



# ROAD SAFETY AND TRAFFIC CRASH IN RURAL COMMUNITIES OF CROSS RIVER SOUTH SENATORIAL DISTRICT OF NIGERIA

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## ABSTRACT

Road safety has been recognized as one of the main pillars of a sustainable transport system. Road traffic injuries are the single biggest source of fatality among children. Awareness of traffic and road safety education and traffic crash in rural communities of southern Cross River State, Nigeria are necessary conditions for curbing incidence of road crashes. The study specifically correlated embedding road safety programme within the school curriculum framework and compulsory attendance of driver training school with road traffic crashes with rural road crashes. It adopted both qualitative and quantitative approaches of survey research. Data were obtained from 630 participants and analyzed using descriptive statistics and Pearson Product Moment Correlation coefficient. Results revealed existence of significant positive relationship between road safety education programme within the school curriculum and enrollment in driver training school. The study recommended that increasing the awareness and understanding of traffic and road safety practices through education will have an immediate impact on a reduction in traffic related injuries and fatalities in rural communities.

**KEYWORDS:** Road safety, education, traffic crash, rural communities.

## INTRODUCTION

A traffic crash is a tragedy for all affected while injuries can cause suffering, economic loss and life-changing misfortune. Road collisions are the leading cause of death for rural dwellers aged 15-24 and they account for over a quarter of deaths in the 15-19 age groups (Reported Road casualties, 2009). Traffic crash in rural areas has a serious detrimental impact on individuals, families and the Nation's economy.

The emergency health costs along with the lost economic outputs are highly significant. The economic welfare costs are estimated at around 16 billion Euros a year while insurance pay-outs for monitoring claims alone are now over 12 billion euros a year (Reported Road Casualties, 2009). The impacts of the traffic crash or collisions on the rural road network also constitute a major economic cost. This demonstrates that there is potentially a strong case for reducing the economic and personal costs of fatalities and

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serious injuries on our rural roads (UN, 2014). Death and injuries in road traffic incidents in rural areas pose a serious threat to the health of the inhabitants and have a negative impact on social and economic progress, as well as sustainable development in the rural environment. Fatalities and injuries due to road transport thus have an enormous negative impact on the well-being of rural people and productivity (UN, 2014).

In 2018, the World Health Organization (WHO) estimated that yearly around 1.35 million deaths occur due to road traffic accidents worldwide. Millions are injured and always require hospital admissions with often long-term disabilities as a consequence. If indirect deaths caused by air pollution from motorized transport are included the total number of deaths exceeds 1.5 million corresponding to over 4000 lost lives per day (WHO, 2018).

In the Cross River State rural environment, the threat posed to the realization of well-being appears to be connected to the tragedy of road traffic casualties. The assumption is that rural dwellers should have access to safer roads and safe mobility. This is because the family and the community are especially affected because of the dearth and in some cases, total absence of emergency medical services, and poor road traffic data collations, thus making the burden of road injuries catastrophic. In the rural communities of the state, frequent injuries of members of households in road crashes have resulted in the decline of average household income and consumption, thus affecting livelihoods (Ugenlo, Nkpoyen and Usoroh, 2020). Rural and agricultural families and communities are often the hardest hit by road traffic trauma as well as being more at risk of serious injury of the event of road crashes. They are more devastatingly affected because the options of redeployment to less physical work are few and therefore, the injured victims are more likely to be a greater burden on rural families and communities. Moreover, the consequences of severe road crashes tend to be greater in rural areas because of its subsistence economy.

The probable factors of fatal crashes here could be due to complacency such as fatigue, violation of road standards, illiteracy, drug use behaviour due to idleness and attitude distraction, risk tolerance, inattention to highway codes etc. The implication of road traffic crashes for rural dwellers is that it crucially brings to the fore the

necessity for road safety education. Therefore, it is possible that these casual factors could be addressed through proper road safety education. Education remains inextricably tied to the safety, economic, political and social development of any society. Education impacts skills and knowledge and creates human resources that drive safety development in all societies (Etan, Kenneth, Angioha, Abang & Akande, 2022). Education makes it easier for rural road users to do the right thing and internalize the right grain of road safety norms. Also, better education and training for children, learners and inexperienced drivers may help to check improper road usage. The study was thus meant to examine the impact of road safety education on traffic crashes in rural communities of southern Cross River State. So far, there is a dearth of empirical findings in this area of research. This study was needed to fill up the gap in the literature concerning road safety education and traffic crashes in rural Cross River State, Nigeria.

## OBJECTIVES

The study sought to investigate road safety education and traffic crashes in rural communities in the southern senatorial district of Cross River State.

The specific objectives were to:

Examine the relationship between embedding road safety education within the school curriculum framework and road traffic crashes in rural communities.

Determine the relationship between compulsory driver training school and road traffic crashes in rural communities.

### Research Hypotheses.

Embedding road safety education programmes within the school curriculum framework has no significant relationship with road traffic crashes in rural communities.

Compulsory attendance at driver training school has no significant relationship with road traffic crashes in rural communities.

### Review of related literature

Road safety education

In spite of the significant improvements in road safety achieved in the last 25 years, the current number of deaths and injuries (and associated social and economic costs) is still unacceptably high. Only in the year 2000, over 40,000 were killed and more than 1.7 million injured in road crashes in the European Union.

Having in mind the magnitude of this number, the European Commission set up a safety goal to reduce the number of road deaths by half in the period of 2000-2010 (European Commission, 2001). Road safety measures, aimed at achieving this safety goal by preventing traffic crashes and reducing their severity are traditionally referred as three E's: Enforcement measures, Engineering measures and Education measures (OECD, 2000).

According to WHO Report (2018), the fatality rate from road traffic crashes has increase to 1.35million. This has put high pressure on health facilities in every country of the world and the resultant economic cost had increased to 3 percent their Gross Domestic Product (GDP). This increasing fatality has prompted the United Nation to introduce the Safe System Approach (SSA) to road traffic and safety management among the member nations. The Safe System Approach is a road transportation system where "road traffic crash results to no death". The Safe System Approach (SSA) is prompted by the United Nations Accra Declaration of 2007 (Accra Declaration Report, 2007) and the United Nation Decade of Action 2011-2020 and 2021-2030. In other to enhance road traffic management system through the Safe System Approach the United Nations instructed her members to develop the National Road Safety Strategy to harmonize the road traffic system management among her members (Nigeria Road Safety Strategy I and II, 2014-2018 and 2021-2030).

Traffic education measure is used for all kinds of road user groups and for all sorts of road safety issues. It ranges from training moped riders to driver improvement of convicted drivers (Dragutinovic and Twisk, 2006). The key objective of road safety education can be defined as achieving an optional use of transportation system with optimal safety for all road users (OECD, 2000). The ultimate goal of each road safety and education programme is to reduce the number of crashes and casualties. Therefore, the crash reduction could also be considered as the ultimate education criterion for measuring the effectiveness of road safety education programmes. The primary goal of road safety education is to change road behaviour while the secondary objective is to enhance positive change, that is increase in knowledge about traffic, change attitude towards safety (developing

positive attitude towards safety) or development of new traffic skills (Dragutinovic and Twisk, 2006).

Educational programmes do not assume that children share the same views and interpretations with adults, even not the same meanings of simple concepts such as 'pedestrian', 'left' and 'right' or 'being careful' (Vinje, 1981). Road safety training should continue to focus on the development and application of road side skills, but young children should also be trained in the basic concepts of error-avoidant road user behaviour so that they can perceive themselves as having personal responsibility for maintaining safety (Vinje, 1981). Skills alone are not enough for safe road behaviour. Individuals have to acquire complex strategies whose development is also related to the meta-cognitive process, awareness and control; they need to develop appropriate attitude towards road safety (Arnett, 2002; Bailey, 1994).

Road safety practice in schools is anchored on certain principles. According to Dragutinovic and Twisk (2006), road safety education should not result in increased exposure to high risk categories; road safety education should promote injury reduction measures that are known to be effective. It should also provide children of every age with the skills and knowledge required to perform safely on the road related activities in which they are likely to be engaged. Road safety education should have provided students not only with the knowledge and skills required to behave safely, but also with the motivation to do so. This education should provide students with knowledge that will help them to become safer road users throughout their lives.

## **THEORETICAL FRAMEWORK**

School road safety education model

This approach was developed by World Health Organisation (1986). It is a whole-school approach which is dependent on schools, parents and communities working together to plan and implement road safety strategies within the school community. The approach consists of three areas: (1) curriculum (2) ethos and environment (3) parents and community. The model can be disaggregated into the following key aspects: implementing current and evidence based road safety education programmes and initiative in schools; embed road safety education programme within a curriculum framework; school management support staff to implement road

safety education; use student-centred interactive strategies; inform parents of class room programmes; actively engage students in skill development; help students to influence their peers as road safety users; consult wider school community when developing road safety plans; school management actively promotes road safety education; staff model appropriate road safety behaviour and attitude; encourage school community participation in school road safety programme; review and update the school traffic environment. Others are: provide parents with information to reinforce road safety messages and skills; encourage parents to model safe road use; engage agencies such as driving school to complement school road safety programme; engage school health staff to complement school road safety education (Department of Education and Training, 2007).

The framework can make positive contributions to health and learning outcomes through the interrelationship of these three areas. A promoting school is a school that is constantly strengthening its capacity as a healthy setting for living, learning and working. The implication for the present study is that effective road education received in the school and training school environments gives learner opportunities to their knowledge, skills and attitudes to help them make informed and safe decisions in traffic situation generally and rural environments in particular. The assumption is that road safety education influence on road users in rural areas is important in the effort to save lives. An important part of this Safe System Approach is to educate the children and young people to behave responsibly on the road and have a wider picture of overall safety design in road transport system (Road Safety Council, 2008).

## METHOD

### Study setting

The study adopted both the qualitative and quantitative approach of the survey research design. The qualitative aspect adopted the key informant method. This study took place in the rural areas of the southern senatorial district of Cross River State. It is made up of seven local government areas: Biase, Akamkpa, Odukpani, Calabar south, Calabar Municipality, Akpabuyo and Bakassi (Enyong, David and Umoh, 2014). It

has an estimated population of 776, 443 (NPC, 2006). The district lies within the rich fingers of tropical rain forest zone of south-eastern Nigeria. The area is blessed with abundant human and agricultural resources. The people are dynamic, creative, industrious and hospitable. Their major sources of livelihoods include farming, fishing, trading, mining of stones, gravel and lumbering.

### Sampling

The sample for the study was made up of 630 respondents selected from six (6) local government areas (Calabar municipality was excluded due to its urban status) and 18 villages. The study comprised rural dwellers ranging from literate to non-literate farmers, drivers (commercial and private), traders, businessmen and women, proprietors of driving schools, students and the unemployed (so long as they are commuters) who reside in this study area irrespective of their status in the community. The sample size was determined using Taro Yamane's (1967) simplified sample-determined procedure. The sample size based on this formula gave a total of 400 respondents. However, this was increased by 50 per cent, giving an overall sample size of 600. Additionally, 6 proprietors of 6 driving schools and 12 headmasters of primary schools. The overall total number of participants was 630.

The multi-choice sampling procedure was adopted for the study. Firstly, the 6 LGAs were purposively studied except Calabar Municipality. The 6 LGAs constituted the 6 strata of the study. From the 6 strata, 3 villages (rural communities) were selected per stratum using simple random sampling procedure. This yielded a total of 18 communities which constituted 18 clusters. To draw actual respondents, a systematic sampling technique was adopted. Participants were only drawn from odd numbered households. In a particular sample household, only literate members attending schools, out of schools, drivers, car owners, adults etc. were considered as inclusive criteria for selection. The researcher selected 5 percent respondents per cluster. The proportionate sampling technique was adopted for the selection. It yielded a total of 600 respondents from the clusters. Additionally, 6 proprietors of driving schools (1 per stratum), 2 secondary school principals per stratum and 2 primary school headmasters per stratum ( amounting to 24) participated in the key informant interviews (KIIs). Overall, 30 participants were involved in the KII. Therefore, the total number of respondents was 630.

## Data analysis.

Table 1: Socio-demographic characteristics of respondents (N=630).

	Variables	No. of respondents	Percentage %
Age	10-15	35	5.55
	16-20	165	26.19
	21-25	230	36.50
	26 years and above	200	31.74
	Total	630	100
Marital status	Single	245	38.88
	Married	460	57.14
	Divorce	21	3.33
	Widow	9	1.42
	Total	630	100
Religion	Christianity	629	99.84
	Islam	-	-
	African traditional religion	1	0.15
	Total	630	100
occupation	Driving	210	33.33
	Farming	75	11.90
	Trading	65	18.05
	Students/pupils	175	27.77
	Civil servant/proprietors	70	11.11
	Unemployed	35	5.55
	Total	630	100
	Educational level	Primary/completed primary	263
Secondary/completed sec.		341	54.12
Tertiary		24	3.80
Source: field data (2020)		630	100

Source: Field work, 2024.

Table 1 is the socio-demographic data of respondents. Respondents in the age bracket of 21-25 (36.50 percent =230) were the highest in number followed by those in the age bracket of 16-20. In terms of gender, males constituted 54.12 percent (N=289). The married respondents, 57.12 percent (N=360) were the majority. Almost all the respondents were Christians. In terms of

occupation, those engaged in driving, 33.33 percent (N=210) constituted the highest number of respondents. This was followed by students/pupils, 27.77 percent ( N=175). The civil servant/proprietors of driving schools constituted 11.11 percent (N=70) of total respondents of the study. Educationally, majority, 54.12 percent (N=341) were either in secondary school or were

also graduates from secondary school. They formed the highest number of respondents.

**Test of hypotheses**

Hypothesis 1

H0: Embedding road safety education programme within the school curriculum framework has no

significant relationship with road traffic crashes in rural communities.

H1: Embedding road safety education programme within the school curriculum framework has significant relationship with road traffic crashes in rural communities.

Table2: Pearson product-moment correlation analysis of the relationship between embedding road safety education within the school curriculum framework and road traffic crashes in rural communities (N=600)

Embedding road safety education within school	1050	1950		
Curriculum framework (X)			1775	0.878
Road traffic crashes in rural communities (Y)	950	1650		

Significant at 0.05, critical  $-r=0.195$ ,  $df=598$

Results of the analysis in table 2 show that the calculated r-value of 0.0878\* is greater than the critical r-value of 0.0195 at 0.05 level of significance, with 598 degrees of freedom. By this result, the null hypothesis is rejected and alternate hypothesis upheld. This means embedding road safety education within the school curriculum framework has a significant relationship with road traffic crashes in rural communities.

Hypothesis 2

Ho: Compulsory attendance of driver training school has no significant relationship with road traffic crashes in rural communities

H1: Compulsory attendance of driver training school has significant relationship with road traffic crashes in rural communities.

Table 3: Pearson product-moment correlation analysis of the relationship between compulsory attendance of driver training school and road traffic crashes in rural communities (N=600) Variables

Compulsory attendance of driver training school (X)	1175	1987	1791	0.925
Road traffic crashes in rural communities (Y)	950	1650		

Significance at 0.05, critical  $-r=0.195$ ,  $df=598$

Results of the analysis in Table 3 indicate that the calculated r-value of 0.925\* is greater than the critical r-value of 0.915 at 0.05 level of significance, with 598 degrees of freedom. By this, the null hypothesis is rejected and alternate (H1) upheld. This means compulsory attendance of driving school has a significant relationship with road traffic crashes in rural communities.

**DISCUSSION OF FINDINGS**

Embedding road safety education programmes within the school curriculum framework and the road traffic crashes.

The analysis revealed that embedding road safety education programmes within the school curriculum framework positively relates to road crashes in rural communities.

community approach; involves children and young people in real decisions to help them stay safer; is based on an understanding of their needs and concerns, is realistic and relevant to children's

## ROAD SAFETY AND TRAFFIC CRASH IN RURAL COMMUNITIES

333

Education has been consistently viewed as the method of safety promotion that will lead to the ultimate accident prevention. The findings support Chen (2010) that education has the responsibility of informing the public of new equipment or enforcement procedures. As observed by Carney (2002) basic principles of road safety have continuously been promoted by NGOs, schools, universities, clubs, parents, media and many others. Traffic education should be a lifetime- long starting from primary school since behaviour change and education on safety are complementary.

*School is the best place to start every good thing. Another place is a church or mosque. So if you inculcate road safety knowledge in school, our children will imbibe the norms of safer road use. So let the schools teach road safety to our children (KII).*

The findings harmonize with Delaney, Lough, Whelan and Cameron (2004) that the concept of partnership between heavy vehicles, standard vehicles, motorcycles and pedestrians be highlighted in order to avoid the aggressive behaviour of many road users. All road users should access roads with others. The key informants commented that,

*Since most people are often reluctant to attend safety meetings or take an active part in activities, traffic safety education should also be planned to bring its concepts to individuals inside and outside school (KII).*

The key informants further observed that *The road safety education programme is paramount in reducing crashes on our roads. The type of education should also be through media sources and periodic publicity campaigns. Religious organisations should also be involved. Special handouts, billboards and bulletin boards can be used to distribute traffic safety information in both rural and urban areas (KII)*

The finding agrees with Fleet (2012) that effective education should span over a person's entire lifetime. Elementary and secondary schools are the most important phases of this system. Increased education is an essential part of improving road safety promotion.

Road safety education is very effective because it is a part of a whole school; whole

lives; recognizes what might make children particularly at risk; it is positive and rewards safer road behaviour in areas (Road Safety council, 2008).

Driver training schools and road traffic crashes

The analysis revealed that compulsory enrollment in driving schools has a positive relationship with road traffic crashes. Findings support Department of Transport (2011) that in most industrialized countries, driver training is seen as a necessary requirement in the quest for license or permit. The normal approach is to follow a syllabus that covers sufficient elements to enable the students to pass the license test. The findings agree with the Department of Transport that ideally, the syllabus and the training prepares learners for driving potential hazards and situations and not just those tested by the examiner at the time of the test.

The key informants admitted that:

*Better driving skills and better driving behaviour can make an enormous difference in reducing the incidence of road casualties in this rural community. All drivers should consider driving school lessons as paramount. You cannot drive well without having learnt well. Understanding road signs and behaviours on the road are essential to saving lives in rural areas. In fact, all drivers should have always been compelled to embark on refresher courses in driving schools once a year.*

Similarly, School Drug Education and Road Aware (SDERA) (2007) observed that driving is an acquired and demanding skill that takes years to master. In addition to skills, drivers need the right attitude towards speeding, other road users, alcohol, drugs and fatigue. Driving school instructions should be relevant to today's road conditions.

Arnett (2002) asserted that learning does not and should not stop when the driver passes the driving test. Safe driving is as much as attitude as about ability to control the car. Driving school introduces both safe driving and reinforces such through proper training. The key informants emphasized that:

*Driver training is more important because the potential drivers are exposed to a number of basic essentials for the safe and efficient operation of a motor vehicle. These include attitude, skill and*

good knowledge of road knowledge of road safety.  
We should be able to reduce traffic accidents.

334

**UGENLO LUCKY, KENNETH, BEAUTY USOROH AND EGONG, MATHEW MIKE**

*To do this requires both pedestrians and motor vehicle drivers acquiring sufficient information and knowledge about road usage (KII).*

The driver training school should expose learners to the potential risk faced on roads, instill in young people attitudes towards road safety and endeavour to guide learner drivers to take a more structured approach to prepare them for driving career, not just to pass a test (Dragutinovic and Twisk, 2006).

### CONCLUSION

Traffic crashes are a huge loss of economic resources and an invaluable human tragedy. The economic cost of traffic crashes in rural areas can be divided into direct economic cost, indirect economic cost and value of life and property damaged cost. The indirect economic cost of crashes consists of the value to society of goods and services that the person could have produced if the crashes had not occurred.

### RECOMMENDATION

The imperative of road safety education is beyond debate. The World Health Organization (WHO) estimated in a 2018 report that road traffic crashes were considered the principal cause of premature and physical disability among people after five years and above. Road safety education appears to be the moderating variable for checking road crashes on local and national roads. Education plays an important role towards achieving a safe road system and schools need to be totally involved. Schools implicating road safety initiatives, whether short or long-term should be recognized and commended for contributing to the health and well-being of societal members. Schools are therefore in an ideal position to deliver road safety education using the principles of the whole-school approach discussed as the theoretical framework in this paper.

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## **ROAD SAFETY AND TRAFFIC CRASH IN RURAL COMMUNITIES**

recommendations to the government to  
reduce road trauma in Western Australia

335

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