

Attitude of Motorists towards Road Ethics: Empirical Study

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Abstract— Road traffic safety among socioeconomic issues has become the major concern across the globe due to rise in road crashes attributed largely to human factor. This study tends to address attitudinal behavior of road users towards road ethics in Ilorin metropolis-Nigeria; covering both driver and motorcyclists and perception of motorists on road traffic enforcement agent. Questionnaire was employed as survey tools. Ordered logistic model were used to analyse the data on attitude of motorists and road traffic laws enforcement agents. About 87% of the 440 administered questionnaire were returned valid. A 3-model analysis was carried out and the findings showed that the attitude of the motorists, road traffic law enforcement agents and demographical index (gender, age and education) correlated with, and influence compliance with road traffic laws.

Keyword: Road safety ethics, attitude & behavior, ABC-model, ordered logistic model.

I. INTRODUCTION

Deaths and injury emanating from road accidents is treated as global phenomenon. It has become a major public health concern in both developed and developing countries, as they constitute a major cause of fatalities globally. There is generally increasing incidence of morbidity and mortality resulting from road traffic accidents [36]. Aside the irreplaceable lives lost, road crashes possess social and economic consequences. Every year an estimated 1.2 million people are killed and up to 50 million are injured or disabled on the world's roads, while an average of 3,500 persons die every day globally from road traffic injuries [43 & 10]. Over 90percent of the death occur in low-income and middle-income countries, which have only 48percent of the total world's vehicle [41]. This implies that less motorized region (third world) experience the highest road victim. The global cost of road traffic accidents (RTAs) is estimated to be US\$ 518 billion per year [36]. Nigeria loses about 80 billion naira annually to road accidents of all subjects that are involved in road traffic accidents [34]. About 29.1 percent suffer disability and 13.5 percent are unable to return to work [24 & 8]. This phenomenon has engineered safety mechanism from World Health Organization and governmental agencies across the globe [27]. The safe system approach to road safety has been successful in a number of countries and has been adopted into the United Nations Plan for the Decade of Action for Road Safety 2011-2020 [26 & 43]. Most importantly, some of these safety mechanism are tailored towards tackling factors that increases vulnerability to road crashes; especially human factors like attitude towards compliance to use of seatbelt, crash helmet, speed limit, drinking-drive habit e.t.c [32].

The safe system approaches are incorporated into different countries traffic ethics based on countries' safety culture. Road safety culture are mechanism put in place to curb road crashes and casualties, promoting norm safety behaviors and bringing more attention to safety issues [12 & 25]. Virtually, all the road safety culture encompass society's values, beliefs, perception and attitudes towards road safety [12 & 27]. As earlier mention, road safety culture differs in context and it is relative among countries, shaped by the nature of policy stringiness. Therefore, procedure for changing or adopting road safety culture takes into account distinct peculiarities of the society such as socio-economic status, demographic structure, culture, traffic environment, and the law of the land [35]. For instance, compliance to societal and road traffic laws are very low in some developing countries, partly attributed to poor leadership lifestyle in all spheres of humanity, safety education and low value attached to life [7 & 23]. The habit of violating traffic codes by the political office holders or law enforcement agents epitomizes the highest level of low compliance with road traffic laws in Nigeria and other part of developing world. Parents in the car with their children, in an attempt to

catch up with appointment, often violate the traffic rule. Consequently, increases the likelihood of the children becoming deviant to traffic and societal rules [34]. Therefore, social hierarchy, leadership and adult delinquency often times affect average Nigerian's attitudes and behaviors towards road ethics and societal norms.

¹However, Studies have forecasted globe's death and injuries profile overtime. By year 2020 as a cause of death, road crashes will move up to sixth place, while road traffic injuries (RTIs) are predicted to be ranked third among leading cause of global burden of disease (43 & 8). Also, by 2020, in low-income and middle-income countries deaths from RTIs are expected to increase by as much as 80%, and decline by almost 30% in high-income countries. The projected rise is approximately 2 per 10,000 persons in developing countries, while it will fall to less than 1 per 10,000 in high-income countries [27]. The above projection shows that developing world will experience high level of mortality and morbidity comes 2020. Several factors have been attributed as the lead cause of road crashes worldwide, though some of these factors are unique to continents and countries.

These factors are generally viewed from the three conventional sub-headings; human, environmental and vehicular factors. Human factors, such as citizens' attitudes and behaviour and road safety culture have long been the leading factor of road crashes in the world (7 & 36). Road users' attitude among other human factors has recently taken the forefront of the cause of road crashes in Nigeria [33]. Studies have pointed at irrational and impatient attitude of drivers, cyclists and pedestrian when using the road. Federal road safety commission came on board in 1988 saddles with responsibility to regulate and enforce compliance to road ethic. However, annual report of the body overtimes shows that flagrant violation of road traffic ethic is very rampant on Nigerian roads, and has taken the lead cause of road crashes [40].

Attitudes have been revealed to be significant predictors of drivers' behavior in high-income countries and have also been identified to indirectly affect involvement in traffic accidents [20 & 29]. The monetary value of resource and time wasted during and post crashes is a huge concern, most pathetic as right attitude could have averted some of this bad occurrences. Quite a good number of families had been subjected to abject penury as they lost the household head to death and many cases to life injuries. About 1-2 % of GDP is proxy as the lost to road crashes in developing countries [7 & 42]. Despite the fact that every average road user understood the safety benefit of strict adherence to road ethic and the pending danger of illicit attitudes and irrational behavior [27, 30 & 37], why are road users often than none flagrantly violate road traffic laws? And what factor (s) actually influence the attitude of road users towards road ethics? Answers to these questions are the cardinal focus of this study. Therefore, ensuring compliance to road code requires adequate understanding of the attitude and behavior of road users towards road traffic safety.

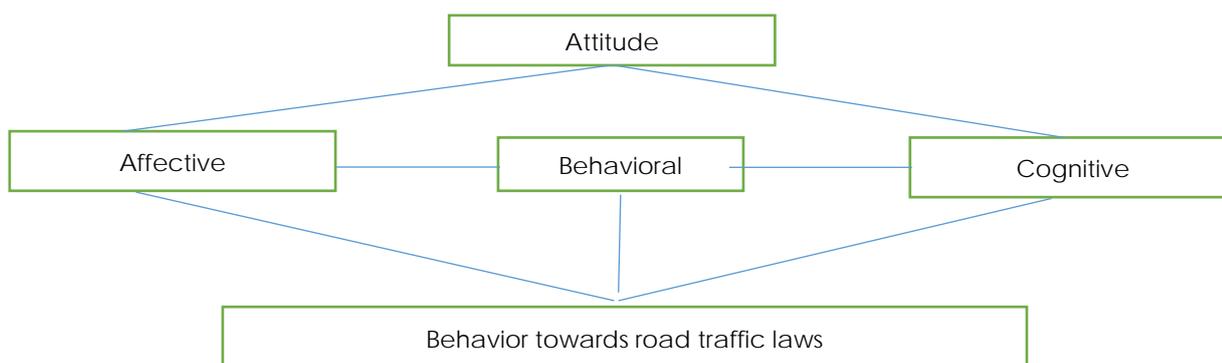
II. LITERATURE AND THEORETICAL REVIEW

A. Conceptual Framework

Road ethics are rules structured to regulate the attitudes and interactions among road users as to ensure road safety. Attitudes are disposition or reaction towards a system. The attitude of road users significantly affect road safety. According to ABC model [9] attitude consists of three concept; affective, behavioral and cognitive. Fig. 1 depicts the synergy that exists between motorists' attitude and road traffic laws, affective is the emotional reaction that one or group of road users develops towards an attitudinal characters of other or group of road users. For instance, in Ilorin metropolis-Nigeria, average drivers are skeptical of motorcyclist on how they maneuver when overtaking vehicles at the traffic scenes. Behavioral is the way one or group of drivers response or behaves when they interact with every motorcyclists. Average driver consciously close up space to avoid overtaking as to protect their side mirror and vehicle from been dented. Cognitive; it is the thought and belief of average driver about motorcyclist, invariably, average driver sees every motorcyclists as being dangerous. This study uses affective, behavioral and cognitive link among motorists to determine the behavior towards road traffic laws [11].

¹ As at 2011 road crashes was ranked 10th and 5th as the lead cause of death and global burden of diseases respectively (WHO, 2011). Expansion of global motorization couple with prevalent of human error account for the WHO's projection of road crashes and burden of disease to 6th and 3rd respectively by 2020.

Fig. 1 The conceptual framework that provide link between attitude and behavior towards road traffic laws.



²B. Literature Review

Nigeria population estimated at 167 million and ranked as the 7th populated country in the world, has a total land area and road length of 910771 and 194000 (comprising 34120 km federal, 30500 Km, State and 129580 km of local roads) square kilometres respectively [16]. Its large land mass justified its high level of vehicular population estimated at over 7.6 million [40]. Socioeconomic and other physical activities in Nigeria largely depend on road transportation due to underdevelopment and high cost of rail system and air transportation respectively [33]. This accounts for why Nigerian road is highly hazardous and is ranked consistently as one of the worst road network globally [7 & 32]. Between 2013 and 2015 there were 79875 cases of road crashes in Nigeria; with 29494, 25427 and 24954 occurring in 2013, 2014 and 2015 respectively. Fatal cases of 13021, 11665 and 11507 were recorded in the 3 consecutive years respectively. At the state level, Ogun, Lagos, Kano and FCT were ranked first, second, third and fourth respectively in term of road crashes; invariably, 15011 persons were killed while 34856 injured [16]. The trauma resulting from the high incidence of traffic crashes in Nigeria has been a contributing factor to rise in mortality and morbidity. It has equally posed huge challenge to communities and authorities in terms of reducing the health, social, and economic burden and cost [43].

Attitude of motorists towards road ethics, risk perception and behavior are found to be related to road traffic safety [14]. Many theories had brought to limelight the attitude and risk perception of motorist towards road ethics. Various studies conducted in high income countries actually led credence to the Theory of Planned Behavior [20; 13 & 38]. The theory places much emphasis on driving behavior of motorist, such as the use of seat belt and child restraint device as relating factor to road safety [13 & 17]. Other behavioral components were also highlighted by previous studies: such as drunk-driving habit [11 & 6], status and compliance to pedestrian road crossing [29], speed limit adherent [14] and aggressive driving [28]. Studies also indicated personality variables as important explanatory to involvement in risky driving behavior [39]. Likewise, risk perception as personality trait were also found to influence driving behavior [39]. Reference [30] showed Age, gender and peer group as other personality characteristics that significantly influence road traffic safety.

At every road crash one of the fundamental argument that emanate between the victims and often time among the eyes-witnesses is who takes the blame of the ugly scenario. Therefore a central question for anyone interested in ethical aspects of traffic safety is, who is responsible for traffic accidents? Reference [41] showed that safety is affected by the actions and omissions of individual motorists and carefree attitude of pedestrian as well as by decisions made on road infrastructure by government. Technically, the choices and priorities made by engineers and designers in the vehicle industry clearly have consequences on the level of safety in the system and hence, the number of dead and injured people [37]. The attitude of road traffic and law enforcement agencies overtime and their disposition to work is quite disheartened to the general public, as they fondly compromise with traffic offenders on the platform of bribe. This implies that some environmental and mechanical factors raised as influential to road traffic safety could be traceable to error of omission or commission by human factor. But that does not exonerate other factors [16 & 21].

² ABC-model consists of three components: Affective is the emotional reaction one shown towards an attitudinal objects. Behavioral is the way one response to attitudinal object, while cognitive is the belief formed towards attitudinal object. This present study applied these components to establish link between motorists' (drivers and motorcyclists) attitude and compliance with road traffic laws

Quite a number of studies that investigated the behavioral attitude-traffic safety relationships using the Theory of Planned Behavior to survey high income countries yielded positive result, but its cross-cultural applicability in low income countries has produced mixed result (See 20; 30 & 39). This has questioned the universality of some of these findings since continents, regions and countries have their respective unique behavioral attitude-safety relationship. For instance, [25] showed that attitudes towards road traffic safety were significant explanatory of road traffic behaviors in Norway but contradict the outcomes in Ghana. Also, [30] indicated that risk concepts and attitudes to driving explained a significant proportion of behavior variance in Norway, Russia and India but the model was poorly fitted in the low-income Sub-Saharan Africa countries of Ghana, Tanzania and Uganda. Likewise, in year 2000 the Norwegian parliament Vision Zero road safety policy was formulated following the success of the policy in Sweden. The aim of the policy is to ensure safety traffic system that will result to zero loss of live or permanent injury [28]. Whereas in this present era, injuries and fatalities had been justified as the cost of mobility. This led credence to the fact that road traffic safety policy adopted by country is contingent on the safety culture and belief system.

Reference [30] found that gender and age have significant influence on differences in driver attitudes and behavior in both rural and urban areas. Males and young adolescents were seen to have less favorable attitudes towards driving safety, less sensitivity to risk and underestimate the probability and severity of risks. Similar work by [15], showed that age and gender differences in overtaking maneuvers are significant to explain frequency and time duration of overtaking, overtaking speed and critical overtaking gaps. In Malaysia, [37] found that driving confidence was associated with driving competence and gender.

The reviewed studies showed similarity with respect to demographical determinants of drivers' attitude towards road traffic safety (see 2, 20 & 38). However, there are more to demographic index in explaining road users' attitude within the context of road ethic. More so, driver is just one of the road users, and social strata background and hierarchy are very conspicuous factors that tend to shape attitude and behavior among road users. For instance in Nigeria, the disposition of academicians on the road is expected to be quite humor than illiterate commercial motorist who fall within the age 20-35 years. Therefore, it will be too myopic and biased to draw general conclusion on the applicability of the findings that emanated from high income countries, nor rate some factors above others. Also, the variance among social classes will produce bias result if all the classes of road users are not viewed separately. It is very imperative to understand how these road users from different socioeconomic background interact and react towards road ethics [2]. Though similar work had been done in Nigeria but limited to motorcyclists and socioeconomic index as explanatory variables [7]. Of which none of these studies looked into attitude and other road users, hence, this study tends to fill this vacuum.

C. Theoretical framework

Theoretically, this study is rooted on ABC-model by [4 & 9]. The components of ABC-model of attitude consists of Affective, behavioral and cognitive. It is a popular theoretical framework for modelling and explaining attitude and reaction to attitudinal object. The concept of attitude is a subset of the Theory of Planned Behavior (TPB) by [4], which encapsulates three dimension (attitude, subjective norms and perceived behavioral control). This study equally included Subjective norms as controlled variable to test for the value judgment of the motorists about the road traffic laws (RTLs) enforcement agents. Apart from extending its tentacles to other road users as a development over previous studies that were limited to drivers [See 11; 37 & 38], it equally examined the attitude of RTLs enforcement agent. Reference [11 & 13] viewed habit from driving while [7 & 33] viewed it from motorcyclists but this present study covers both as road users.

III. METHOD AND MATERIALS

A. Data and Participants

The components of ABC-model consists of Affective, behavioral and cognitive. As an improvement over previous studies on attitude towards traffic laws, this study chose both the drivers and motorcyclist. It becomes imperative because they form bulk of the motorists that are involved in major road fatalities in Nigeria. Sample were drawn from taxi and bus terminals, commercial motorcycle park, offices, worship centres, university of Ilorin and other traffic generating areas within the Ilorin Metropolis. Well-structured questionnaire was used to source data from both drivers and motorcyclists in Ilorin metropolis, Nigeria, as 220 questionnaires were administered each on both motorized users, giving a total of 440. About 83% and 92% were returned valid by drivers and motorcyclists respectively.

B. Instrument and Procedure

Driving Attitudes Scale (DAS) by [20] was adopted to measure the attitudes of motorists and road traffic enforcement agents toward traffic laws with respect to over speeding, careless driving and violation of traffic. This scale is currently one of the most widely used scales for assessing self-reported driving behaviors. All items covering affective, behavioral and cognitive components of attitude were answered on point response scales to explain the attitude of drivers, motorcyclists and road traffic enforcement agents towards road traffic laws: Six items covering certain motorists' (driver and motorcycle) behavior like driving violation and errors were, answered on five-point response scale ranging from "Never (0) to Nearly all the time (4), with high scores indicating negative response towards traffic safety; Four items covering certain police attitudes were answered on four-point response scales ranging from "strongly disagree" (1) to "strongly agree" (4), with high scores indicating a positive attitude toward traffic safety; Seven items covering certain subjective norms were answered on four-point response scales ranging from "No threat" (1) to "very serious threat" (4), with high scores indicating a negative attitude toward traffic safety. Also, the level of compliance to road traffic law was answered on five-point response scale, ranging from "very low (1) to very high (5) with high scores indicating a positive response towards traffic safety. Descriptive analytical and ordered logit model estimation were employed to analyse the data.

IV. EMPIRICAL FINDINGS

A. Socio-demographical findings

Obviously, irrespective of the safety and preventive mechanism put in place zero-vehicle crashes cannot be attained, rather injuries and severity can be minimized by simple protective ways such as using seat belts by car users, safety helmet by cyclists, adhere to pedestrian path and compliance with general road traffic laws. Previous studies adjured human, mechanical and environmental factors as the cause of road traffic accidents (RTAs), while human error and negligence are ranked the lead cause [36]. The objective of this study is to examine the attitudes of motorists towards road traffic laws in Ilorin-Nigeria. Correlations were calculated between attitudes and road traffic laws. Over 89% and 11% of the drivers were males and females respectively, with age 35-44 (31%) and above 64 (6.7%) being the most and least represented respectively. While all the sampled motorcyclists were all males, with about 73.2% in age 25-34. About 49% and 5% of the drivers were commercial drivers and students of higher institutions respectively, while 37% were civil servant, mostly staffs of university of Ilorin, and 47% completed higher education learning. About 96% of the motorcyclists were commercial, with only 48% completed college. About 53.2% of the sampled drivers own the vehicle they drive, 14.6% drive family car, and 28.2% rent car which is common among commercial driver who cannot afford car. While 79% of the commercial motorcyclist own personal motorcycle, the rest rent as means of livelihood.

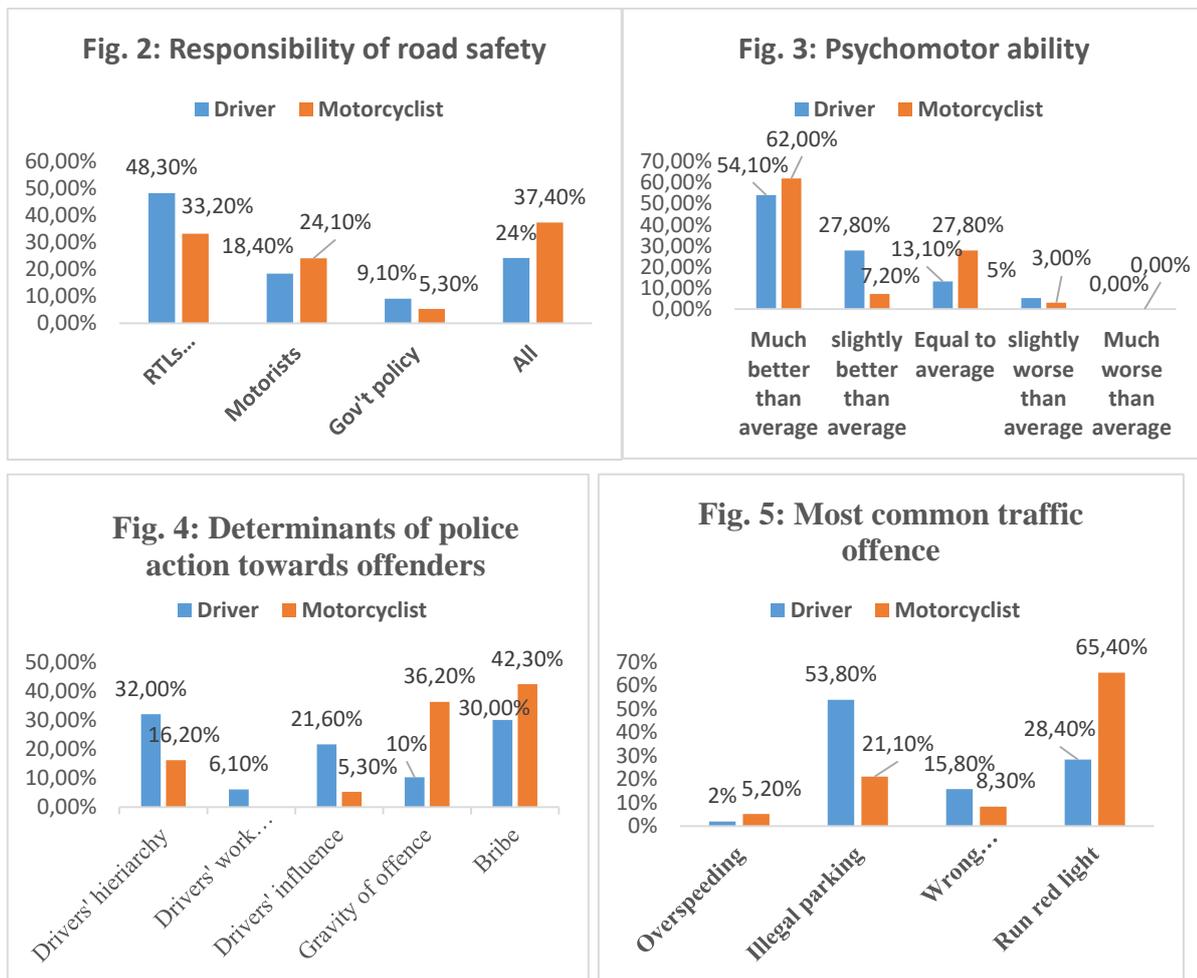
Table1: Socioeconomic Characteristics of Respondents

Variables	Driver (Percent)	Motorcyclist (Percent)
Gender	Male= 89; Female= 11	Male=100
Age	25-34=21.1; 35-44=31; 45-54=23.2; 55-64=18; Above 64=6.7	25-34=73.2; 35-44=16.1; 45-54=8.2;55-64=2.5
Educational attainment	No formal= 9.6 Primary=12 Secondary school= 31.2;Tertiary= 47.2	No formal= 15.2 Primary=37 Secondary school= 48.2
Occupation	Commercial driver= 49.7 Civil Servant= 37.1; Student=5.2; Other informal sector worker= 8	Commercial motorcyclist= 86.2 Informal sector worker= 8.7 Civil servant= 5.1
Driving Experience	< 5years= 49.4 5-10years= 35.6 >10years=15	< 1year= 4.4; 1-5years= 65.6 >5years=30
Ownership of vehicle	Personal=53.2 Family=14.6 Rent= 28.2 Others= 4	Personal=78.8; Rent= 21.2

B. Safety findings

Fig 2-7 depict the safety attitude of the participants. When participants were asked of whose responsibility is the road safety (see fig.2), 57.4% and 38.5% of the drives and motorcyclists respectively

believed that government and the RTLs enforcement agents have the onus responsibility of road safety, 24% and 37.4% of the drivers and motorcyclists viewed it as collective effort. On the psychomotor ability (see fig.3), 81.9% and 69.2% of the driver and motorcyclists respectively rate themselves above other motorists, only 5% and 3% respectively rate themselves below average. On fig.4, about 89.7% and 63.8% of the drivers and motorcyclists respectively believed that RTLs enforcement are bias and take bribe when discharging their duty. The most common traffic offences among the participants (see fig.5) are illegal parking among drivers (53.8%) and run red light among motorcyclists (65.4%). On the ground of use of safety devices (see fig.6), only 33.7% and 13.5% of the drivers and motorcyclist respectively actually use safety devices (seatbelt and helmet) on the ground of safety, while rest use it to avoid been punished. Only 53.2% and 67.3% of the drivers and motorcyclist ideally allowed other motorists to overtake rightly without inciting words or stylishly obstruct them (see fig.7).



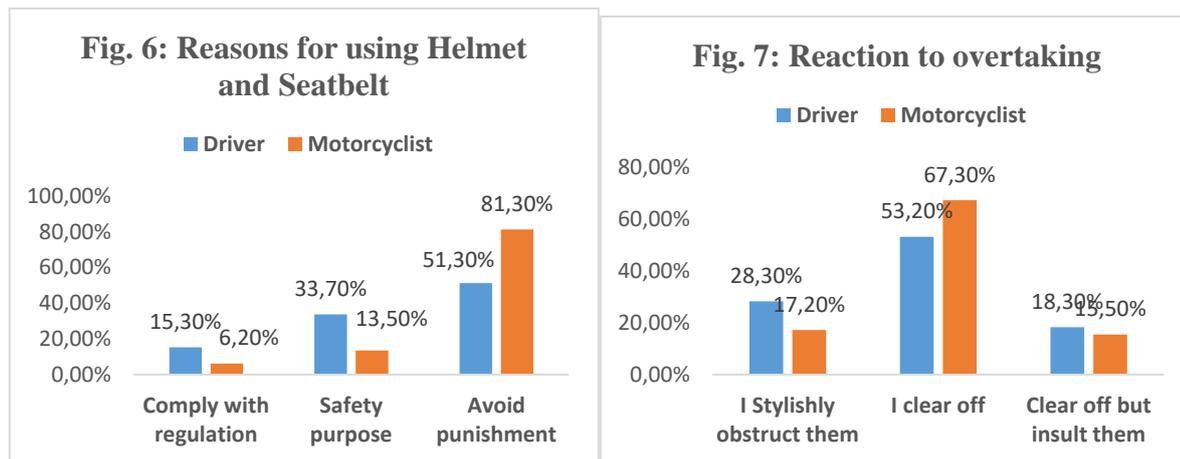


Fig 2-7: Safety Attitudes of the Respondents

Table 2: Observed variables and items

Variables	Question	Scoring
Motorcyclist Attitude	--While riding I talk on mobile phone --While riding I use ear phone --I speed well above (10km/h or more) the speed limit --While riding I use Crash Helmet --I do try to outsmart traffic lights --I consider the safety of other road users while riding	0= Never 4= Nearly all the time
Drivers' attitude	--While driving I talk on mobile phone. --While driving I send and read text messages. --I speed well above (10km/h or more) the speed limit. --While driving I do not use seatbelt. --I try to race traffic lights. --I do not consider the safety of other road users while driving	0= Never 4= Nearly all the time
Police Attitude	Motorist --Only those that have no influence get punished Motorist --Traffic laws do not apply to people in authority. Motorist --Police and other traffic law enforcement agent take bribe. Motorist --Police are selective in enforcing the law.	1= Strongly Agree 4= Strongly disagree
Subjective Norms	Both --Talking on cell phones while driving poses: Both --Driving well over the speed limit poses: Both --Motorists who do not obey traffic lights poses: Both --Double parking poses: Both --Driving car with off light poses: Both --Driving without safety devices(seatbelt &Helmet) poses: Both --Over loading: Both —Run red lights poses	1=No Threat 4=Very Serious Threat
Compliance	Your compliance to road traffic laws is:	1=Very low5= Very high

Source: Compiled by the Author, 2017

C. Correlations among attitudinal variables explaining CRTLS-ABC Model variables

Table 3 depicts the correlations among the compliance variables with road traffic laws (CRTLS) at 1% significant level. The results with respect to P-value and R show that the level of compliance with road traffic laws (RTLs) was correlated with drivers' attitude ($R= 0.27$), Motorcyclists' attitude ($R=0.22$) and police attitude ($R=0.39$). It shows that the attitude of motorists and RTLs enforcement agents determine the level of compliance to RTLs. Invariably, it implies that irrational behaviors of motorists

and bias approach of RTLs enforcement agents when dealing with violators affect the level of compliance. Subjective norms ($R=0.04$) as a controlled variable are not related to compliance to RTLs nor any other explanatory variables. It mean the perception or value judgment of public does not alter the compliance rate of motorists and attitude of RTLs enforcement agents.

Table 3: Correlation among ABC-Model variables (N=383) * $p<0.005$

Survey variable	1	2	3	4	5	6	7	8
1. Compliance	-							
2. Drivers' attitude	0.27*	-						
3. Motorcyclists' attitude	0.22*	0.02	-					
4. Police attitude	0.39*	0.31*	0.20*	-				
5. Subjective norms	0.04	0.05	0.03	0.07	-			
6. Gender	0.25*	0.33*	0.02	0.03	0.03	-		
7. Age	0.01	0.24*	0.01	0.02	0.05	0.24*	-	
8. Education	0.31*	0.27*	0.06	0.04	0.08	0.01	0.04	-

D. Modeling Compliance with Road Traffic Laws

All the items in both the response variables are ordered therefore, the study adopted ordered logit model. All the variables in the three models conform to the aprior expectation. Aside the combined regression, the researcher conducted two different ordered logit estimation with respect to drivers and motorcyclists' compliance with road traffic laws (RTLs) as the dependent variables. The essence of this is to take cognizance of the variance in the response to RTLs between drivers and motorcyclists. Table 4-6 reveal the compliance with RTLs regressed on motorists' attitude (driver and motorcyclists), RTLs' enforcement agent, subjective norms as a controlled variable, and demographical variables (gender, age and education). For the combine regression (see table 4), all the explanatory variables are significant at 5% except subjective norms ($\beta=0.095$, $p=0.81$) and age ($\beta=0.065$, $p=0.071$), and drivers' attitude is the most influential variable ($\beta=0.143$, $p=0.004$). See table 5: all the variables significantly influence compliance of drivers with RTLs at 5% except subjective norms ($\beta=0.047$, $p=0.430$), and gender is the most influential factor ($\beta=0.311$, $p=0.000$).

See table 6: gender was dropped along with drivers' attitude as explanatory variables because all the participants are all males, as female rarely drive motorcycle in Ilorin metropolis. Motorcyclists and polices' attitude ($\beta=0.127$, $p=0.004$ and $\beta=0.631$, $p=0.003$ respectively), and education ($\beta=0.046$, $p=0.041$) significantly influence compliance of motorcyclists with RTLs at 5% except age and subjective norms ($\beta=0.246$, $p=0.08$ and $\beta=0.022$, $p=0.835$ respectively). There was no trace that subjective norms have influence on compliance with RTLs in the three models. The Pseudo R^2 of the three models (combined, drivers and motorcyclists) are 0.67, 61 and 56 respectively, the combine model is more fit than the separate models. It shows that combined attitude of drivers and motorcyclist have more influence than either of the motorists on compliance with RTLs.

Table 4: Ordered logit model regression result: Dependent variable (Compliance among motorist)

Variables	B	Std. Err.	Z	P-value
Drivers' attitude	0.143*	0.026	5.5	0.004
Motorcyclists' attitude	0.346*	0.081	4.3	0.006
Police attitude	0.162**	0.063	2.6	0.037
Subjective norms	0.095	0.081	1.2	0.09
Gender (dummy male)	0.101*	0.015	6.7	0.003
Age	0.065	0.039	1.5	0.071
Education	0.421**	0.210	2.0	0.041

N= 383; Pseudo $R^2 = 0.67$; LR $\text{Chi}^2 (7) = 31.4$; β =coefficient; Z=z-statistics; * $p<0.001$; ** $p<0.005$

Table 5: Ordered logit model regression result: Dependent variable (Compliance among driver) – motorcyclists' attitude is excluded as explanatory variable

Variables	B	Std. Err.	Z	P-value
Drivers' attitude	0.320**	0.098	3.3	0.012
Police attitude	0.185**	0.076	2.4	0.031
Subjective norms	0.047	0.065	0.7	0.430
Gender (dummy male)	0.311*	0.021	14	0.000
Age	0.051	0.022	2.3	0.039
Education	0.320	0.120	2.7	0.029

N= 183; Pseudo $R^2 = 0.61$; LR $\text{Chi}^2 (6) = 26.1$; β =coefficient; Z=z-statistics; * $p<0.001$; ** $p<0.005$

Table 6: Ordered logit model regression result: Dependent variable (Compliance among motorcyclist) – drivers' attitude is excluded as explanatory variable.

Variables	B	Std. Err.	Z	P-value
Motorcyclists' attitude	0.127*	0.025	5.1	0.004
Police attitude	0.631*	0.091	6.9	0.003
Subjective norms	0.022	0.072	0.3	0.835
Age	0.246	0.128	1.9	0.08
Education	0.046	0.022	2.1	0.041

N= 202; Pseudo R² = 0.56; LR Chi² (5) =28.3; β =coefficient; Z=z-statistics; *p<0.001; **p<0.005³

E. Discussion

Previous studies adjured human factors, such as human error and negligence as the lead cause of RTAs [See 19 & 27]. When road users are fully conscious of simple safety precautions such as the use of seat belts and helmet, and comply with road traffic laws, it reduces chances of fatalities and traffic congestion. About 80% of road crashes on Nigerian urban road have been linked with poor attitude towards compliance with road traffic laws [8]. Most previous studies examined drivers' attitude towards road safety, while other on demographic determinants of level of compliance with road traffic laws [See 11; 20 & 30]. This study is different from previous studies in two instances; first, it covers driver and motorcyclists as the sample participants; second, the study looked beyond demographic index as the determinant of compliance with RTLs. Only 24% and 37.4% of the drivers and motorcyclists see road safety as a collective responsibility. This perception consequently impact on the compliance rate. Also, vast majority of the motorists rated themselves above other motorists, this led credence to the findings of [11] that every motorist always rate themselves above other in term of psychomotor ability.

Compliance with road traffic laws was used as proxy for road traffic safety, and modeled as a function of attitude of motorists (drivers and motorcyclists), road traffic enforcement agents (Police, Vehicle inspector officers and Federal Road Safety Corps), demographical variables (age, gender and education), while subjective norms was used as controlled variable. The study showed that attitude of the motorists and road traffic law enforcement agents correlated with the level of compliance with road traffic laws (RTLs); The level of compliance correlated with drivers' attitude ($R= 0.27$), motorcyclists' attitude ($R= 0.22$), RTLs enforcement agent ($R= 0.39$), gender ($R= 0.25$) and education ($R= 0.31$). Attitude of the enforcement agent and drivers having the highest and second highest influential roles respectively. It is not a surprise that enforcement agents have the most influential role on compliance with RTLs, this is because enforcement agents shapes the attitude and behaviors of the motorist towards RTLs. This findings led credence to ABC-model that state that emotion reaction persons have towards attitude object (affective) determines the behavioral intension develop towards the object (behavioral) and the conclusion about the object cognitively [9]; invariably, discipline among RTLs enforcement agent commands compliance with RTLs among motorists, and make violators to stay cleared the road or change bad attitude towards RTLs. The finding is consistent with [4 & 11] that state that severe sanction on violators enhances compliance with road traffic laws. Subjective norms does not correlate with compliance with RTLs; it implies that the value judgment of the general public does not affect the compliance level of motorists with RTLs. This is in consonance with [21 & 22].

Specifically, three models were estimated; combined model, drivers' model and motorcyclists' model. In the combined model (See table 4), all the variables were significant except subjective norms and age; and drivers' attitude was the most significant factor influencing overall compliance with RTLs in Ilorin metropolis. Model 2 (See table 5) estimated drivers' compliance as dependent variable, therefore, motorcyclists' attitude as explanatory variable was dropped. The model showed that attitude of drivers, enforcement agents and the three demographical variables (gender, age and education) were significant, with gender being the most significant factor. Model 3 (See table 6) estimated motorcyclists' compliance as dependent variable; also, drivers' attitude as explanatory variable was dropped, while gender was equally dropped because all the motorcyclists are males. The model showed that attitude of motorcyclists, enforcement agents and education were significant at 5%, with enforcement agents' attitude being the most significant. In the three models, subjective norms was neither significant; which implies that perception of the general public does

³The response variable has natural order, therefore the study employed ordinal logit estimation model. The dummy-male show high compliance of 0.101 and 0.311 less than female in model 2 & 3 respectively (see table 2 & 3).

not affect the attitude of the motorist towards compliance with road traffic laws. Road traffic enforcement agent and motorists' attitude and education were all significant in the three models.

V. CONCLUSION

Interaction among the drivers, motorcyclists and RTLs enforcement agents determines the level of compliance, which inevitably affect road safety. Therefore, it is imperative that government put working mechanism in place that will enhance positive and unbiased attitude among RTLs enforcement agents towards the motorists and the general public. The government should embark on sensitization spree via mass media as to re-orientate the general public on the need to see road safety as collective responsibility. Most importantly as illegal parking and "run red light" are the most common traffic offences, couple with low compliance to safety device and attitude towards overtaking. This will reduce mortality and morbidity which have been the severe aftermath of road crashes, and equally salvage resource wasted during and after the crashes. Attitude of the pedestrian cannot be ruled out as far as road traffic safety is concerned therefore further research on pedestrians' attitude is imperative to compliment the body of knowledge on person and system safety.

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