EFFECTS OF ROAD USER EDUCATION ON ROAD TRAFFIC CRASHES IN NIGERIA

MOTAJO, Olakunl[1]and ADEDOTUN Joseph Adenigbo[2]

[1] Department of Transport Management Technology,
The Federal University of Technology, Akure, Nigeria.
[2] Department of Transport Management Technology,
The Federal University of Technology,
Akure, Nigeria.

Corresponding Author: kmotajo@gmail.com

ABSTRACT

Transportation on road garners enormous benefits but without strict managerial measures, its attendant externalities impose on its benefits. Consequently, the trend of Road Traffic Crashes in Nigeria for the last decade and the resulting death toll on Nigerian roads has raised significant concerns among the government and people. These crashes not only consume lives and property but also lead to grief, dashed hopes, and high healthcare expenses. Therefore, this study is set out to examine the effects of road user education on road traffic crashes in Ondo state, Nigeria. This study adopted the survey research design. It relied on both primary and secondary sources of data and the study population comprises of commercial vehicle drivers, company vehicle drivers, staff of Federal Road Safety Corps and other stakeholders in Ondo State, Nigeria. The result reveals that almost 60% of the respondents agree that the use of print media by the FRSC to educate and enlighten road users had been effective while 20.9% disagree. Print media involves the use of like handbills, fliers, billboards, e.t.c. Regarding the use of electronic media, 62.2% of the respondents agree that the use of electronic media (e.g social media, television and radio) has been effective, 18.4% of the respondents disagree to this. An Exploratory Factor Analysis (EFA) was performed with varimax rotation using the principal axis factoring to extract the factors. The minimum factor loading criteria was set to 0.50. The communality of the scale, which indicates the amount of variance in each dimension, was also assessed to ensure acceptable levels of explanation. The results in table 3 show that all communalities were over 0.40, which is within the acceptable range of 0.30. It was concluded that the most represented road users were the motorable road users in this study, The trend of RTC cases, deaths and injuries revealed a sustained reduction from 2014-2018 and a sustained increase from 2018-2022. It was recommended that the FRSC should focus on other effective programs, such as motorized rallies, while the child advocacy scheme can be scaled up to reach more road users

Keywords: Transportation, road traffic crashes, education, Federal Road Safety Corps, road user

1.0 INTRODUCTION

Transportation on road garners enormous benefits but without strict managerial measures, its attendant externalities impose on its benefits (Afolabi & Gbadamosi, 2017; Isa & Siyan, 2016). In other words, Rodrigue et al. (2020) asseverated that the benefits of transportation realized by a few, carries with it certain externalities which are borne by all. This informs the overgrowing need to reduce the rate of road traffic hazards which has been a major concern for governments around the world especially in developing countries, resulting to the introduction of different road traffic crash (RTC) mitigative strategies. (Isa & Siyan, 2016; Uzondu et al., 2019). Road traffic accidents are also a global public health concern (Arthur, 2015), with developing countries, including Nigeria, experiencing a significant burden. The alarming rate of road traffic accidents in Nigeria, coupled with its status as a low-income country heavily reliant on road transportation, necessitates urgent and comprehensive efforts to address this issue. (WHO, 2018)

Odatuwa-Omagbemi et al. (2017) provided a comprehensive definition of road traffic crashes (RTC). They describe it as an event involving a motorized vehicle in transport that results in death, injury, and/or property damage. The crash can occur while the vehicle is in motion on a traffic way or after running off the traffic way. (Adejugbagbe et al., 2015). It is important to note that RTCs are considered accidents that take place on publicly accessible roads or streets, involve at least one moving vehicle, and result in the death or injury of one or more individuals. These crashes can involve collisions between vehicles, vehicles and

pedestrians, vehicles and stationary objects, or vehicles and animals on the road. Accordingly, Uzondu et al. (2019), opined that road crashes are road risks that are tied to unsafe driving behaviours. They noted that driving behaviour is directly linked to the rate of road crashes. Road risks aggravated amongst others by unsafe driving habits, roads and road vehicles has led to crashes with great physical, psychological and economic implications. (Hassan et al., 2022; Osime et al. 2006; WHO, 2018). Although road users seem to be aware of the impending dangers of road crashes, it seems the rates are ever increasing. The snowballing rate of global population and motorization has intensified the RTC incidence rate as reported by the World Health Organization (WHO, 2018).

Statement of the problem

The trend of Road Traffic Crashes in Nigeria for the last decade (2011 to 2022) and the resulting death toll on Nigerian roads has raised significant concerns among the government and people. These crashes not only consume lives and property but also lead to grief, dashed hopes, and high healthcare expenses (Afolabi & Gbadamosi, 2017; Hassan et al., 2022). Contributing factors to the increase in crashes include poorly trained drivers, inadequate road infrastructure, and insufficient road maintenance (Ranaei et al., 2021). Despite efforts by the Federal Road Safety Corps (FRSC), challenges persist. Therefore, it is crucial to assess the level of road safety education among users and identify the obstacles faced by the government's educational programs and their impact on road traffic crashes in Nigeria.

Aim and Objectives of the Study

The study aims to analyze the effect of road user education on Road Traffic Crashes (RTC) in Nigeria to highlight the trend of RTC and the challenges of effective road users' education in Nigeria.

The objectives of the study are to;

a. Examine the trend of road traffic crashes from 2011 to 2022 (12 years) in Nigeria;
b. Assess the education level of road users on road traffic crashes in Nigeria.
c. Examine the challenges confronting effective road users' education by the Federal Road Safety Corps

2.0 LITERATURE REVIEW

Like many other developing countries, Nigeria is witnessing a significant surge in motorization without commensurate road safety measures to address the rising number of road traffic crashes and resulting injuries. This trend aligns with the situation observed in other low- and middle-income countries. (Afolabi & Gbadamosi, 2017). The main victims are pedestrians, cyclists and public transport passengers regarded as vulnerable road users (VRU). (De La Santé et al., 2004; Oyetunji et al., 2017; Von Sawitzky et al., 2020), while the immured road users have been identified to be car and bus drivers (Obregon-Biosca et al, 2018). In Nigeria, the road traffic accident situation has been particularly disturbing over the last few decades, it has been regarded has one of the leading causes of death in the country (WHO, 2020). According to Osime et al. (2006), who studied the trends of road traffic accidents in Nigeria from 1955 to 2003, revealed that there was a steady increase in the number of injured and killed people in reported RTA cases. As at 1955 the ratio of reported cases to number of deaths was 12.37:1 but as at 2003 it became 1.93:1. This increase was corroborated by Sumaila (2013) in his study of RTC trends in Nigeria from 2007 to 2011. According to Afolabi & Gbadamosi (2017), they understudied RTA statistics in Nigeria from 1990 to 2012 and concluded that it was a serious and growing problem, with the absolute fatality rate and casuality figure rising rapidly. (Isa & Siyan, 2016). This is in contrast with Asian countries who posses' greater population but have lesser RTC fatality indices. (Sumaila, 2013). The RTC rate has also been predicted to increase if concerted efforts are not taken to

mitigate the rising trends of RTCs in Nigeria. This therefore leaves a gap to estimate the RTC trend for the last decade (2011-2022), identify the mitigative efforts of FRSC education on RTC reduction and the challenges faced by this organization.

The Psychodynamic Theory

According to Sigmund Freud's Psychodynamic theory, a persuasive message can be deemed effective when it successfully influences the psychological processes of the recipients, resulting in unconcealed responses that align with the desired or suggested behavioural models conveyed through communication. (Edegoh et al., 2013). To illustrate, in the context of promoting attitudinal change among drivers, the communicator would need to cultivate a positive attitude towards compliance with traffic rules and regulations, encouraging drivers to adopt best practices while navigating the highways.

Applying the psychodynamic model to road traffic crashes and road users' education involves understanding the underlying psychological factors that influence behaviour and decision-making in this context. The following are underlying considerations for using this model.

1. Unconscious Motivations: The psychodynamic model suggests that unconscious motivations play a role in behaviour. In the context of road traffic crashes, individuals may have unconscious desires or fears that influence their driving behaviour. For example, someone who has a fear of being late or a need for control may engage in risky driving behaviours unconsciously to fulfil those desires.
2. Unresolved Conflicts: The psychodynamic model emphasizes that unresolved conflicts can impact behaviour. In the case of road traffic crashes, individuals may have unresolved emotional conflicts or traumatic experiences related to driving or accidents. These unresolved conflicts can manifest as anxiety, aggression, or reckless behaviour while driving, increasing the risk of crashes.
3. Defence Mechanisms: The psychodynamic model suggests that defence mechanisms are used to cope with anxiety and distress. In the context of road users, defence mechanisms may come into play when individuals engage in risky behaviour but are not fully aware of the potential consequences. For example, denial or rationalization may lead individuals to underestimate the dangers of speeding or distracted driving.
4. Early Childhood Experiences: According to the psychodynamic model, early childhood experiences shape personality and behaviour. In the context of road users' education, it is important to consider how early experiences and socialization around road safety can influence individuals' attitudes and behaviours as drivers, pedestrians, or cyclists. Positive early experiences and education can promote safer behaviours later in life.
5. Transference and Countertransference: The psychodynamic model highlights the significance of the therapeutic relationship. In road users' education, the relationship between educators and learners can play a role in shaping attitudes and behaviours. Transference may occur when learners unconsciously project their past experiences, attitudes, or emotions onto the educator. Countertransference, on the other hand, refers to the educator's emotional reactions that could influence their teaching approach.
6. Self-reflection and Awareness: Psychodynamic approaches encourage self-reflection and increased awareness of unconscious processes. In road users' education, this can involve promoting self-reflection on driving behaviours, attitudes, and beliefs. By increasing individuals' awareness of their motivations,

emotions, and past experiences related to road use, they can develop a deeper understanding of their behaviours and make more informed choices.

To this effect, the psychodynamic model in application to road traffic crashes and road users' education, gives the possibility of exploring the underlying psychological factors that contribute to risky behaviour and accidents. This understanding can inform interventions, educational programs, and policies aimed at promoting safer road use and reducing the incidence of crashes.

3.0 METHODOLOGY

The largest road system in West Africa is found in Nigeria. The Government Infrastructure Concession Regulatory Commission estimates that Nigeria's total road network is roughly 195,000 km, of which 60,000 km are paved. Nigeria's most important highways run from South to North and were designed to bring produce from the hinterlands to the coast for export and to link the economies of old Northern and Southern Nigeria. These highways are labelled the A1, A2, A3 and A4. All other major roads in the country originate from these four. However, Ondo State was chosen for this study. This study adopted the survey research design. This involves the process of conducting research using surveys that researchers send to survey respondents. The survey data is then statistically analysed to draw meaningful research conclusions. This study relied on both primary and secondary sources of data and the study population comprises of commercial vehicle drivers, company vehicle drivers, staff of Federal Road Safety Corps and other stakeholders in Ondo State, Nigeria (see figure 1 and 2). It will be determined using the Cochran formula developed in 1963. The mathematical expression is stated as

$$n_0 = \frac{Z^2\, pq}{e^x}$$

n = sample size
Z = Z-score
p = standard deviation
e = error margin
Where Z=1.96 at 95% confidence level, p= 0.5, e= 0.05, q = 1-p

$$n_0 = \frac{(1.96)^2\ (0.5)(1-0.5)}{(0.05)^2}$$

$$n_0 = 384.16$$

Total sample size will be 385 respondents
Trend analysis was used to analyse objective one
Descriptive statistics was used to analyse objective two
Exploratory Factor Analysis was used to analyse objective three.

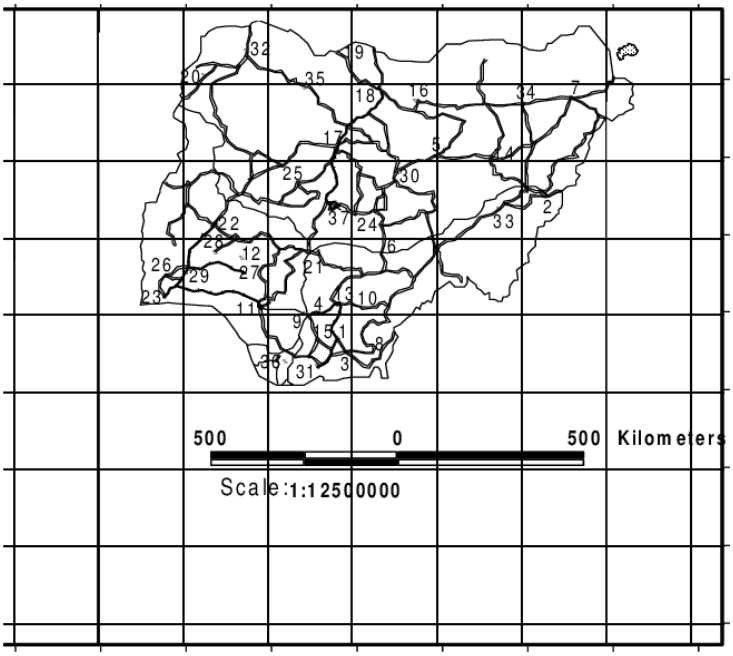

Figure 1: Road network in Nigeria
Source: www.google.com/nigeriamap

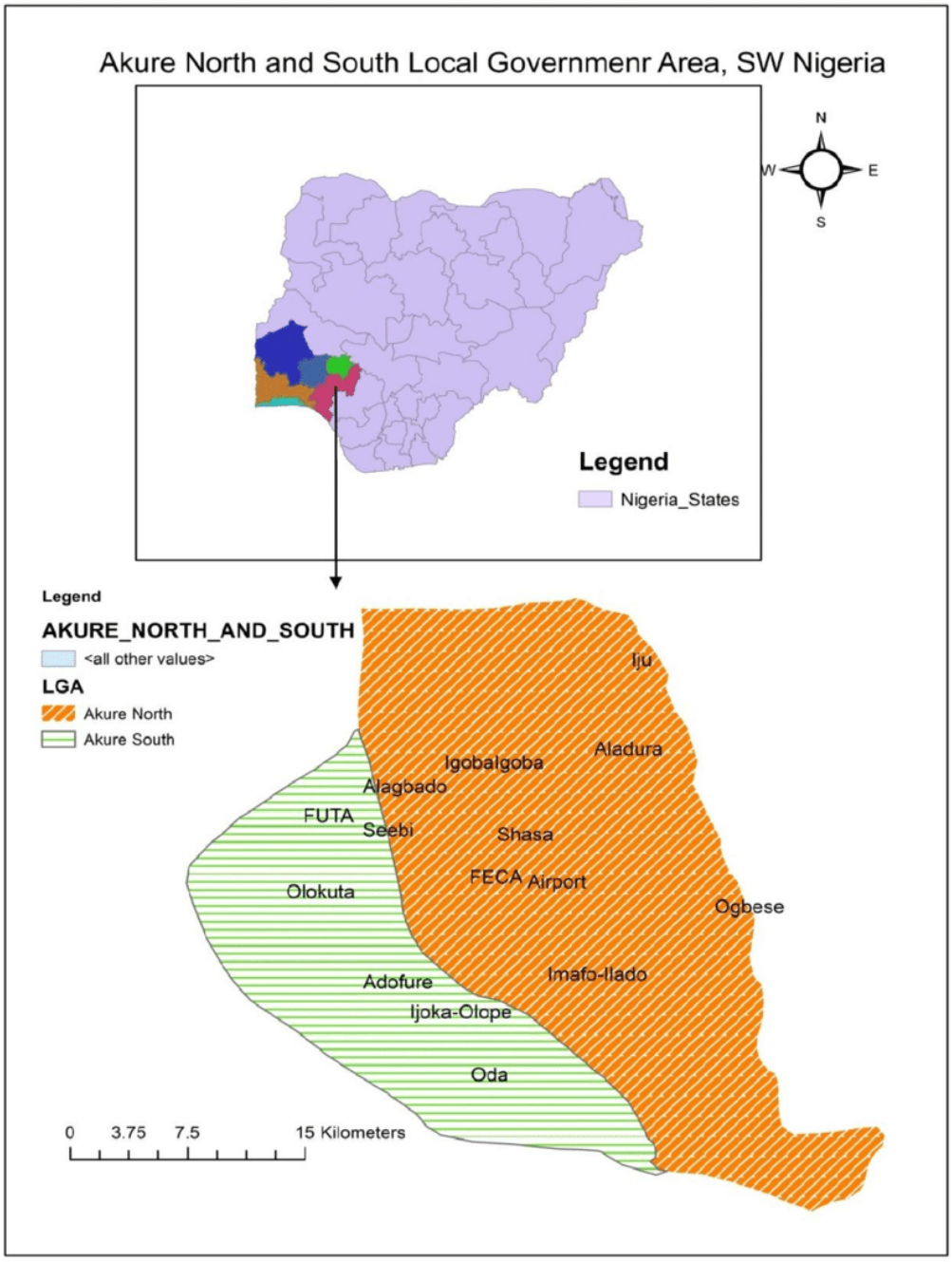

Figure 2: Map of Akure, Ondo State
Source: Dada et al. (2020)

4.0 RESULT

The result showed that the initial sample size of the respondents was 384. However, due to the high levels of random attrition, the sample size was limited to 201 responses due to lack of consent, dropping out of the study, refusal to participate, and absenteeism, with a valid sample of 201 participants, an attrition rate of 57% was observed. Table 1 shows the socio-demographic characteristics of distribution of respondents. Concerning the sex of the respondents, twenty-eight (28) respondents representing 13.9% of the respondents were Female, while one hundred and seventy-three (173) representing 86.1% were males. It was generalised that male population are predominant in the study. With reference to the Age

group, the highest represented age in the study fell between 20-29 years representing 30.3% (61) of the population, while 28.4% (57) were between the age of 30-39 years. 17.4% (35) of the respondents fell between the age of 40-49 years while 12.9% (26) of the respondents are within the age bracket of 50-59 years. The least represented age groups in the study are between the ages of 10-20 years representing 3% (6) while the remaining respondents were aged 60 years and above represented 8% (16). From the study it can be observed that the predominant road users are between the ages of 20-29 years. This implies the predominance of young adults as road users.

On the academic qualifications of the respondents, eighty-two (82) representing 40.8% of the population stopped their education at the SSCE level. HND/First Degree holders represented the next cadre of most respondents with a response rate of 38.8% (78). Primary school leavers represented 8.5% (17) while Master degree holders represented 8.0% (16) of the respondents. PGD and Ph.D. holders represented 3.5% (7) and 0.5% (1) respectively. This implies that road users in the study have up to secondary level education.

Concerning years of driving experience, respondents with 0-5 years and 6-10 years of driving experience dominated the responses with 25.4% each. Respondents with 11-15 years of driving experience represented 21.4% of the respondents while those with above 20 years' experience driving represented 19.9%, the least represented are those with 16-20 years of driving experience, representing 8.0% of the respondents. The results prove the influx of young adults dominating the road usership in the study area. These are represented by the dominance of people with less than 10 years driving experience in the study. Furthermore, this proves that there is a dominance of recent drivers who are in need of rigorous training on road safety in the study area.

Table 1: ***Socio-demographic characteristics of the respondents***

	Count	**Percentage (%)**
Gender		
Female	28	13.9
Male	173	86.1
Total	**201**	**100**
Age		
10-20 years	6	3.0
20-29 years	61	30.3
30-39 years	57	28.4
40-49 years	35	17.4
50-59 years	26	12.9
60 years and above	16	8.0
Total	**201**	**100**
Academic Qualification		
Primary School	17	8.5
SSCE	82	40.8
HND/First Degree	78	38.8
PGD	7	3.5
Masters Degree	16	8.0
Ph.D.	1	0.5
Total	**201**	**100**
Years of Driving		
0-5 years	51	25.4

6-10 years	51	25.4
11-15 years	43	21.4
16-20 years	16	8.0
Above 20 years	40	19.9
Total	**201**	**100**

Source: Researcher's Field Survey, 2023

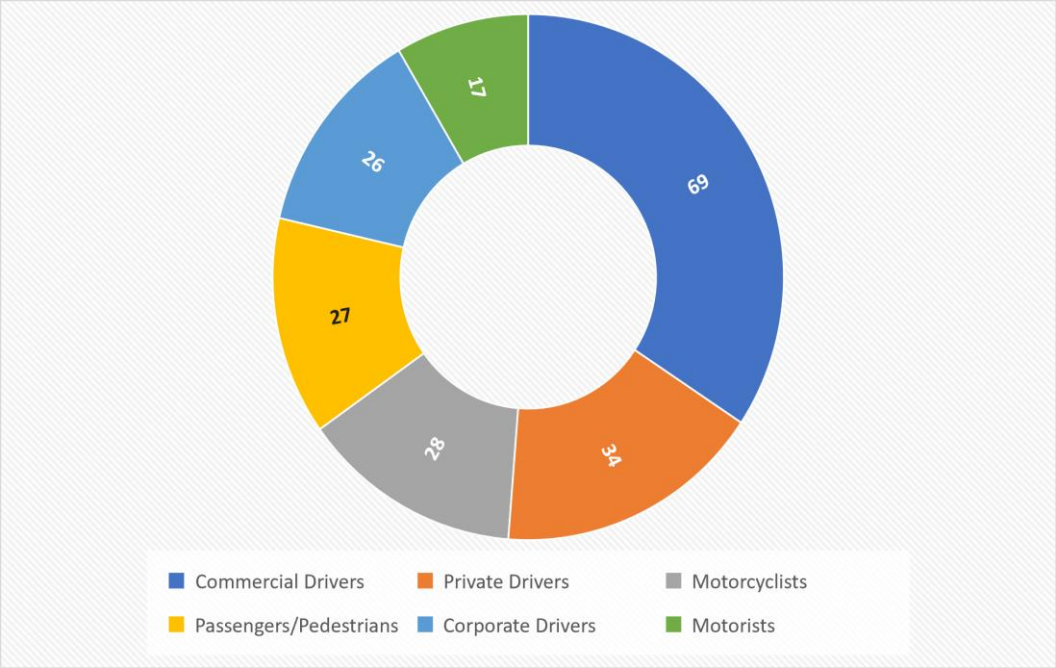

Figure 3: categories of respondents

Figure 3 reveals that commercial drivers had a higher response rate 69 (34%) while company or corporate drivers and Private drivers had a response rate of 12.9% (26) and 16.9% (34) respectively. Motorists had the lowest response rate of 8.5% (17). Closely tied is the response rate of Motorcyclists are Pedestrians/Passengers with 13.9% (28) and 13.4% (27) respectively. This implies that more responses came from commercial drivers, who likely influenced the socio-demographic distribution of the study.

The trend of road traffic crashes from 2011 to 2022 in Nigeria.

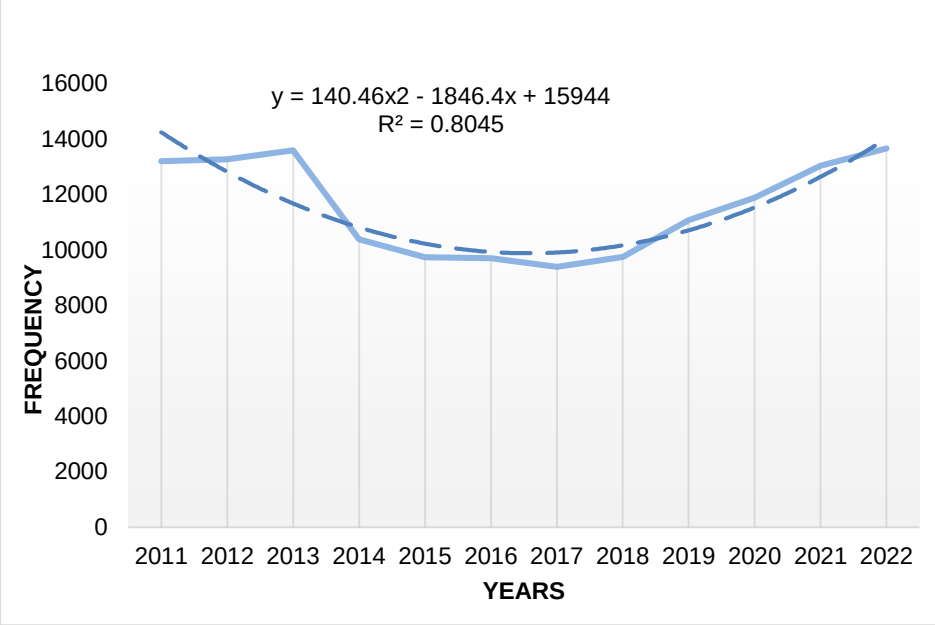

Figure 4: Trend of cases of road traffic crashes (2011-2022)
Source: FRSC, 2023

Figure 4 shows the trend of reported cases of road traffic crashes from 2011 -2022, a curvilinear line can be observed which starts out with a slow rise in the number of cases from 2011-2013 and a very visible bend from 2013-2014, it can be observed that the reduction was sustained up till 2017 then a steady climb in reported cases can be observed from 2018 till 2022. The Trendline fits the trend of cases by over 80%. From the trend equation, it is evident that the trend of reported cases is quadratic. Hence, a polynomial trendline fitted the data most appropriately. The polynomial trendline of degree two (2) is a quadratic trendline. This trendline was used to forecast the likely rise or fall of injuries for the next decade (2023-2033).

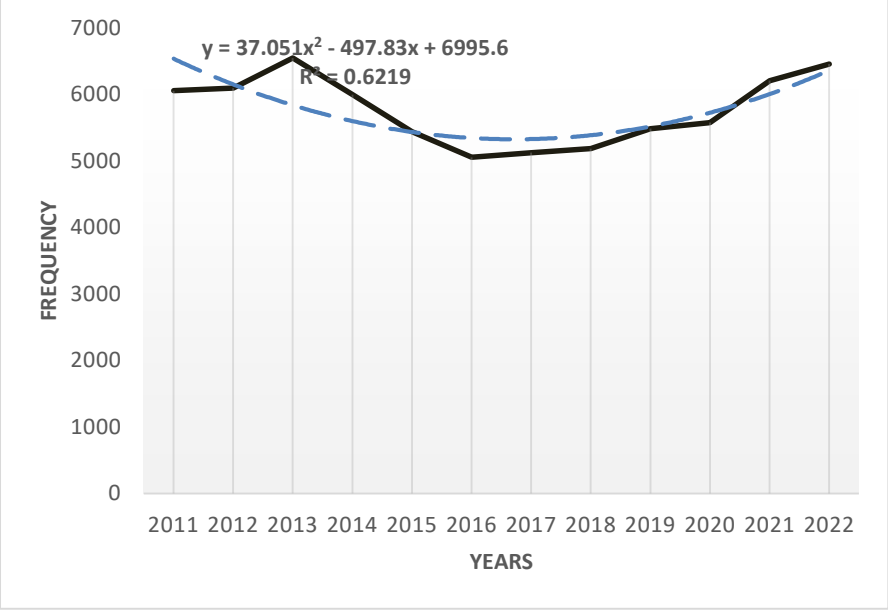

Figure 5: The Trend of deaths from road traffic crashes (2011-2022)
Source: FRSC, 2023

Figure 5 reveals the trend of deaths arising from road traffic crashes from 2011-2022. It shows a similar curvilinear line with a gentle rise from 2011-2012 and a spike in the number of deaths from 2012-2013. A very visible bend from 2014-2016 can be observed accompanied with a gentle rise from 2017-2020 then phases out with a steady rise till 2022. The Trendline fits the trend of cases by over 62%. From the trend equation, it is evident that the trend of reported cases is quadratic. Hence, a polynomial trendline fitted the data most appropriately. The polynomial trendline of degree two (2) is a quadratic trendline.

Education level of road users about road traffic crashes in Nigeria.

The education level of road users about road traffic crashes was ascertained on the basis of their awareness and attendance of FRSC education and enlightenment programmes. This would ascertain their claims as to the initial responses given about their level of awareness and attendance of FRSC programmes. However, as an addition, the metrics from their level of awareness and attendance was also presented as well as the effectiveness of the strategies employed by the FRSC.

Table 2: ***Awareness and Attendance Frequency***

		Count	**Percentages %**
RTC Education Level	Well-Informed	100	49.8%
	Informed	60	29.9%
	Fairly Informed	17	8.5%
	Uninformed	16	8.0%
	Neither	8	4.0%
	Total	**201**	**100.0%**
FRSC Education Frequency	Very Often	62	30.8%
	Often	56	27.9%
	Rarely	51	25.4%
	Never	32	15.9%
	Total	**201**	**100.0%**

Source: Researcher's Field Survey, 2023

From Table 2 it can be observed that 49.8% and 29.9% of the respondents are well-informed and informed about road traffic crashes, while 8.5% are fairly informed and 8.0% are uniformed about RTCs. A remnant of 4% claim to be neither informed or uninformed about RTCs. On the other hand, 30.8% and 27.9% of the respondents are very often and often participants in the FRSC's education and enlightenment programmes. While 25.4% of the respondents rarely participate, 15.9% have never participated in any FRSC education and enlightenment programmes.

Generally, the largest percentage of respondents (49.8% and 29.9%) have sufficient information about road traffic crashes and this is corroborated with the frequency of attendance of FRSC education and enlightenment programmes since the larger share of the respondents often undergo the FRSC education and enlightenment programmes often, with a combined representation of 58.7%. This posits that only about 60% of the surveyed road users regularly participate in the FRSC progammes, 40% are either rare participants or have never participated in the programme. This alone shows that the retention rate of participants in the education and enlightenment programme is deficient. Hence, the need for re-strategy in order to keep road users informed about road safety.

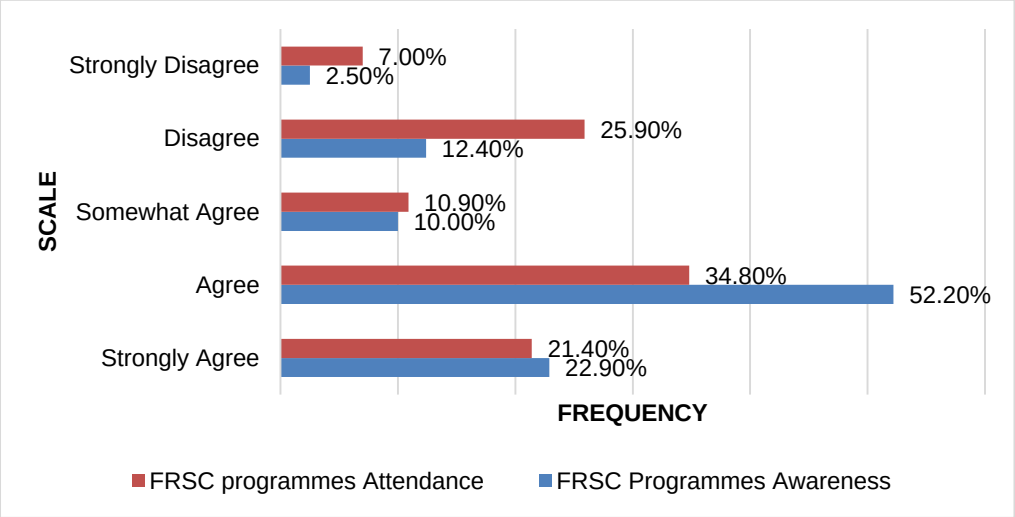

Figure 6: FRSC Education and Enlightenment Programmes
Source: Authors field work, 2023

From Figure 6, it can be observed that while 22.9% of the respondents strongly agree that they are aware of the FRSC programmes, 21.40% of them strongly agree to their frequent attendance. 52.20% agree that they are aware but only 34.80% agree that they frequently attend the programmes, 10% and 10.9% somewhat agree to their awareness and attendance respectively. However, 12.9% disagree to their awareness and 25.90% disagree to their frequent attendance while 2.5% and 7% of the respondents strongly disagree to their awareness and frequent attendance of the FRSC programmes.

It can be generalized that a larger percentage of respondents are aware of the FRSC education and enlightenment programmes since a combined percentage of 75.8% of them attested to their awareness of the programmes. However, only a combined percentage of 56.2% of the respondents frequently attend the programmes. Only 14.9% of the respondents are oblivious to the FRSC programmes while 32.9% of them do not frequent the programmes. This implies that most of them are aware but do not participate often in the programme, that is, more people are aware than are participants. This indicates that the level of willingness to participate in the FRSC programmes is low.

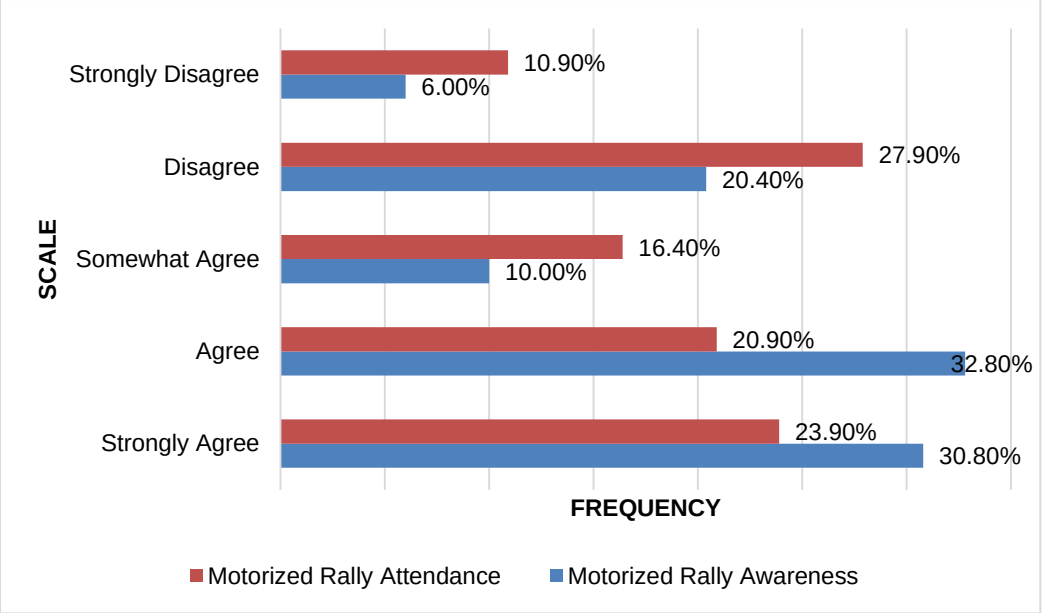

Figure 7: FRSC motorized rally attendance and awareness

From figure 7, it can be observed that while 30.8% of the respondents strongly agree that they are aware of the FRSC motorized rallies, only 23.90% of them strongly agree to their frequent attendance. 32.80% agree that they are aware but only 20.90% agree that they frequently attend the programmes, 10% and 16.4% somewhat agree to their awareness and attendance respectively. However, 20.40% disagree to their awareness and 27.90% disagree to their frequent attendance while 6% and 10.9% of the respondents strongly disagree to their awareness and frequent attendance of the FRSC programmes.

A combined percentage of 63.6% of the respondents are aware of the FRSC motorized rallies while 26.4% of them are unaware of the motorized rally. On the other hand, 44.8% of the respondents frequent the motorized rally while only about 38.8% of them do not. This implies that there is a visible divide between the level of awareness and the willingness to participate in these programmes.

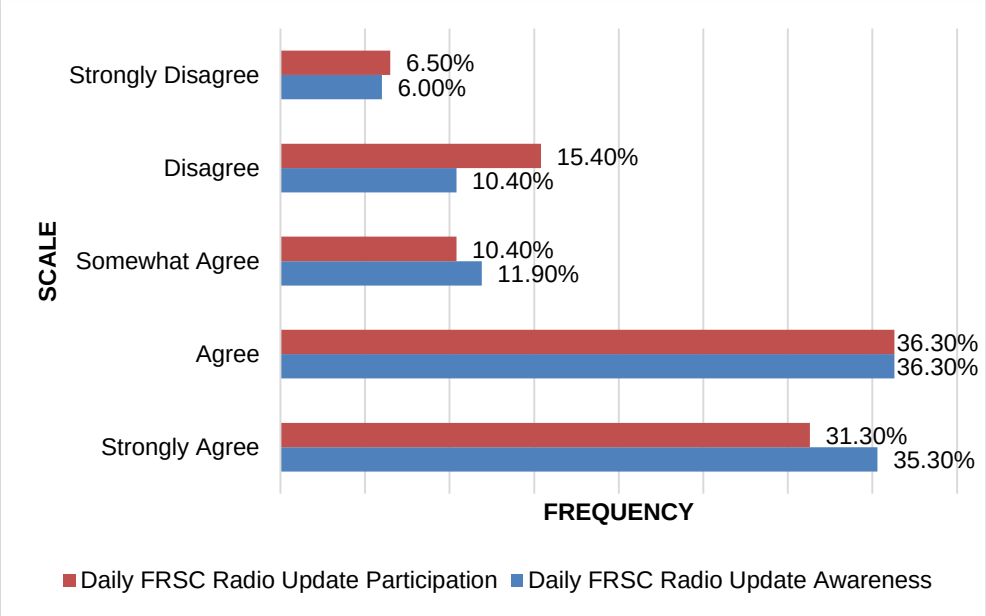

Figure 8: FRSC Daily Radio Update

Figure 8 tells us that while 35.3% of the respondents strongly agree that they are aware of the FRSC daily update on national radio, only 31.3% of them strongly agree to their frequent attendance. An equal number of respondents agree (36.3%) agree that they are aware and frequently participate in the update, 11.9% and 10.4% somewhat agree to their awareness and attendance respectively. However, 10.40% disagree to their awareness and 15.40% disagree to their frequent participation while 6% and 6.5% of the respondents strongly disagree to their awareness and frequent attendance of the FRSC programmes.

From figure 8, it can be observed that a combined percentage of 71.6% of the respondents are aware of the FRSC daily radio update on traffic situations while 22.3% of them are unaware of the FRSC daily radio update. On the other hand, 67.6% of the respondents frequently listen to the FRSC daily radio update while only about 21.9% of them do not.

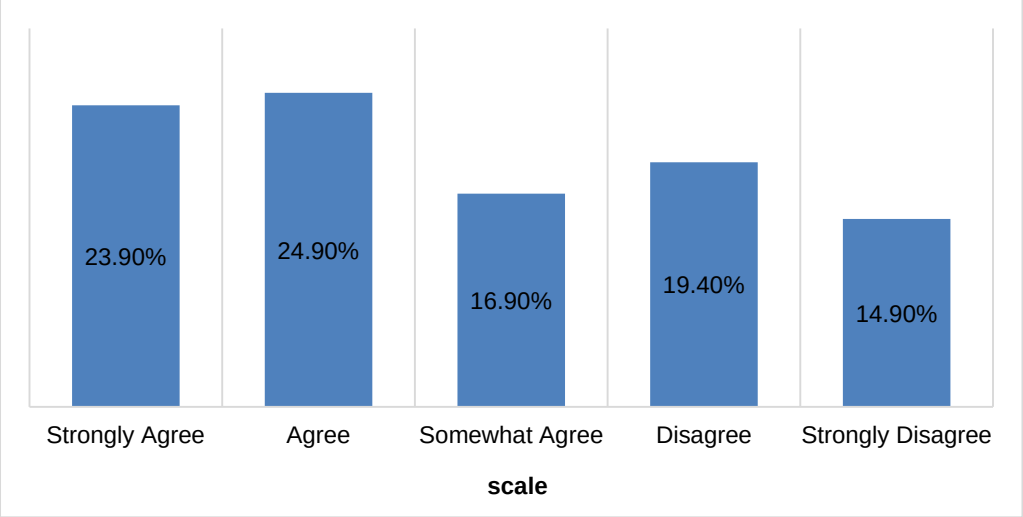

Figure 9: FRSC Child Advocacy Awareness

Source: Researchers field survey, 2023

Figure 9 shows us that 23.9% of the respondents strongly agree that they are aware of the FRSC child advocacy scheme, 24.9% of them agree to their awareness, 16.9% somewhat agree, while 19.4% disagree and 14.9% strongly disagree to being aware of the FRSC child advocacy scheme.

This implies that 48.8% of the respondents are aware of the FRSC child advocacy, however, 34.3% of them are not aware while the remaining 16.9% of them are indifferent about their awareness level. This posits that child advocacy has the least awareness levels and should be improved upon. This because children who are uneducated on road traffic crashes might end up as adults who are uninterested in road traffic education and enlightenment programmes. Hence, the child advocacy programmes though yielding the smallest immediate result, would lead to a significant long run reduction.

From the descriptive statistics on the education level of road users about road traffic crashes, it can be noted that the radio update had the highest awareness and participatory levels which means more people are aware of and listen frequently to the radio broadcast by the FRSC. However, Child advocacy has the least awareness level.

In the course of executing the project, the rate of effectiveness of the different awareness strategies employed by the FRSC was assessed and the descriptions are shown below.

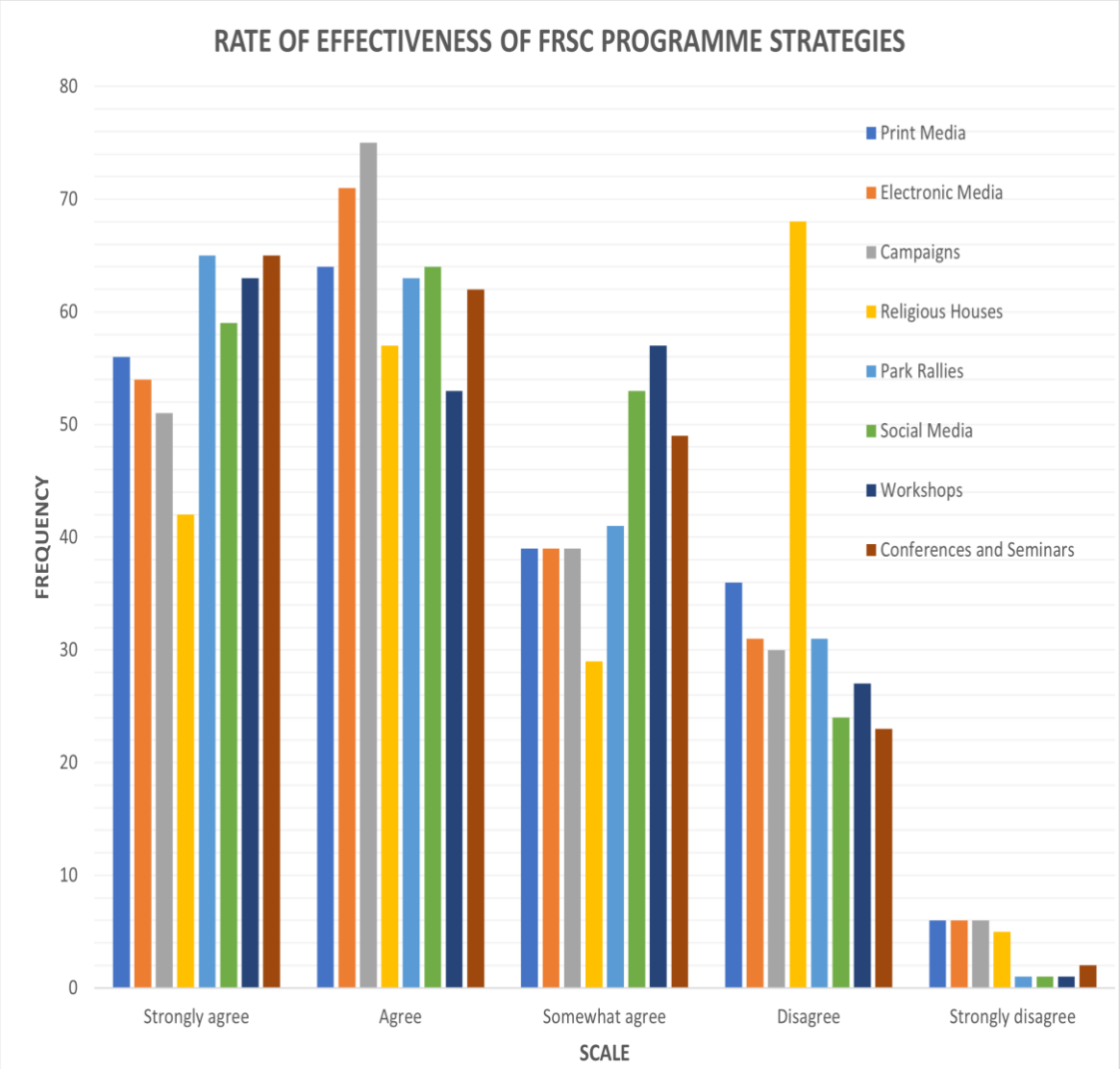

Figure 10: Rate of effectiveness of FRSC strategies in RTC reduction.
Source: Researchers field survey, 2023

From figure 10, it can be observed that the print media was strongly agreed to be an effective strategy by 27.9% (56) of the respondents, 64 (31.8%) agree to its effectiveness, 39 respondents representing (19.4%) of the respondents somewhat agree while 36 (17.9%) of the respondents disagree and 6 (3.0%) of the respondents strongly disagree that the print media has been an effective strategy employed by the FRSC to educate road users about RTC. The results further show that 54 respondents representing 26.9% strongly agree that the use of electronic media has been effective in educating and enlightening road users on road traffic crashes, 71 (35.3%) agree to this assertion although 39 (19.4%) of the respondents somewhat agree. However, 31 (15.4%) of the respondents disagree to this assertion while 6 respondents representing 3.0% strongly disagree that the use of electronic media has been an effective strategy employed by the FRSC in educating and enlightening road users about road traffic crashes in the study area.

On the other hand, 51 (25.4%) respondents strongly agree that the use of campaigns to educate and enlighten road users about road traffic crashes in Akure has been effective. 75 (37.3%) respondents agree to this assertion while 39 (19.4%) respondents somewhat agree to this. Although, 30 (14.9%) of the respondents disagree to this and 6 (3.0%)

respondents strongly disagree to the effectiveness of campaigns as effective strategies for the education of road users in Akure.

Concerning visit to religious houses, 42 respondents representing 20.9% strongly agree that the FRSCs visit to religious houses has been an effective strategy employed in the education and enlightenment of road users about road traffic crashes in Akure. 57 (28.4%) agree to this assertion and 29 (14.4%) strongly agree to this assertion while 68 (33.8%) disagree and 5 (2.5%) strongly disagree to the effectiveness of FRSC visitng religious houses in a bid to educate and enlighten road users about RTC in Nigeria.

Regarding Motor Park rallies, 32.3% (65) of the respondents strongly agree to the effectiveness of motor park rallies in educating and enlightening road users about RTCs in Akure. 31.3% (63) agree to this assertion and 20.4% (41) somewhat agree to this. 15.4% (31) of the respondents disagree with this while only one respondent strongly disagrees with the effectiveness of motor park rallies in educating an enlightening road user's about RTCs in Akure.

Pertaining to the use of social media as a strategy to educating and enlightening road users about RTCs in Akure, 59 (29.4%) respondents strongly agree to its effectiveness, 64 (31.8%) respondents agree to this, while 53 (26.4%) somewhat agree to this. 24 (11.9%) of the respondents disagree to this and only 1 respondent strongly disagrees to this assertion.

Apropos, the effectiveness of the use of workshops in educating and enlightening road users about RTC was also rated, while 3 (31.3%) of the respondents strongly agree to the effectiveness of this strategy, 53 (26.4%) of the respondents agree to it and 57 (28.4%) somewhat agree to it. 27 (13.4%) disagree to this assertion while only 1 respondent strongly disagrees to this assertion.

Vis-a-vis, the use of conferences and seminars was regarded strongly by 65 (32.3%) of the respondents as an effective strategy for road users' education and enlightenment while 62 (30.8%) agrees to this assertion, 49 (24.4%) of the respondents somewhat agree to it. 23 (11.4%) of the respondents disagree to this while 2 (1.0%) of the respondents strongly disagrees to this.

An aggregation of the result reveals that almost 60% of the respondents agree that the use of print media by the FRSC to educate and enlighten road users had been effective while 20.9% disagree. Print media involves the use of like handbills, fliers, billboards, e.t.c. Regarding the use of electronic media, 62.2% of the respondents agree that the use of electronic media (e.g social media, television and radio) has been effective, 18.4% of the respondents disagree to this. While 62.7% of the respondents agree to the effectiveness of campaigns alongside the use of the print and electronic media, 17.9% of the respondents disagree. Concerning FRSCs visit to religious houses, 49.3% of the respondents agree to the effectiveness of FRSCs visit to religious houses but 36.3% of the respondents thinks visit to religious houses has been ineffective. 63.6% of the respondents agree that motor park rallies are an effective strategy employed by the FRSC while 15.9% disagree to this. Social media outreaches were agreed to by 61% of the respondents while 12.4% disagree to the effectiveness of social media outreaches. 57.7% of the respondents agree that workshops organized by the FRSC has been effective while 13.9% disagree to this. Finally, 63.1% of the respondents agree to the effectiveness of FRSC conferences and seminars while 12.4% of the respondents disagree to this.

Generally, all the strategies have an agreement rate of about 60% except visit to religious houses which has the highest disagreement. This implies that people perceive that visit to religious houses has been an ineffective strategy. The most effective was judged to be motor park rallies followed by the use of conferences and seminars.

The challenges confronting effective road users' education by the Federal Road Safety Corps

An Exploratory Factor Analysis was performed with varimax rotation using the principal axis factoring to extract the factors. The minimum factor loading criteria was set to 0.50. The communality of the scale, which indicates the amount of variance in each dimension, was also assessed to ensure acceptable levels of explanation. The results in table 3 show that all communalities were over 0.40, which is within the acceptable range of 0.30. (Costello & Osborne, 2005). This implies that the three (3) factors accounted for at least 43% of the variations in the variables as seen in the SPSS output statistics.

Table 3: ***Communalities using Principal Axis Factoring***

	Initial	**Extraction**
Technology	.657	.723
Funding	.474	.680
Road Infrastructure	.604	.658
Willingness to Participate	.558	.612
Willingness to Change	.549	.553
Corruption	.531	.551
Manpower	.591	.539
Road User Behaviour	.359	.529
Global Requirements	.516	.522
Resources for Sustenance	.562	.520
Programme Sustenance	.446	.496
Performance Reward Systems	.500	.439

Source: Authors computation, 2023

Finally, the factor solution derived from this analysis yielded three factors for the scale, which accounted for 56.84% of the variation in the data. Factor Loadings are presented in Table 4**.**

Table 4: ***Varimax Rotated Loadings using Principal Axis Factoring***

	F1= Institutional/ Infrastructural Challenges	**F2=** Implementation/ Participatory Challenges	**F3=**Financial Challenges
Technology	**.864**		
Road Infrastructure	**.770**		
Manpower	**.648**		
Performance Reward Systems	**.646**		
Resources for programme sustenance	**.628**		
Corruption	**.607**		
Current Programme Sustainability		**.680**	
Road User Behaviour		**.675**	
Willingness to Participate		**.644**	
Willingness to Change		**.627**	
Global Requirements		**.611**	
Funding			**.747**

Source: Researchers' Field Survey, 2023

5.0 Conclusion and Recommendations

It was concluded that the most represented road users were the motorable road users in this study, The trend of RTC cases, deaths and injuries revealed a sustained reduction from 2014-2018 and a sustained increase from 2018-2022. The forecasted reported cases, deaths and injuries revealed a geometric increase for the next decade (2020-2033) if nothing is done to abate the increase. The level of awareness of road users compared to their level of participation revealed a great divide. Hence, more road users might get aware of some of

the FRSC programmes but less will be frequent participants. This can be catered for if the effective programmes and strategies are focused on. Based on the conclusion, the following recommendations can help to reduce RTC cases in Nigeria:

- Focus on effective programs and strategies. The study found that most road users are aware of and participate in the FRSC daily radio traffic update, which is an effective program. The FRSC should focus on other effective programs, such as motorized rallies, while the child advocacy scheme can be scaled up to reach more road users.
- Address the challenges to the effectiveness of FRSC education and enlightenment programmes. The study found that three major challenges confront the effectiveness of the FRSC education and enlightenment programmes: institutional/infrastructural challenges, implementation/participatory challenges, and financial challenges. The FRSC should address these challenges in order to make its education and enlightenment programmes more effective.
- Target accident factors and vehicle condition and road communication factors. The study found that accident factors and vehicle condition and road communication factors are the two major factors that contribute to RTC deaths. The FRSC should target these factors in its road safety education and enforcement efforts.

REFERENCES

Adejugbagbe, A. M., Fatiregun, A. A., Rukewe, A., & Alonge, T. O. (2015). Epidemiology of road traffic crashes among long distance drivers in Ibadan, Nigeria. *African Health Sciences*, *15*(2), 480. https://doi.org/10.4314/ahs.v15i2.22

Adeloye, D., Thompson, J., Akanbi, M. A., Azuh, D. E., Samuel, V., Omoregbe, N., & Ayo, C. K. (2016). The burden of road traffic crashes, injuries and deaths in Africa: a systematic review and meta-analysis. *Bull World Health Organ*, *94*(7), 510-521A. https://doi.org/10.2471/blt.15.163121

Afolabi, O. J., & Gbadamosi, T. (2017). Road Traffic Crashes In Nigeria: Causes And Consequences. *The International Journal of Transport and Logistics*, *17*(42), 40–49.

Costello, A. M., & Osborne, J. A. (2005). Best practices in exploratory factor analysis: four recommendations for getting the most from your analysis. *Practical Assessment, Research and Evaluation*, *10*(1), 1–9. https://doi.org/10.7275/jyj1-4868

De La Santé, O. M., M, P., Organization, W. H., Bank, W., R, S., D, S., Mathers, C., Jarawan, E., Hyder, A. A., D, M., A, H. A., & E, J. (2004). *World Report on Road Traffic Injury Prevention*. World Health Organization.

Edegoh, O. N., Nwanolue, I. M., & Ezeh, N. C. (2013). Audience Assessment of the Use of Models in Billboard Advertising: A Study of Consumers of Amstel Malt in Onitsha, Nigeria. *International Review of Social Sciences and Humanities*, *6*(1), 217–227. https://www.irssh.com

FRSC. (2021). 2020 FRSC Annual Report. In *Federal Road Safety Corps*. Federal Road Safety Corps.

FRSC. (2022). 2021 Annual Report. In *Federal Road Safety Corps*. Federal Road Safety Corps.

Hassan, M. R., Sani, N. J., Anwar, N. M. D., Mamman, N., Shehu, N. a. A., & Abdulrahman, N. a. A. (2022). Assessment of compliance level of road users to road traffic signs in Kaduna Metropolis, Nigeria. *World Journal of Advanced Engineering Technology and Sciences*, *5*(2), 069–081. https://doi.org/10.30574/wjaets.2022.5.2.0047

Isa, M. N., & Siyan, P. (2016). Analyzing Factors Responsible For Road Traffic Accidents along Kano-Kaduna-Abuja Dual Carriageway Nigeria. *Journal of Economics and Sustainable Development*, *7*(12), 156–163. https://iiste.org/Journals/index.php/JEDS/article/download/31490/32330

Obregón-Biosca, S. A., Betanzo-Quezada, E., Romero-Navarrete, J. A., & Ríos-Nuñez, M. (2018). Rating road traffic education. *Transportation Research Part F-traffic Psychology and Behaviour*, *56*, 33–45. https://doi.org/10.1016/j.trf.2018.03.033

Odatuwa-Omagbemi, D., Oruma, A., Enemudo, R., Otene, C. I., Iwegbu, G., Okeke, M., & E, A. (2017). Epidemiology of Road Traffic Crash Injuries as Seen in the Emergency Room of a Tertiary Hospital in Delta State, Nigeria. *British Journal of Medicine and Medical Research*, *21*(4), 1–8. https://doi.org/10.9734/bjmmr/2017/32752

Osime, O. C., Ehikhamenor, E. E., Oludiran, O. O., Iribhogbe, P. E., Ighedosa, S. U., & Elusoji, S. O. (2006). Road traffic accident trends in Nigeria. *International Journal of Injury Control and Safety Promotion*. https://doi.org/10.1080/17457300600622282

Oyetunji, M. O., Oladeji, F. A., Falana, O. J., & Idowu, P. A. (2017). Prediction of Road Traffic Accident in Nigeria Using Naive Baye's Approach. *Advances in Multidisciplinary & Scientific Research*, *3*(1), 23–30.

Ranaei, V., Hassani, L., Jahanlou, A. S., Roshanaei, G., & Rezapur-Shahkolai, F. (2021). Effect of educational intervention on safe traffic behaviors of high school male students in Iran, using the theory of planned behavior: a quasi-experimental study. *BMC Public Health*, *21*(1). https://doi.org/10.1186/s12889-021-11943-x

Rodrigue, J., Comtois, C., & Slack, B. (2020). The Geography of Transport Systems. In *Routledge eBooks*. https://doi.org/10.4324/9780429346323

Sumaila, A. F. (2013). Road crashes trends and safety management in Nigeria. *Journal of Geography and Regional Planning*, *6*(3), 53–62. https://doi.org/10.5897/jgrp2013.0318

Uzondu, C., Jamson, S., & Lai, F. H. (2019). Investigating unsafe behaviours in traffic conflict situations: An observational study in Nigeria. *Journal of Traffic and Transportation Engineering*, *6*(5), 482–492. https://doi.org/10.1016/j.jtte.2018.06.002

Von Sawitzky, T., Grauschopf, T., & Riener, A. (2020). The Next Stage of Road Traffic Education: A Mixed Reality Bicycle Simulator to Improve Cyclist Safety. *GI VR / AR Workshop*, 1–4. https://doi.org/10.18420/vrar2020_31

WHO. (2018). Global Status Report on Road Safety 2018: Summary. In *World Health Organization* (WHO/NMH/NVI/18.20). World Health Organization. Retrieved June 7, 2023, from http://apps.who.int/iris

WHO. (2020). Global Health Estimates 2020: Deaths by Cause, Age, Sex, by Country and by Region, 2000-2019. *World Health Organization*. Retrieved June 7, 2023, from https://who.int/data/gho/data/themes/mortality-and-global-health-estimates/ghe-leading-causes-of-death