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SERVICES FOR SCIENCE AND EDUCATION

Exploring Differences in Attitudes of Nigerians Drivers Towards Road Safety Across Gender and Age

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ABSTRACT

The study present results from the partial adaptation of the Driver Attitude Questionnaire (DAQ) to examine road safety perceptions of a sample of Nigerian drivers. A total of 500 participants were sampled and completed self-reported questionnaires for the study, and drawn from local motor parks, workplaces, universities, and other gatherings within the urban areas of the cities of Calabar and Lagos. Findings from the study showed that, overall, across gender and age groups, non-use of Seatbelt, drink driving, speeding and mobile-phone usage were unacceptable behaviours. However, women were statistically more unaccepting to drink-driving and non-compliance of seatbelt wearing while driving than men. Also, younger drivers were more likely to report using mobile phones while driving than older drivers. The results of this study offer some practical suggestions in the development road safety interventions in Nigeria.

Keywords: Road safety, attitude, Behaviour, Crashes, Driver

INTRODUCTION

Every year approximately 1.35 million (equivalent to 3700 deaths every day) people die from road traffic crashes (RTC) globally. In addition, an extra 50 million people are injured from RTC globally (WHO, 2022). While the number of road traffic deaths is either reducing or plateauing in High-Income countries because of various countermeasures put in place, it continues to be spiking in Low and Middle-income countries (LMICs) (WHO, 2015, WHO, 2018). The WHO reports that 90% of global road traffic deaths occur in LMICs, even though they have only 54% of the world's vehicles (WHO, 2015). According to Bishai et al. (2008), the fatality rates in LMICs are estimated to increase by 80% from the year 1990 to 2020 if no effective countermeasures are implemented.

The African region, which is the least motorised region of the world and possessing only 2% of the world's vehicles has the highest rate of road traffic fatalities of 26.6 deaths per 100,000 population. This is against the global average of 18.2 death per 100,000 population (WHO, 2018).

Road traffic fatalities have been named as the second leading cause of violent death in Nigeria after deaths from the Boko Haram crisis in the North east of the country (Ukoji, 2014). Data from the Federal Road Safety Corps (FRSC) shows that in 2016 over 5,000 people died from road crashes according to. However, according to the latest WHO global status statistical

modelling, this figure is likely to be much higher, with deaths estimated to 39,802 or fatality rate of 21.4 per 100,000 population in 2016 (WHO, 2018). Despite the health and economic impacts of road traffic crashes in Nigeria, there continues to be limited empirical research on the underlying factors that precede road traffic crashes.

The increase in road traffic crashes in Nigeria has been attributed to the interaction of various factors, such as driver factor, road geometry, vehicle design and environmental conditions (Atubi, 2012). The "driver factor" alone is estimated to account for up to 90% of the crashes in Nigeria (Ukoji, 2014; Ogwueleka & Ogwueleka, 2012). It is commonly acknowledged that the biggest contributor to road traffic crashes is human error and violations of traffic laws (Cauzard, 2004). These errors and violations according to Hung (2018) tend to appear when certain attitudes are kept. The widely used definition by Eagly & Chaiken (1993) describes attitudes as a "*psychological tendency that is expressed by evaluating a particular entity with some degree of favour or disfavour, ordinarily expressed in cognitive, affective and behavioural responses*". Hence, attitudes can be described as an assessment to a concept, such as traffic safety. Extensive research has shown that attitude towards traffic safety is a significant predictor of drivers' behaviours and have been identified to indirectly affect traffic crash involvement (Parker et al., 1992; Iversen & Rundnmo, 2004; Nordfjærn et al., 2011). Negative attitudes have been frequently attributed as a cause of bad behaviour in traffic, and it is suggested that a likely change in attitude will result in great improvement in road user behaviour and road safety (Musselwhite et al., 2010). For example, Iversen & Rundmo (2004), found out that the negative attitudes held by some Norwegian drivers towards traffic safety were associated with their involvement in risky behaviour, especially attitudes concerning rule violations, speeding and reckless driving.

Also, some demographic characteristics have been reported by researchers to relate to the tendency to be involved in road traffic crashes. These studies have shown that variables such as age, gender, and socioeconomic status are influencers of driver behaviours and attitudes (Iversen & Rundmo, 2004; Nordfjærn et al., 2010; Cordellieri et al., 2016). For example, Iversen & Rundmo (2004) and Nordfjaern et al. (2010), both found that young and particularly male Norwegian drivers indicated more negative attitudes towards road safety than others and were more likely than others to perform risky driving behaviour. Cordellieri et al. (2016), in a cross-country comparison, found that male young drivers are more prone to accept speeding, traffic violations and drugs and alcohol use by the driver. However, Batool & Carsten (2016), argue that the effects of variables on driving behaviour varies across different part of the world. Thus, it is imperative to understand the attitudes of a particular population towards road safety in other to develop effective interventions.

One measurement tool which has received increased attention in the identification of driving attitudes of motorist is the Driver Attitude Questionnaire (DAQ) (Parker et al., 1996). The DAQ focusses on measuring driver's attitude towards four common traffic violations; drink-driving, close following, dangerous overtaking, and speeding.

Past studies have applied the DAQ in different context and settings such as; attitudes of taxi drivers towards road safety attitudes of taxi drivers (Rowland et al., 2007; Hung, 2018),

examination driver attitudes in fleet settings (Wishart et al., 2006; Davey et al., 2006), and evaluation of road safety interventions (Anderson & Summala, 2004; Burgess & Webley, 2000). These studies all found the DAQ constructs to be a reliable measurement tool of driver's attitudes towards drink-driving, close following, dangerous overtaking, and speeding. These studies also showed the link between driver attitudes and driver behaviour and suggested that demographic variables can have influence on driver attitudes.

Despite the extensive research done in this area of road safety, there continues to be limited studies in developing nations. The lack of such research can be linked to the difficulty in the design and implementation of behavioural modification interventions.

However, despite the attention given to the DAQ, it is worth noting that most studies using the DAQ to investigate driver attitude-behaviour relationships were carried out in high-income countries with relatively very little research on its utility in developing nations. This put the cross-cultural applicability of the DAQ in low-income countries in doubt. Studies by Lund & Rundmo (2009) and Nordfjærn et al. (2011) have both revealed that models that predict road traffic behaviour in high-income countries were most times poorly fitted in low-income countries. The authors argue that driver factor interventions such as attitudes change campaigns which are successful in high-income countries do not always have the same effect on drivers in low- and middle-income countries. Thus, there is need for low-income countries to tailor their own interventions based on understanding of the attitudes of their driving population rather than just importing high-income countries interventions. This study is therefore motivated by the lack of research in the investigation of driver's attitudes towards road safety using a comprehensive theory or tool in Nigeria, thus calls for a research gap of the study, with implications for road safety intervention and campaigns. The study seeks to use a modified version of the Driver Attitude Questionnaire (DAQ) to measure attitudes of drivers regarding four scales, namely attitude towards speeding, attitude towards drink-driving, attitude towards seat-belt use, and attitude towards mobile phone use. Attitude towards close-following and dangerous overtaking were not measured because, this scales even though are traffic offences are rarely ever enforced in Nigeria. Also, the study seeks to examine the demographic characteristics that are associated with driver attitudes towards road safety.

Thus, it is hypothesised that:

1) There are differences in acceptance of the driving behaviours between males and females,
2) There are differences in acceptance of the driving behaviours across the different age groups.

METHODOLOGY

Participants

A total of 500 respondents (303 male, 197 female) volunteered to participate in the study. 85% of them being within the age range of 18-35. 58% of the participants reported having a valid driving licence, and on average had held their licence for over 6.5 years (range of 1-35 years). Participants on average drove between 1 – 5 times weekly with 40.6% driving every day, however, 16. 4% reported never driving before. A large proportion (91%) reported driving

between 1000-5000kms per year. 95% of the participants reported driving private vehicles with 5% driving work-related vehicles.

Design

A modified version of the DAQ was used in the current study. This was distributed in paper form to the participants.

Table 1: Likert Scale Items to measure attitudes towards Speeding, Seat Belt wearing, Drinking Driving and Mobile phone usage.

Likert Scale Items (5-point scale)	
Speeding Behaviour	
S1	I would be happier if speed limits were more strictly enforced.
S2	Speeding is one of the main causes of road crashes and fatalities in Nigeria.
S3	It is okay to drive faster than the speed limit as long as you drive carefully.
S4	I know exactly how fast I can drive and still drive safely
S5	I think stricter enforcement of speed limits by the Federal Road Safety Corps would be effective in reducing the occurrence of road crashes
Seat Belt Wearing	
SBW1	Wearing a seatbelt reduces the risk of death and injuries in a road traffic crash?
SBW2	Wearing seatbelt when driving carefully is not necessary
SBW3	Wearing seatbelts every time I drive is unpleasant
SBW4	Driving without a seat belt does not necessarily increase accident risk
SBW5	I would be happier if seatbelt wearing regulations were more strictly applied by the police and
Drink Driving	
DD1	I would not dream of driving when I am under the influence of Alcohol
DD2	I would never ride with someone I knew has been drinking alcohol
DD3	Drink-driving is very dangerous and is a major cause of road traffic crashes
DD4	The application of random breath testing on highways will reduce road traffic accident
DD5	I can drive safely when slightly under the influence of alcohol
Mobile Phone Usage	
MP1	Using mobile phones while driving might be a source of distraction to the driver.
MP2	I think it is okay to use mobile phones while driving on less busy roads.
MP3	It is okay to receive calls when driving if you are careful
MP4	I would be happier if regulations regarding use of mobile phones were more strictly applied.
MP5	It is acceptable to receive phone calls from only family members while driving

Procedure

The questionnaire was piloted on 25 drivers in Calabar for reliability evaluation using Cronbach's alpha coefficient (α). All construct of the questionnaire passed the reliability test with Cronbach's alpha of over 0.7, which according to Nunally & Bernstein (1994) should be above 0.70 to reliably measure a construct. Questionnaire were randomly distributed to the public in the cities of Lagos (largest and most populated city in Nigeria) and Calabar in Southern Nigeria. This was done by asking pedestrians and motorist (from local car parks, workplaces, universities, and other gatherings within both cities) if they were willing to participate in a

study concerned road safety. Questionnaires were completed in-situ and returned to research assistants.

Measures

Demographic Measures:

Questions on several social-demographic variables were included in the questionnaire for participants to report their gender, age, mileage, driving history (license ownership, years of experience), weekly exposure (driving hours, type of car) and their occupation. However, for the purpose of this paper only that of gender and age were used for the analysis.

Driving Behaviour Measures:

An adapted Parker et al. (1996) DAQ was used to measure participant's attitudes towards four aberrant driving behaviour. The original DAQ is a self-report questionnaire designed to measure attitudes relating to the driving behaviours of speeding, drink-driving, close-following and dangerous overtaking. For this study, questions relating to close-following and dangerous driving were omitted and replaced with seat belt and mobile phone related questions. In addition, the authors of this paper made some minor-rewording modifications to make the questionnaire more representative of the Nigerian driving conditions. Example, references to stricter enforcement on "30mph (48km/h) roads" was removed and replaced with "on all road" as crashes are prevalent on all road types in Nigeria. The questionnaire used in this study consisted of a 20-item scale that contains four subdimensions: Speeding, Drink-driving, Seat-belt wearing and mobile phone usage while driving. Each behaviour was measured with 5 items (See table 1). Example, *Speeding* ("it's okay to drive faster than the speed limit as long as you drive carefully"), Drink driving ("drink-driving is very dangerous and is a major cause of road traffic crashes"), Seat belt usage ("wearing seat-belt when driving carefully is not necessary"), and Mobile phone usage ("it's okay to receive calls when driving, as long as you careful"). Items were measured on a 5-point Likert scale with endpoints of *strongly disagree* (1) and *strongly agree* (5). All negatively scaled items of the questionnaire were re-versed coded.

Analysis and Data

The data was analysed in SPSS software. Driving measures; speed, alcohol, belt, phone, where within subject's factor. There were different between subjects' factors (gender and age). Correlation analyses were created to see whether those who did not accept one type of behaviour did not accept the others as well.

RESULTS

Table 2. Alpha Reliabilities, Means and Standard deviations between constructs (n= 418)

Constructs	Items	Cronbach's alpha coefficient (α)	Mean	SD
Speeding	5	.58	3.60	.62
Drink-driving	5	.65	3.75	.67
Seat-belt use	5	.60	3.78	.67
Mobile phone use	5	.53	3.55	.93

Note: A high mean value indicates a more appropriate attitude towards the road safety constructs.

Cronbach's alpha reliability coefficients were utilised to calculate the internal consistency of

the scales, which are presented in Table 2. Examination of the scores showed the Drink-driving construct had the highest reliability score of .65, while mobile phone use had the lowest reliability of .53. Overall, the scales had moderate level of internal consistency and like past studies (Rowland et al., 2009 and Wishart et al., 2006).

Descriptive statistics as shown in Table 2 indicate that participants in this study were most likely to report that non use of Seatbelt was generally an unacceptable driving behaviour (M=3.78). This was closely followed by drink-driving. In contrast, respondents were least likely to report mobile phone use as an unacceptable driving behaviour (M=3.55).

Table 3: Spearman correlation between variables

		1	2	3	4	5	6	7	8	9	10	11	12
1	Speeding	1	.23**	.31**	.22**	.08	.08	-.06	-.09	.02	.07	.05	.13**
2	Drink-Driving		1	.30**	.26**	.22**	-.2	-.13	.03	-.03	.09	-.01	.04
3	Seat-belt use			1	.28**	.05	.00	-.05	-.07	.03	-.00	.03	.07
4	Mobile phone use				1	.03	.07	-.01	-.03	.03	.01	.01	-.02
5	Gender					1	-.08	-.14**	.05	-.04	.07	-.07	-.04
6	Age						1	.43**	-.35**	.67**	-.26**	.11*	.28**

Note: ** Correlation is significant at $p < 0.01$
* Correlation is significant at $p < 0.05$

Table 3 shows bi-variate correlations between the study constructs. Results show that there exist a positive and significant relationships between all four-driving behaviour. The strongest relationship appeared to be between speeding and seat-belt use ($r=.31$, $p = 0.01$). Participants in this study who reported speeding as an unacceptable driving behaviour, were more likely to report not-using seatbelt an unacceptable behaviour. Regarding participant's demographics, one notable relationship was found. Gender and drink-driving ($r= .22$, $p = 0.01$).

Table 4: Differences in acceptance towards different driving behaviour across gender.

Driving Behaviour	Males (n = 294)		Females (n = 197)	
	Mean	SD	Mean	SD
Speeding	3.65	.561	3.83	.610
Drink-driving	3.56	.577	3.63*	.630
Seat-belt use	2.97*	.500	3.11*	.501
Mobile phone use	2.57	.581	2.68.	.640

Significant at $p < .05$.

Table 5: Differences in acceptance towards different driving behaviour across Ages.

Driving Behaviour	18-24 (n =254)		25-35 (n = 162)		36-59 (n = 66)		60+ (n= 9)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Speeding	3.59	.632	3.66	.542	3.69	.476	3.63	.581
Drink-driving	3.56	.606	3.59	.595	3.70	.58	3.60	.624
Seat-belt use	3.03	.501	3.09	.526	3.03	.472	3.15	.433
Mobile phone use	2.59*	.63	2.86	.665	3.65	.554	3.81	.640

Significant at $p < .05$.

To address the study hypotheses, differences in the acceptance of driving behaviour between gender and across different age groups were tested. A one-way ANOVA showed that the female drivers were significantly less prone to accept deviant driving behaviours of drink-driving ($F(2,489) = 8.183$, $p = .004$), and seatbelt use ($F(2,489) = 8.183$, $p = .0197$). Female drivers were more likely to report a higher level of unacceptance to drink-driving and non-use of seatbelt than male drivers ($F(2,489) = 8.183$, $p = .004$). However, there was no statistically significant difference between the females and male drivers with respect to speeding and mobile phone usage. Thus, hypothesis one was only partially supported.

Regarding hypothesis two, the results showed a significant difference between drivers of different ages with respect to phone usage. Drivers of the age range 18-25 years were found to be more likely to accept use of mobile phone during driving when compared to other age ranges ($F(3,487) = 3.483$, $p = .016$). There were no statistically significant differences across the age groups for speeding, drink-driving, and seatbelt use.

DISCUSSIONS

The main aim of this study is to investigate the attitudes of Nigerian drivers towards some driving behaviours. More particularly, the study explored the differences in driving behaviours across gender and age. The most interesting results regarding gender differences relates to the evidence that both men and women are unaccepting of speeding, drink-driving, mobile phone use and non-compliance with seatbelt. However, women were statistically more unaccepting to drink-driving and none-use of seatbelt while driving. This finding showed that the main difference is in terms of emotions; indeed, women appear more worried than men with respect to risk perception from drink driving and not wearing seatbelt while driving. According to Slovic (1987), women rate hazards as riskier than do men. Also, past studies have shown that males have more risky driving behaviour than females due to biological and cultural reasons (The Social Issues Research, 2004).

The high acceptance of mobile usage during driving by younger drivers aged 18-24 might be due to youthful exuberance and moderating the risks of injuries or even death from road traffic crashes. Past studies have demonstrated that young drivers are frequently involved in higher proportion of risk behaviours and traffic crashes than other age groups (Bjorn, 2000).

CONCLUSIONS

This study aimed to explore differences in attitudes of drivers towards road safety across gender and age a in a population of drivers in Nigeria. Overall, the study found that across gender and age groups, non-use of Seatbelt, drink driving, speeding and mobile-phone usage were unacceptable behaviours. However, women were statistically more unaccepting for drink-driving and none-use of seatbelt while driving than men. Also, younger drivers were more likely to report using mobile phones while driving than older drivers. The results of this study offer some practical suggestions in the development road safety interventions in Nigeria.

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