out of Lagos, Nigeria; in order to sustain rightful capacities in the world of transport.

On recommendations, traffic regulators are advised to adopt psychometrics assessments in a bid to identify high risk motorists and provide them with specialised training that addresses their specific psychological tendencies. Government, on her own part, should incentivise safe driving by rewarding motorists who exhibit safe driving behaviours, as identified through regular psychometric evaluations, which could include public recognition, reduced insurance premium, or other benefits. However, motorists should be encouraged to collaborate with traffic officers so as to minimise road traffic accidents regularly. Interdisciplinary research should be encouraged among psychologists, policymakers, transport planners, and law enforcement in order to develop state-of-the-art strategies for road safety improvement.

5.1 Contribution to Knowledge and Future Directions

This study contributes to literature, knowledge, and theoretical gaps; since it provided more conceptual clarifications, theoretical background and infusion of expert knowledge approach. As suggestions, future studies should delve strongly into the causal relationships between psychometrics, risk perceptions, and motorists risk attitude in a bid to provide necessary insights.

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