

COMPARATIVE ASSESSMENT OF ROAD RAGE AMONGST COMMERCIAL AND PRIVATE MOTORISTS IN OWERRI MUNICIPAL IMO STATE, NIGERIA

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DOI: <https://doi.org/10.5281/zenodo.8173993>

Published Date: 25-July-2023

Abstract: Road Rage is accepted by all to have been in existence and seen amongst drivers, both commercial and private. It occurs when a driver reacts angrily to other drivers with some offensive attitude, gestures or actions. It is a public health concern and should be addressed as it is increasing. Therefore this study is aimed at comparatively assessing the prevalence, effects, associated factors of road rage amongst commercial and private motorists in Owerri Municipality, Imo State Nigeria and possible solutions to road rage.

Method: A cross sectional study was conducted in this study by distributing research questionnaires to 131 commercial motorists and 131 private motorists, with 97.0% (n=127) and 95.4% (n=125) response rate respectively. Socio-demographic questionnaire, Drivers Anger Scale, Effect of Road Rage questionnaire, Solution to Road Rage questionnaire were employed to obtain their demographics, assess motorists anger, health impact of road rage and their opinions on road rage prevention, respectively. . Data collected was analysed by descriptive statistics, using SPSS Version 26.

Result: Research reveals higher preponderance of male gender (n=99; 79.2% for private motorist and n =122,96.1% for commercial motorists). The prevalence of road rage was 88.2% and 59.2% among commercial and private motorists respectively. Analysis showed that private motorists are of the opinion that after road rage they experience more body aches (56.0% vs 50.4%) and chest symptoms (66.4% vs 66.1%) than the commercial motorists. Being patience and cautious on the road (n=168; 66.7%), tolerating mistakes of other motorists (n=180;71.4%), maintaining road facilities (n=134; 53.2%) and obeying traffic rules (n=236; 95.6%) were suggested by the participants as measures to curb road rage (Table 6).

Conclusion: Because of the high rate of road rage there is need for government to maintain the road, provide other means of survival for young people especially males and discourage sales and use of illicit substances.

Keywords: Road rage, Anger, Aggressive driving, Road transportation, Nigeria.

1. INTRODUCTION

Background

Although the term "road rage" is relatively new, the phenomenon of road rage is actually decades old (Lyle, 2019). Road rage, in its simplest form, occurs when a driver reacts angrily to other drivers, cutting them off, tailgating, gesturing or waving a fist. At its worst, the angry driver may become more aggressive and try to kill or injure another driver. Road rage is an expression of an underlying problem with a driver (Lyle, 2019) in which the driver is not able to control his anger. It is not the surrounding incidence that brings out the aggressive nature. It is inside the person who, regardless of the settings, fails to control his/her temper and simply explodes.

There are countless cases of loss of temper and resulting violence amongst road users all over the world (Ngboawaji, Nkereuem, and Eke (2008). Road rage has reached epidemic proportion in major cities of the world with almost half of all drivers experiencing some form of attack in the course of driving (Ngboawaji et al 2015). Daily in the city, we are confronted with exhibitions of aggression on our roads by road users, ranging from pedestrians, motorcyclists, other vehicle drivers and truck drivers (Ngboawaji et al 2015). This phenomenon is seen both in poor and advanced countries in varying dynamic, frequency, perception and nature.

Road rage can happen to anybody at any time and varies from aggressive gestures to full physical attack (Lyle, 2019). There is a link between human health (physical and mental) and transportation. Road rage has been classified as a medical condition of mental health variety called intermittent explosive disorder (Sean, Ardeshir and Mingxin, 2013, Lyle, 2019 and Road rage news, 2019). Hence, mental health problem in driving can be considered a potential hazard and a danger to the efficient, effective and safe operation of our transportation system. It refers to violent incidents resulting from stress or incidents on the roadways (Lyle, 2019). It is a natural extension of aggressive driving and a learned cultural habit of retaliation. When we are frustrated in heavy traffic we have a choice of how we respond. (Lyle, 2019).

In Owerri, road transportation is the major form of transportation out of the city. Driving is a curious display of public and private acts, people are stressed up waiting too long during congestion which is frustrating. Hence, they get angry and some lose control and drive aggressively. (LeViness, Tolzman & Hamilton, P. 2023). In spite of the daily occurrence of road rage in the city of Owerri, no published study has looked at contributing factors to road rage among motorists. There is therefore need to assess the prevalence and factors causing road rage among motorists in the city.

2. METHODS

Study design

This was a comparative cross-sectional study.

Study setting

The study was carried out at Owerri Municipal of Imo State, Nigeria. Owerri municipal local government area (LGA) has 15 Council wards. Owerri municipal LGA has commercial and private drivers. According to the chairman of National Union of Road Transport Workers, Owerri Chapter; there are two major motor parks (Mbaise park and Arugo park) and several loading bays too numerous to mention which constantly serve the LGA. The major parks which have amenities like toilets and shops take care of distance services of people in and out of the municipal while the loading bays serve the movement of people within the municipal and LGAs at the boundaries of the municipal namely Owerri North LGA, Owerri west and Owerri South LGA. The loading bays have no amenities like toilets.

Study population

Study was conducted among 131 commercial motorist and 131 private motorists in Owerri municipal LGA.

3.4 Sample size determination

The sample size was determined using formula for calculation of sample size comparing two means (sample size of each group) (Kirkwood, Sterne, 2015)

$$n = \frac{(u+v)(\sigma_1^2 + \sigma_2^2)}{(\mu_1 - \mu_2)^2}$$

Where:

n = the estimated minimum sample size required for the study

u = percentage point of standard normal deviate corresponding to the two

-sided significant level given as 1.96 (for = 5% or 0.05)

v = One sided percentage point of standard normal deviate corresponding to 90% = 1.28

σ_1 = Standard deviation of professional drivers in a previous study who get angry when someone changes lanes in front of them when there is no one behind them. (1.09) (Zhongxiang F, Miaomiao Y, Changxi M, Yewi L, Wenjuan H et al., 2007)

μ_1 = mean of professional drivers in a previous study who get angry when someone changes lanes in front of them when there is no one behind them. (2.08) (Zhongxiang et al, 2007).

σ_2 = Standard deviation of non-professional drivers in a previous study who get angry when someone changes lanes in front of them when there is no one behind them (1.24). (Zhongxiang et al, 2007).

μ_2 = mean of non-professional drivers in a previous study who get angry when someone changes lanes in front of them when there is no one behind them. (2.57) (Zhongxiang et al, 2007).

10% Non-response rate =

By considering 10% non-response rate, the final sample would be 131.

However, sample size of 131 participants from each of the 2 subgroups was used in this study, making final $n = 262$

Ethical considerations

A written approval for the study was obtained from the Nnamdi Azikiwe University Teaching Hospital Ethics Committee. Informed Consent to the study was sought and obtained from heads of the organization chosen for the research. Confidentiality of respondent was adequately protected by using identification number for the respondents and codes for the research assistants.

Study instrument

A semi-structured interviewer-administered questionnaire was used to obtain information from the respondents within one week in September 2022. One week prior to the actual data collection period, the questionnaire was pre-tested in a different ward from the selected sampling wards and the questions were modified based on the experiences gained during the pre-test. The questionnaires were interviewer administered, while for the except for the illiterates where it was interviewer administered. The questionnaire was segmented into seven sections.

Section A - Socio-demographic characteristics of the drivers such as age, gender, ethnicity, education, class of driving licence, years driving experience, type of car,.

Section B:- Clinical variables such as psychoactive substance/alcohol use.

Section C:- Prevalence of road rage, this was assessed by frequency of getting involved in ordinary argument (minor road rage), physical fight (moderate road rage), property destruction (major road rage).

Section D:- Factors contributing to road rage such as violation of traffic rules, ego self-esteem, overtake challenge, young age, and passenger presence etc.

Section E:- Effects of Road rage: This section assessed the consequences of road rage. The questions revealed the medical, psychological, emotional and physical effects of Road rage on drivers

.Section F:- Possible solutions to road rage: This is a four likert scale of habit that may offer solutions to road rage. It is used to know to what extent each item will prefer solution to road rage. The scale ranges from very low extent, low extent, high extent, to very high extent.

Driver Anger Scale (DAS): was used to record level of anger they would express in response to each item in the scale. The sub-scales are: Hostile gestures, illegal driving, slow driving, traffic obstructions, discourtesy and police presence. Each sub-scale had scenarios which respondents imagine and responds to. It is a likert scale of "no anger =1 and very much anger =5." The scale has originally has 33 items but 25 was adopted in this study.

Procedure

A multistage sampling technique was used. In stage I, all the wards were listed on papers and wrapped. Then one was randomly selected. In stage II, in the selected ward, two loading bays and two private schools were randomly selected for commercial and private motorists respectively; Private schools were used as these are where many private motorists come for school runs. Data from Imo State Internal Revenue on vehicle registration as at 2021 when the research was conducted has it that new registration: 326, change of ownership: 117, renewed motor vehicles: 366, this gives a total of 809 registered vehicles. Therefore, using systematic sampling technique,

Sampling Interval= Population size/Sample size

$$= 809/262 = 3.08$$

Thereafter, one out of every three motorists was selected as they arrive the park to load their passengers or as they bring their children/wards to school. The questionnaires were self-administered except for the illiterates where it was interviewer administered.

3. DATA ANALYSIS

Data was captured using a paper questionnaire and entered into an electronic spread sheet (SPSS version 26). Descriptive statistics were used to summarize the data and presented in tables. Comparison of categorical variables with outcome variable was performed using the Chi-squared test. P-value set at less than 0.05. Driver anger scale was used to determine situations that provoke anger amongst motorists, while a questionnaire on prevalence of road rage was used to determine motorists who have road rage(minor or major). Physical fight and property destruction were categorized under major road rage while argument, making rude gesture, waving of fist and spitting on drivers were categorized under minor road rage. Those that ticked 'yes' to questions have road rage. In addition, a focused group discussions (FGD) were conducted for the executives of the two commercial motor parks and the executives of the Parents Teachers Association (PTA) of two selected schools.

4. RESULT

Table 1 reveals higher preponderance of male gender (n=99; 79.2%). At least nine in ten of private drivers had tertiary level of education (n=110; 89.0%) against forty-one per cent commercial drivers who attained tertiary level of education (n=52; 41.7%). Less than five percent (n=6; 4.7%) of commercial motorists went through driving school unlike 41% of private motorists. With regard to substance use, alcohol was the predominant substance being used by both commercial and private motorists. Interesting to note that private motorists were more likely to use illicit psychoactive substances (cocaine and methamphetamine) compared to commercial motorists (n=25; 20% vs n=12; 12%) (Table 1).

The prevalence of road rage was 88.2% and 59.2% among commercial and private motorists respectively (Table 2). Receiving rude gestures from other road users was the commonest road rage experiences reported by both groups of participants and it was higher among commercial (n=122; 96.1%) than private motorists (n=80; 64%) (Table 2). Property destruction (n=2; 1.57%) was the least road rage experience by commercial motorists, while private motorists reported physical aggression as their least road rage experience (n=2; 1.6%) (Table 2).

Descriptive statistical analysis showed that commercial drivers agreed more than the private drivers that the following factors- male gender, road congestion, seeing overtaking as a driving challenge, impatience before traffic control lights, driving with peers and carrying blood relative in the vehicle were determining factors for road rage (Table 3). Table 4 revealed a comparative average mean score of domains of drivers anger scale between private and commercial motorists in which discourteous driving was the highest among all other domains (64.3 vs 61.8).

Univariate analysis showed that private motorists are of the opinion that after road rage they experience more body aches (56.0% vs 50.4%) and chest symptoms (66.4% vs 66.1%) than the commercial motorists. Conversely, the commercial motorists opined being more depressed, losing sight of safety, frustrated, showing displacement of anger and exhibiting revenge on properties (Table 5).

Being patient and cautious on the road (n=168; 66.7%), tolerating mistakes of other motorists (n=180;71.4%), maintaining road facilities (n=134; 53.2%) and obeying traffic rules (n=236; 95.6%) were suggested by the participants as measures to curb road rage (Table 6).

5. DISCUSSION

The percentage of respondents who were male was 96.1% of respondents and 3.9% were females in the commercial subgroup and for the private 79.2% were males and 20.8% females. Contrary to a previous study that females are more prone to road rage than male (CBN News,2012). In the study it was found that women are more composed. But in keeping to this a previous study showed that aside speeding which is similar in both males and females, other road rage behaviors, such as following other drivers too closely showed 37.8% for male vs. 29.3% female(Coleman and Possey,2022).

In the study it was found that 89.4% of private subgroup had tertiary education as against commercial where only 43% had tertiary education. Education is believed to sharpen ones character and increases ones emotional intelligence. Hence the prevalence of road rage was lower among private motorists

From this study, it was found that people between ages 20 and 35 are most likely to exhibit road rage. People between ages of 20 and 34 make rude gestures to drivers. In a previous study it was found that drivers between the ages of 25 to 39 were the most likely to exhibit road rage behaviors (Coleman et al, 2022). People between 19 and 24 were found most likely to prevent another driver from changing lanes or most likely to bump or ram another vehicle (Coleman et al, 2022)

Findings from this study shows that most of the commercial motorists learnt driving from family members and automobile mechanics while greater percentage of private motorists learnt from driving school. This is significant in this study because in driving school, aside learning road signs and moving a car, emotional and defensive driving is learnt. This is why most of the Focus group Discussion (FGD) participants suggested going back to driving school for motorists. This is in keeping with previous study that defensive driving course be learnt. (Anonymous,2022)

Regarding years of driving experience, the commercial drivers had lower years of experience (mean years of 2 ± 1), compared to private drivers 11 ± 5 years. This could have contributed to the commercial drivers exhibiting road rage. Studies have shown that as driving experience increases, road rage decreases, (mefoh et.al 2013), this is consistent with our findings which revealed that commercial drivers with lower years of driving experience exhibited higher expressions of road rage compared to private drivers who had higher years of driving experience and lower expression of road rage. Therefore, the finding demonstrated that road rage diminishes with years of driving experience. Although private drivers exhibited lower road rage behaviour, it was interesting to find out that private drivers indulge more in the use of illicit psychoactive substances (methamphetamine known as mpkuru mmiri) (12%) compared to commercial drivers (9%), while more commercial drivers (24%) indulge in Cocaine use compared to 12% of private drivers. This finding did not agree with studies which showed that use of psychoactive substances predicted road rage (mefor et.al 2018, Fierro et. al, 2016). Majority of the drivers have been a victim of road rage, however road rage is more prevalent (88%) among commercial drivers compared private drivers (59%). Road rage are exhibited mostly via rude gestures, arguments, spitting on drivers, Property destruction and physical fight amongst others. These expressions of road rage have been report by other studies (mefoh et.al 2013, Ngboawaji et.al 2008.)

This study revealed high road rage prevalence rates of 82% and 59.2% among commercial and private drivers respectively. This is consistent with a previous study in 2012 where commercial drivers exhibited higher prevalence of road rage (Kolawole and Ekundayo, 2012).This could be because of increase in number of cars, increased congestion and of course economic stress which is on the rise in cities or countries where the studies were conducted (Rajvinder,2022; Rya and Lee,2022).

Some factors were found to influence road rage, they are Male gender,road congestion, self-esteem wrong manoeuvres of traffic lights).These were followed by driving strangers, young drivers, having peers as passengers and overtake challenge .Focus Group Discussion (FGD) participants added alcohol consumption. As was seen in previous study (National Institute on Drug Abuse, 2019); drugged driving can make driving a car unsafe. Male gender, road congestion, wrong manoeuvre of traffic lights, young drivers were suggested factors for road age across the participated subgroups in this study.

On comparing the associated factors amongst the subgroups, 100% of commercial motorists responded positively in all factors except in peer group factor which has high positive response in private subgroup. This can be seen in the literature review; friends and peers as passengers are generally a negative influence on behavior of young driver (Regan et al, 2001). From the FGD it was revealed that some drivers take alcohol and other illicit substances before driving. This is in keeping with the literature review on mental health and driving, which showed that previous research suggests that individuals with past or present symptoms of Conduct Disorder are more likely to engage in driver aggression (Redelmeier et al; 2017; Malta et al, 2005) and to drive after use of alcohol or drugs.

Also, anger is more in drivers who engage in illicit substances like cannabis, alcohol (Sansone et al, 2010).

Furthermore, Driver Anger Scale was used to determine major factors that cause anger in drivers while driving. In this, different situations were imagined by drivers who then rated their anger on a 5-point Likert-type scale ranging from 1 = no anger; 5 = very much. The average mean Scores of factors of DAS in the table below were calculated.

From the six factors causing anger, discourteous driving was rated as the most provoking in both subgroups with average Score of 64.3 amongst private and 61.8 amongst commercial motorists. This is in line with previous study that reported that discourtesy caused very much anger in drivers (Kamarudin, Shuhada, Basil and Ahmad, 2017) This is followed by police presence (amongst private motorists). This is consistent with a study showed that police presence cause anger in drivers because it alters their driving style (Beatriz, José, M^a Ángeles, 2012) and illegal driving (amongst commercial motorists).

The third objective; effects of road rage; as seen in the study, the following were discovered as effects of road rage, they are: Depression, regret, remorse and embarrassment. Loss of caution and safety while driving. Physical assault and destruction of properties. FDG participants added fighting, rise in blood pressure, palpitation, road congestion and road traffic accidents.

On comparing the effects between the subgroups, there were more responses by commercial motorists on effects more than the private motorists. This indicates that commercial drivers are affected more than the private counterpart, possibly because the commercial motorists are more involved in road rage. This is in keeping with in a previous study which found that individuals with severe forms of road rage had higher scores on general health questionnaire (a screening tool for several current psychiatry disorders that is anxiety, depression, somatic symptoms (Moffitt, 1993).

Both subgroups scored the relevance of all the possible solutions as high extent, meaning they will in a long way control road rage. This is also supported by FGD participants who generally said emotional intelligence and government fixing the roads will help. This shows that poor emotional quotient and environmental factors like bad road are factors in road rage. About the emotional quotient factor, it is consistent with a previous study where it was observed that emotionally well developed people do not often indulge in anger or rage., So one can speculate that it is mostly the less emotionally developed individuals who indulge in road rage (Advaney,2018).

As for environmental factors, previous study validates the assumption that poor infrastructure like bad road increases incidents of road Rage (Ngboawaji, 2008). Concerning determining if prevalence of road rage is associated with class of motorists, the study showed prevalence is more on the commercial than the private drivers. This was tested with chi sq which gave p- value of <0.05, showing there is significant difference between the class of motorists where it is experienced more by commercial motorists. This is consistent with a previous study (Kolawole and Ekundayo, 2012).

On determining if motorists personality affects road rage; from the study, Table 4.42 shows that frequency of feeling of remorse by angry drivers during judgment is higher amongst commercial respondents than private. From the literature review, this is a sign of psychological disorder labelled road rage disorder which has being associated antisocial personality disorder and axis I and II.(Lam,2010).

Individuals with this disorder do not experience genuine remorse for harm done to others; however they are good at feigning remorse during judgment (Smart et al, 2003). Findings from another Study yet showed that the prevalence of Bipolar Personality Disorder was significantly higher among those with road rage compared to those without road rage, and is likely to be one of the contributory variables to reckless driving. Individuals who reported road rage appear to be less disciplined drivers .(Sansone, Lam and Wiederman, 2010).

Table 4.42 shows significant difference of personality of motorists and prevalence of road rage. That the personality of commercial drivers contributes more to road rage than those of private motorists. In comparison with a previous study, it was shown that transport operators are often in situations that require them to cope with complex working conditions that lead to negative emotions such as anger (Milanko, Spasoje, Boko, Dragan and Aleksandar, 2022).

Also in another study, it was concluded that mental health and personality especially extraversion traits predict anger driving behaviour among commercial drivers in Lagos Metropolis. This implies that the personality characteristics of drivers interfere with their judgmental decision when driving on the road. (Ilevbare, Fagbenoro, Adediran, 2021).

6. CONCLUSION AND RECOMMENDATIONS

Road rage exists and has increased. There is dearth of information on prevalence, effects, and factors contributing to road rage in Owerri city. There is high prevalence of road rage in Owerri municipal and rude gesture is the commonest means of expression of road rage with motorists younger than 30 years expressing that the most. It is important that drivers are aware of the potential effects/impacts of road rage and safety measure to be undertaken. The study showed that more. Male gender, road congestion, self-esteem, wrong manoeuvres of traffic lights and alcohol consumption are strong factors of road rage. With the use of Driver Anger Scale, it was found that discourtesy is a major cause of anger in both subgroups. It is recommended that increased public education on recognition and obedience of traffic rules is ensured through social media, worship centres and schools. In addition to public education, government should fix and maintain the roads, provide other means of survival for young people especially males and discourage sales and use of illicit substances.

Furthermore, because majority of the drivers did not go to driving school, it is important to review the driving school operation guidelines to make the driving schools more attractive.

Funding: None

Authors contributions: Conflict of interest the authors declare that they have no conflict of interest and there was no funding from anywhere.

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International Journal of Novel Research in Humanity and Social Sciences

 Vol. 10, Issue 4, pp: (23-34), Month: July - August 2023, Available at: www.noveltyjournals.com

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APPENDICES -A

Table 1: Socio-Demographic variables analysis

Variable	Commercial n=127		Private n=125	
		%		%
Gender				
Male	122	96.1	99	79.2
Female	5	3.9	26	20.8
Ethnicity				
Igbo	127	100	125	100
Educational status				
Primary/secondary				
Male				
Female				
Tertiary	66	51.9	5	4
Male	3	2.36	8	6.4
Female				
Missing system	50	39.4	58	46.4
	2	1.6	52	42.6
	6	4.7	2	
Drug use and driving:				
a. Alcohol				
b. Mkpuru mmiri (methamphetamine)	60	39.4	60	48
c. Cocaine	12	9.4	15	12
d. Others	-	-	10	8
e. Nil	30	23.6	15	12
	35	27.6	25	20
How driving was learnt., Through:				
a. Family Member				
b. friend	45	35.4	21	18.1
b. Driving school	35	27.6	47	40.5
C. Automobile Mechanic	6	4.7	48	41.4
d. Missing system	41	32.3	-	-
			9	-

Objective 1: To determine and compare the prevalence of road rage amongst commercial and private motorists in Owerri Municipality.

Table 2

Items	Commercial motorist n=127 % = frequency		Private motorist n=125 % = frequency		Total n=252 % = frequency	
	Yes	No	Yes	No	Yes	No
1) Does road rage exist	127(100%)	0(0%)	125(100%)	0(0%)	252(0%)	0(0%)
2) Have you been a victim of road rage?	112(88.2%)	15(11.8%)	74(59.2%)	51(40.8%)	186(73.8%)	66(26.2%)
3) In what ways have you been involved.						
a. Physical Fight	9(7%)	118(92.9%)	2(1.6%)	123(98.4%)	11(4.4%)	241(95.6%)
b. Property destruction	2(1.57%)	125(98.4%)	12(9.6%)	113(90.4%)	14(5.6%)	238(94.4%)
c. Argument	101(79.5%)	26(20.5%)	60(48%)	65(52%)	161(64%)	91(36%)
d. making rude gesture	122(96.1%)	5(3.9%)	80(64%)	45(36%)	202(80.2%)	50(19.8%)
e. Waving of fist	91(71.7%)	36(28.3%)	50(40%)	75(60%)	141(56%)	111(44%)
f. Spitting on drivers	55(43.4%)	72(56.7%)	9(7.2%)	116(92.8%)	64(25.4%)	188(74.6%)
4) Has it increased in your opinion?	127(100%)	0(0%)	81(64.8%)	44(35.2%)	208(82.5%)	44(17.5%)

Objective 2: To determine and compare the factors associated with road rage amongst commercial and private motorists in Owerri Municipality

Table 3

Item	Commercial motorist n=127 % = frequency		Private motorist n=125 % = frequency			Total n=252 % = frequency	
	Yes	No	Yes	No	Missing system	Yes	No
Do males involve in road rage than female drivers?	127(100%)	0(0%)	97(77.6%)	28(22.4%)	-	224(87.9%)	28(11.1%)
Do people violate traffic rules because of road congestion?	127(100%)	0(0%)	114(91.2%)	11(8.8%)	-	241(95.4%)	11(4.4%)
Do people view their vehicles as extension of their personal life?	127(100%)	0(0%)	102(81.6%)	12(9.6%)	11(8.8%)	229(95.0%)	12(5.%)
Do some drivers respond to overtake by another vehicle as a challenge leading to risky manoeuvres?	127(100%)	0(0%)	87(69.6%)	38(30.4%)	-	214(84.9%)	38(15.1%)
Do drivers compete to get faster at traffic lights?	127(100%)	0(0%)	105(84%)	20(16%)	-	232(93.1%)	20(7.9%)
Does acquisition of new car by young driver influence their ego and result to aggressive driving should a threat of ego is perceived.	127(100%)	0(0%)	108(86.4%)	11(8.8%)	-	235(95.5%)	11(4.5%)
Does risk of road rage increase when younger drivers have their peers	112(88.2%)	15(11.8%)	119(95.2%)	0(0%)	6(4.8%)	231(93.9%)	15(6.2%)
Do drivers drive safely when passengers are blood relatives?	127(100%)	0(0%)	120(96.0%)	5(4%)	-	247(98.0%)	5(2.0%)

Table 4: Comparison of anger scale of the two subgroups

Situation that cause Anger	No of items	Average Mean Score	
		Private motorists	Commercial motorists
Slow driving	5	48.4	42.2
Discourteous driving	6	64.3	61.8
Illegal driving	4	45.8	57.3
Traffic obstruction	7	44.9	41.7
Police Presence	3	48.3	41
Hostile Gesture	2	39.5	48

From table 4.31 discourteous driving has the highest average mean score in both subgroups. 64.3 Amongst private motorists and 61 amongst commercial motorists.

Objective 3: To determine and compare the effects of road rage on commercial and private motorists in Owerri.

Table 5: Effects of road rage

Items	Commercial motorist n=127 % = frequency			Private motorist n=125 % = frequency			Total n=252 % = frequency	
	Yes	No	Missing system	Yes	No	Missing system	Yes	No
1) Do you have headache, body aches, stomach aches, etc., after being involved in road rage?	64(50.4%)	59(46.5%)	4(3.1%)	70(56%)	53(42.4%)	2(1.6%)	134(54.5%)	112(45.5%)
2) Do you have chest tightness, palpitation, feeling of pressure in the head after an outburst of anger while driving?	84(66.1%)	42(33.1%)	1(0.8%)	83(66.4%)	37(29.6%)	5(4%)	167(67.9%)	79(32.1)
3) Does the feelings in 1 and 2 above end with depression, regret, remorse, embarrassment?	86(67.7%)	41(32.3%)	-	53(42.4)	66(52.8)	6(4.8)	139(56.5%)	107(43.5%)
4) Do drivers after road rage lose sight of safety and cause traffic accident?	127(100%)	0(0%)	-	94(75.2%)	31(24.8%)	-	221(87.7%)	31(12.3%)
5) Do angry drivers vent their frustration and anger on other road users?	127(100%)	0(0%)	-	84(67.2%)	41(32.8%)	-	211(83.7%)	41(16.3%)
6) Do innocent passengers and by standers become victims of angry driving?	127(100%)	0(0%)	-	94(75.2%)	31(24.8%)	-	221(87.7%)	31(12.3%)
7) Do angry drivers seek revenge on properties e.g. cars and government properties?	112(88.2%)	15(11.8%)	-	76(60.8%)	43(34.4%)	6(4.8%)	188(76.4%)	58(23.6%)
8) Do drivers attack police officers with their vehicles just because they were stopped by them?	114(89.8%)	11(8.6%)	2(1.6%)	57(45.6%)	68(54.4%)	-	171(69.5%)	75(30.5%)
9) Do drivers use weapons stored in their cars or any available object as weapons against another motorist?	112(88.2%)	15(11.8%)	-	94(75.2%)	31(24.8%)	-	206(81.7%)	46(18.3%)

Table 6: Contingency table of class of motorists and prevalence of road rage

Prevalence of road rage	Does road rage exist? Have you been a victim of road rage? Have you been involved in physical fight with fellow driver Have you been involved in property destruction the process? Have you been involved in argument with fellow drivers? Has it increased in your opinion? Have you waved a fist to fellow drivers Have you spat at fellow driver on the road Have you made rude gesture to drivers on the road	Classes of motorists		Chi sq	p- value
		Commercial	Private		
	Does road rage exist?	127	125	8.560	0.01
	Have you been a victim of road rage?	112	74	9.342	0.02
	Have you been involved in physical fight with fellow driver	107	69	12.123	0.01
	Have you been involved in property destruction the process?	111	87	10.174	0.03
	Have you been involved in argument with fellow drivers?	118	106	14.123	0.04
	Has it increased in your opinion?	127	81	8.670	0.02
	Have you waved a fist to fellow drivers	105	65	12.007	0.03
	Have you spat at fellow driver on the road	101	45	8.112	0.02
	Have you made rude gesture to drivers on the road	125	110	11.168	0.03

Objective 4: To identify the possible solutions to road rage

Table 7: Possible Solutions to road rage

S/N	Items	Very Low Extent	Low Extent	High Extent	Very Extent	High
1	To what extent will giving yourself more than enough time to get to your destination prevent road rage	9 (3.6%)	75 (29.8%)	129 (51.2%)	39 (15.5%)	
2	To what extent will listening to your favourite album reduce roadrage	18 (7.1%)	23 (9.1%)	185 (73.4%)	26 (10.3%)	
3	To what extent will not reacting to but ignore angry drivers help to solve problem of road rage.	3 (1.2%)	21 (8.3%)	185 (73.4%)	43 (17.1%)	
4	To what extent is our roads properly maintained	81 (32.1%)	37 (14.7%)	134 (53.2%)	0 (0.0%)	
5	To what extent will taking a deep breath and counting up to 10 prevent reacting to angry drivers.	43 (17.4%)	19 (7.7%)	154 (62.3%)	31 (12.6%)	
6	To what extent will avoiding eye contact help?	14 (5.7%)	50 (20.2%)	175 (70.9%)	8 (3.2%)	
7	To what extent will not taking aggressive driver personally help solve problem of road rage?	43 (17.4%)	19 (7.7%)	154 (62.3%)	31 (12.6%)	
8	To what extent will not driving when upset help?	0 (0.0%)	57 (23.1%)	159 (64.4%)	31 (12.6%)	
9	Concerning obeying traffic rules:					
(a)	To what extent will changing lane safely help prevent road rage?	0 (0.0%)	53 (21.5%)	171 (69.2%)	23 (9.3%)	
(b)	To what extent will not blocking the passing lane help prevent road rage?	15 (6.1%)	39 (15.8%)	167 (67.6%)	26 (10.5%)	
(c)	To what extent will obeying traffic light prevent road rage?	0 (0.0%)	11 (4.5%)	178 (72.1%)	58 (23.5%)	