INVESTIGATION INTO THE LEVEL OF AWARENESS AND COMPLIANCE WITH ROAD SIGNS AMONG DRIVERS IN ABUJA METROPOLIS

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Abstract
This study was carried out to investigate the level of awareness and compliance with road signs among drivers in Abuja metropolis. The study investigates the: level of awareness of road signs among drivers, level of compliance with road signs and other safety devices and the constraints affecting the effective utilization of road signs and other safety devices among drivers. Three research questions were answered and two null hypotheses were formulated and tested at 0.05 levels of significance guided the study. The descriptive survey design was used and the target population for this study was made up of the Federal Road Safety Corp (FRSC) and motor vehicle Drivers in Abuja Metropolis. The instrument used for data collection was a structured questionnaire. The questionnaire was subjected to face and content validation by three experts in Automobile Technology. Cronbach Alpha statistics was used to determine the reliability coefficient of the questionnaire and it was found to be 0.86. The data collected from the respondents were analyzed using mean, standard deviation and t-test statistics. The finding on the levels of awareness of road signs among drivers include among others: Y-Junction, Narrow Bridge Ahead, Give Way to Traffic, T-Junction, Speed Limit. Findings related to the level of compliance and other safety devices revealed among others, that the drivers complied with the following road signs: No Parking and No Left Turn. Findings that are related to the constraints affecting effective utilization of road signs include among others: Illiteracy, drunkenness, improper orientation, road congestion. Based on the findings, it was recommended among others that, training and re-training, as well as periodic road safety education, should be organized for drivers by the government and other nongovernmental organizations to ensure that they are familiar with road signs and other safety practices on the road motor vehicle.

Keywords: Compliance, Drivers, Level of Awareness and Road Signs

Introduction
Movement is indispensable and compulsory for all human activities in search of basic needs of life and in carrying out day-to-day activities. The movement of people, goods and services from one destination to another has in essence been part of human civilization and development. Prior to the advent of civilization, animals such as cattle, camels, horses were used prominently as a means of transportation; but with the advent of modernization, came with the evolution of modern means of transportation such as the air, water, rail transport system and the most widely used is the road transport system.

Road transport is a form of land transport which involves the movement of people and goods by motor cars, trucks, buses, motorcycles, bicycles among others. In Nigeria, road transportation is the most dominant because more than 90% of Nigerians make use of the road as compare to the other means of transportation (Ladan, 2011). However, in the course of transportation, there exist some unavoidable negative consequences in which accident is one.

Accident is also known as the Road Traffic Accident (RTA) is an unpleasant event that happens unexpectedly which result in bodily injury, damage of properties, loss of body parts and even loss of lives. In Nigeria, the rate of road traffic accident is worrisome due to some factors such

as the state of unsoundness of the roads, lack of caution of road safety devices, road signs and markings from drivers and riders. The RTA is, therefore, an issue of great international concern as it has emerged as the single greatest source of death all over the world (Adeile, 2011). Studies revealed that RTAs in developing countries cost almost one per cent (1%) of these countries Gross National Product (GNP) (Akpoghomeh, 1998). According to Idris and Mustapha (2019), RTAs have claimed more lives than deaths resulting from all communicable diseases put together including the Acquired Immune Deficiency Syndrome (AIDS). Thus, the government and people of Nigeria are deeply concerned about the continuing high rate of road accidents and the unnecessary consequential waste of lives and properties. What is worrisome is the fact that RTA and mortality are still at an alarming rate despite various remedial measures taken in recent years to combat the problem. In fact, the Nigeria accident pattern seems to suggest that the better the roads, the higher the accident and fatality rate as well as the severity and non-survival indices because of driver non-compliance with speed limits (Filani & Gbadamosi, 2007).

The attempt to reduce the number and severity of road crashes necessitated the formulation of Road Traffic Signs (RTS). The RTS are conventional symbols used on the road to know about traffic regulations such as special hazards and other road conditions, construction areas speed limits (Idris & Mustapha, 2019). Idris and Mustapha (2019) also highlighted that the driver should not only be familiar with each of the signs but to also recognize the special shapes and colours. The signs are:

1. Regulatory (Prohibitive) Signs: These are information telling us about what we are not supposed to do on the road. These signs are mostly circular in shape and are red and yellow circles.

2. Regulatory (Mandatory) Signs: These are information telling us about what we are supposed to do on the road. These signs are mostly circular in shape and are with blue circles, but no red border.

3. Informative Signs: These are information telling us about important places of help or assistance ahead of us. These signs are usually rectangular in shape and provide guidance information.

4. Warning Signs: These are information telling us about dangers ahead of us on the road. These signs are usually triangular in shape, with a red perimeter. The only warning sign with an inverted triangle means "YIELD" or "Give Way".

Most major township roads in Nigeria are well tarred with road signs to guide the users on the use of the roads and to maintain safety. It is noted, however, that in spite of the road signs that are visible on the roads, accidents still occur due to violation of the traffic rules as represented by the signs. This incessant road mishap calls for serious questions on the effectiveness of the road signs as a vehicle of information dissemination to the road users. The above facts underscore the importance of investigation into the level of awareness and compliance with road signs among drivers in Abuja metropolis. Specifically, the study sought to determine:

- The level of awareness of road signs by motor vehicle drivers

- The level of compliance with road signs and other safety devices by motor vehicle drivers

- The constraints affecting the compliance of road signs by motor vehicle drivers

Research Questions

The following research questions guided the study

- What is the level of awareness of road signs among drivers?

- What is the level of compliance with road signs and other safety devices?

- What are the constraints affecting the effective utilization of road signs and other safety devices among drivers?

Hypotheses

The following null hypotheses were formulated and tested at 0.05 level of significance.

HO_1: There is no significant difference in the mean responses of the drivers and officials of Federal Road Safety Corps with respect to the level of awareness of road sign.

HO_2: There is no significant difference in the mean responses of FRSC officials and drivers with respect to the level of compliance with road signs and other safety devices.

Methodology

A descriptive survey was adopted for the Study. The study employed the use of questionnaires to determine the views of the respondents on the level of awareness and compliance with road signs towards accident reduction in Abuja metropolis. Abuja was selected because of the presence of high traffic influx and its demographic attributes. The targeted population for this study was 60 respondents, comprising 15 officials of the Federal Road Safety Corps (FRSC) and 45 motor vehicle Drivers in FCT, Abuja. Since the population is of manageable size, the entire population was studied, hence no sampling technique was employed for the study. The instrument used for the data collection was a structured questionnaire which comprises of 44 items. These include 15 items dealing with the level of awareness of road signs among motor vehicle drivers; 15 items dealing with the level of compliance with road signs and other safety device and 14 items regarding the constraints affecting compliance of road signs. A four-point rating scale was adopted for the study. These include Highly Aware (HA) = 4, Aware (A) = 3, Moderately Aware (MA) = 2, Not Aware (NA) = 1 for research question one. Also, for research question two, the response options were: Highly Comply (HC) = 4, Comply (C) = 3, Moderately Comply (MC) = 2, Not Comply (NC) =1 while for research question three, the response were: Strongly Agree (SA) = 4, Agree (A) =3, Disagree (D) =2, Strongly Disagree (SD) = 1. To ensure the validity of the instrument three validates in the field of Automobile Technology validated the instrument. This is to ensure that the instrument was capable of eliciting the essential information needed for the study. The reliability of the instrument was established using Cronbach Alpha (α) to determine the internal consistency of the instrument. The reliability coefficient was found to be 0.86. The data collected was analyzed using mean, standard deviation and t-test statistics. The mean and standard deviation were used to answer the research questions while t-test statistics was used to test the null hypotheses. To determine the acceptance level of each item, a mean score of 2.50 was used as the cutoff point. Therefore, any item with a mean score of 2.50 and above was considered aware, compiled and agreed in research question one, two and three respectively and any item with a mean of 2.49 and below was considered not aware, not complied and disagreed respectively.

Results

Research Question 1

What are the levels of awareness of road signs by motor vehicle drivers?

Table 1: Mean Responses of FRSC Officials and Drivers on the level of awareness of road signs among drivers

$N_1=15, N_2=45$

S/N	ITEM				Remark
1.	Y-Junction	3.50	3.34	3.42	Aware
2.	Dangerous double bend (First to Left)	3.77	3.97	3.87	Aware
3.	Narrow Bridge Ahead	3.43	3.37	3.40	Aware
4.	Give Way to Traffic	3.50	3.92	3.71	Aware
5.	Cross Road Four-Way Junction	3.50	3.94	3.72	Aware
6.	T-Junction	2.90	2.97	2.94	Aware
7.	Dangerous bend Right	3.37	3.90	3.64	Aware
8.	Round About	2.70	3.01	2.86	Aware
9.	No Right Turn	2.70	2.92	2.81	Aware
10.	No Parking	2.57	2.77	2.67	Aware
11.	No Left Turn	2.63	2.92	2.78	Aware
12.	No U-Turn	2.63	2.86	2.75	Aware
13.	Traffic Light	3.03	2.77	2.90	Aware
14.	No Horn	4.03	4.37	4.20	Aware
15.	Speed Limit	3.70	3.08	3.39	Aware

Keys: X_1 = Mean of FRSC Officials; X_2 = Mean of Drivers; X_T = Average of Mean of FRSC Officials and Drivers, obtained by; N_1 = Number of FRSC Officials; N_2 = Number of Drivers.

Table 1 revealed that the respondents all agreed with the items with a mean score above 2.50. That implies that the respondents are aware of all the road signs.

Research Question 2
What are the levels of compliance with signs and other safety devices?

Table 2: Mean Responses of FRSC Officials and Drivers on the level of compliance with signs and other safety devices

S/N	ITEM				REMARK
1.	Y-Junction	3.97	3.34	3.66	Complied
2.	Dangerous double bend (First to Left)	4.63	3.59	4.11	Complied
3.	Narrow Bridge Ahead	4.10	3.77	3.94	Complied
4.	Give Way to Traffic	4.70	4.08	4.39	Complied
5.	Cross Road Four-Way Junction	4.03	3.79	3.91	Complied
6.	T-Junction	3.63	2.92	3.28	Complied
7.	Dangerous bend Right	3.83	3.59	3.71	Complied
8.	Round About	2.97	2.94	2.96	Complied
9.	No Right Turn	2.83	3.92	3.38	Complied
10.	No Parking	3.30	4.03	3.67	Complied
11.	No Left Turn	2.97	3.90	3.44	Complied
12.	No U-Turn	2.90	3.94	3.42	Complied
13.	Traffic Light	2.70	3.79	3.25	Complied
14.	No Horn	4.17	4.52	4.35	Complied
15.	Speed Limit	3.97	3.79	3.88	Complied

Table 2 above reveal that the respondents agreed with all the items with a mean score above 2.50. This implies that the respondents comply with all the road signs.

Research Question 3
What are the constraints affecting the compliance with road signs and other safety devices by motor vehicle drivers?

Table 3: Mean respondents of FRSC Officials and Drivers on the constraints affecting the effective utilization of road signs and other safety devices among drivers

S/N	ITEM				Remark
1.	Inadequate road signs	1.33	1.53	1.43	Disagreed
2.	Ignorance	1.67	1.42	1.55	Disagreed
3.	Illiteracy	1.60	1.82	1.71	Disagreed
4.	Drunkenness	1.27	1.47	1.37	Disagreed
5.	Improper orientation	2.40	1.91	2.16	Disagreed
6.	When in a hurry	3.07	2.42	2.75	Agreed
7.	Absent-mindedness while driving	2.47	2.53	2.50	Agreed
8.	Road congestion	2.33	2.51	2.42	Disagreed
9.	Improper location of the Road signs	1.33	1.76	1.55	Disagreed
10.	Road signs sometimes are not legible	2.20	2.07	2.14	Disagreed
11.	Malfunction in electronic road signs	1.60	1.67	1.64	Disagreed
12.	Recklessness	1.47	1.16	1.32	Disagreed
13.	Impatience on the path of the drivers	1.53	1.27	1.40	Disagreed
14.	Undo claiming of right from the part of the drivers	1.40	1.62	1.51	Disagreed

Table 3 above revealed that the respondents agreed with item 6 and 7, while they disagreed with item 1, 2, 3, 4, 5, 8, 9, 10, 11, 12, 13 and 14 with respect to the constraint affecting compliances with road signs and other safety devices among drivers.

4.4   Hypothesis 1
HO_1: There is no significant difference between the mean responses of the FRSC Officials and Drivers on the level of awareness of road signs among drivers.

Table 4: Standard Deviation and T-test analysis of the FRSC Officials and Drivers on the level of awareness of road signs among drivers

$N_1=15, N_2=45$

S/N	ITEM				SD_1	SD_2	T-Cal.	Remark
1.	Y-Junction	3.50	3.34	3.42	2.17	2.57	1.93	NS
2.	Dangerous double bend (First to Left)	3.77	3.97	3.87	2.13	2.78	1.04	NS
3.	Narrow Bridge Ahead	3.43	3.37	3.40	2.23	2.09	1.73	NS
4.	Give Way to Traffic	3.50	3.92	3.71	2.31	2.70	0.51	NS
5.	Cross Road Four-Way Junction	3.50	3.94	3.72	2.39	2.16	0.03	NS
6.	T-Junction	2.90	2.97	2.94	2.16	2.01	1.19	NS
7.	Dangerous bend Right	3.37	3.90	3.64	2.34	2.42	0.00	NS
8.	Round About	2.70	3.01	2.86	2.16	1.91	0.00	NS
9.	No Right Turn	2.70	2.92	2.81	2.16	1.91	0.43	NS

S/N	ITEM							
10.	No Parking	2.57	2.77	2.67	2.12	1.76	0.33	NS
11.	No Left Turn	2.63	2.92	2.78	2.25	1.85	0.14	NS
12.	No U-Turn	2.63	2.86	2.75	2.18	1.85	0.34	NS
13.	Traffic Light	3.03	2.77	2.90	2.08	2.14	2.55	S
14.	No Horn	4.03	4.37	4.20	2.39	2.14	0.35	NS
15.	Speed Limit	3.70	3.08	3.39	2.34	2.71	2.93	NS

Keys: N_1 = Numbers of FRSC Officials; N_2 = Number of Drivers; S = Significant; NS = Not Significant, SD_1= Standard Deviations of FRSC Officials; SD_2= Standard Deviations of Drivers, X_1 = Mean of FRSC Officials; X_2 = Mean of Drivers, T-Cal. = T-test value of the FRSC Staff and Drivers

Degree of Freedom (df) = $N_1 + N_2 - 2$ = 25, $T_{critical}$ =

Table 4 revealed that all the items that were not significant indicate that there is no significant difference in the mean response of FRSC Officials and Drivers, while only item 13 shows that there is a significant difference. Therefore, the null hypothesis was accepted. This gives the impetus to conclude that there is no significant difference between the mean responses of the FRSC Officials and Drivers on the level of awareness of road signs among drivers.

4.5 Hypothesis 2

HO_1: There is no significant difference between the mean responses of the FRSC Officials and Drivers on the level of compliance with road signs and other safety devices among drivers.

Table 5: Standard Deviation and T-test analysis of the FRSC Officials and Drivers on the level of compliance with road signs and other safety devices among drivers

S/N	ITEM				SD_1	SD_2	T-Cal	Remark
1.	Y-Junction	3.97	3.34	3.66	2.10	2.49	3.32	S
2.	Dangerous double bend (First to Left)	4.63	3.59	4.11	2.37	2.24	4.79	S
3.	Narrow Bridge Ahead	4.10	3.77	3.94	2.08	2.33	2.61	S
4.	Give Way to Traffi-	4.70	4.08	4.39	2.19	2.36	3.44	S
5.	Cross Road Four-Way Junction	4.03	3.79	3.91	2.09	2.42	2.24	S
6.	T-Junction	3.63	2.92	3.28	2.19	2.33	3.77	S
7.	Dangerous bend Right	3.83	3.59	3.71	2.29	2.40	2.20	S
8.	Round About	2.97	2.94	2.96	2.34	2.14	1.60	NS
9.	No Right Turn	2.83	3.92	3.38	2.47	1.99	-2.39	NS
10.	No Parking	3.30	4.03	3.67	2.34	2.44	-0.52	NS
11.	No Left Turn	2.97	3.90	3.44	2.44	2.14	-1.55	NS
12.	No U-Turn	2.90	3.94	3.42	2.49	2.24	-1.61	NS
13.	Traffic Light	2.70	3.79	3.25	2.32	2.06	-2.60	NS
14.	No Horn	4.17	4.52	4.35	2.19	2.48	0.50	NS
15.	Speed Limit	3.97	3.79	3.88	2.60	2.69	1.89	NS

Table 5 revealed that all the items that were not significant, this indicate that there is no significant difference in the mean response of FRSC Officials and Drivers, while item 1, 2, 3, 4, 5, 6, and 7 shows that there is a significant difference. Therefore, the null hypothesis was accepted. This also gives the impetus to conclude that there is no significant difference between the mean responses of the FRSC Officials and Drivers on the level of compliance with road signs and other safety devices among drivers.

Discussion of Findings

The finding on the levels of awareness of road signs among drivers revealed that the respondents are aware of the entire items in Table 1. The finding shows that the drivers are aware of the following road signs: Y-Junction, Dangerous double bend (First to Left), Narrow Bridge Ahead, Give Way to Traffic, Cross Road Four-Way Junction, T-Junction, Dangerous bend Right, Round About, No Right Turn, No Parking, No Left Turn, No U-Turn, Traffic Light, No Horn, Speed Limit. Contrary to this findings, Asalor (2010) asserted that Nigerians possess a very low level of awareness on the causes of road traffic accidents, previous research has shown that Nigerians know quite a lot about what could cause road traffic accidents.

Finding that related to the constraints affecting compliance to road signs and other safety devices among drivers shows that the drivers agreed that the following constraints are affecting effective utilization of road signs and other safety devices among drivers: When in a hurry and Absentmindedness while driving. The respondents also disagreed that the following constraints are affecting effective utilization of road signs and other safety devices among drivers: Inadequate road signs, ignorance, illiteracy, drunkenness, improper orientation, road congestion, improper locations of road signs, road signs sometimes are not legible, malfunction in electronic road signs, recklessness, impatience on the path of the drivers, undo claiming of right from the part of the drivers. This concurs with Idris and Mustapha (2019) that drivers often engage in activities that distract their attention while driving. Such activities include among others, gesticulating, answering phone calls, changing a radio station or cassette.

The finding on the levels at which the drivers comply with road signs and other safety devices revealed that the respondents comply with the road signs and other safety devices. The finding shows that the drivers comply with the following road signs and other safety devices: Y-Junction, Dangerous double bend (First to Left), Narrow Bridge Ahead, Give Way to Traffic, Cross Road Four-Way Junction, T-Junction, Dangerous bend Right, Round About, No Right Turn, No Parking, No Left Turn, No U-Turn, Traffic Light, No Horn, Speed Limit. All these satisfy the statement of Kumuyi (2012) that "a careful road User/Traveler who observes warning road signs will arrive his/her destination safely".

Conclusion

Based on the findings of this research, a thorough knowledge of road signs is compulsory for all road users so as to ensure a smooth and safe traffic flow with either minor or no interference.

Recommendations

The following are the recommendations made based on the findings;
- Periodic road safety education should be organized for drivers by the government and other non-governmental organizations to ensure that they are familiar with road signs and other safety precautions.
- Training and re-training should be organized for drivers by the government and other non-governmental organizations to ensure that they are familiar with road signs and other safety precautions.
- The FRSC should make sure that the road signs are broadly written and should always function
- A similar study should be carried out in other parts of the state.

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