

**SOCIO-ECONOMIC EFFECTS OF ROAD TRAFFIC ACCIDENT IN  
WARRI METROPOLIS, DELTA STATE, NIGERIA – A NEXUS**

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**ABSTRACT**

This paper examines socio-economic effects of road Traffic Accident in Warri Metropolis, Delta State, Nigeria – A Nexus. A total of three hundred (300) questionnaires were administered to (motorists/drivers, health workers and commuters) respondents using mean ( $\bar{x}$ ) and standard deviation (SD) techniques. It is important that there is a clear understanding of the road accident problem and the likely effectiveness of road safety improvements. It is therefore, a priority for Nigeria to bare an appropriate accident information system and that they carry out research and evaluation studies of remedial measures. Therefore, there is need for Federal Road Authority (FRA) to re-introduce efforts to ensure massive road rehabilitation and maintenance in this part of the country.

**Keywords:** Accident; effects; socio-economic; Nexus; Warri.

**INTRODUCTION**

The occurrence of Road Traffic Accidents (RTA) at close localities are a function of higher levels of traffic which in turn are a product of higher concentration of social activities such as residential, employment or employment related namely, shopping and entertainment (Levine, Kim and Nitz, 1995a; Korter et al, 2014).

Every year, 1.2 million people die in road accident worldwide. Millions of others sustain injuries with some suffering permanent disabilities. No country is spared in this toll of lives and suffering that strikes the young ones in particular. Enormous human potential is being destroyed with grave social and economic consequences. Road safety is thus a major public health issue throughout the world. Worst still road traffic fatalities are forecast to decrease by about 30% in high income countries over the next 15-20 years, while road traffic fatalities in low and middle income countries are expected to increase on an average by around 80% if current polices and practices continue without novel interventions. Furthermore, road traffic injuries cost low income and middle income countries between 1 and 2 percent of their gross national product which is more than the total development aid received by these countries (WHO, 2004).

Also, country like France has paid special attention to road accident in order to improve safety on their roads. France has managed to reduce road death from the year 2002 to year 2003 by 20% and plans to reduce accident by 30% before year 2020 is reached (Mohammed, 2008). The same is planned and targeted in other developed countries.

Road accidents appear to occur regularly at some flash points such as where there are sharp bends, potholes and at bad sections of the highways. At such points over – speeding drivers usually find it difficult to control their vehicles, which then result to fatal traffic accidents, especially at night (Atubi, 2009a).

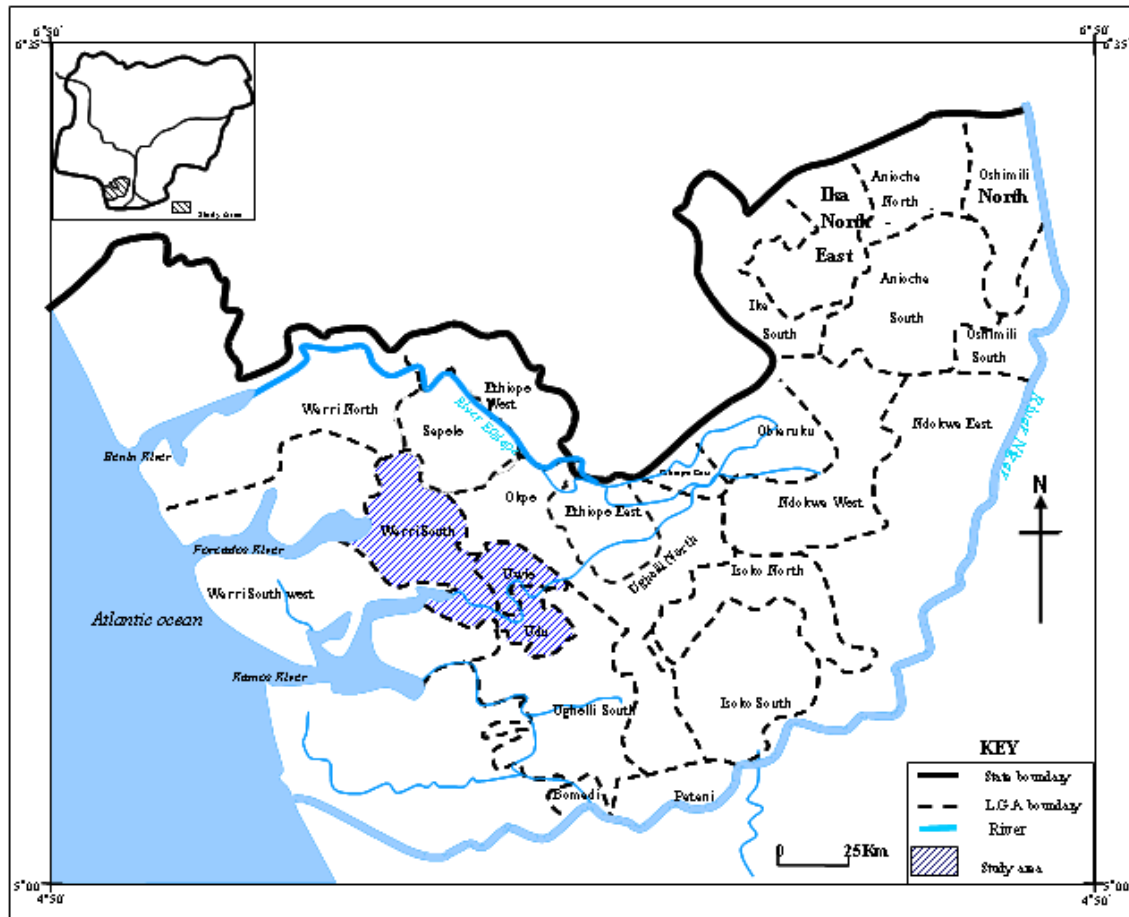
According to Atubi (2012c), Warri has many failed road network systems. He further stated that the deplorable state of roads in the two major routes leading to Asaba, the Delta State capital now force motorists and other road users to take a long way around Benin in Edo State to get to Asaba.

Many inner roads in the Oil city of Warri, Delta State, have become death traps, for example the Refinery – Effurun road and Enerhen – Udu road. The residents within the routes are angry because of the deplorable nature of the roads which tends to impinge on commercial activities in these areas. Surprisingly, some neighbourhoods in Warri and environs are only accessible by footpaths. Passengers spend hours coming from Orhowhorun junction to Enerhen junction (Atubi, 2012d).

Road traffic accidents statistics in Nigeria reveal a serious and growing problem with absolute fatality rate and causality figure rising rapidly. In majority of developing countries accident occurrence and related deaths are relative to either population or number of vehicles. Ironically, in Nigeria, studies have indicated that better facilities in terms of good quality and standardized roads have been accompanied by increasing number of accidents (Onakomaya 1988; Gbadamosi, 2003; Atubi and Onakala, 2009). This is totally contrary to the trends in countries where even the level of sophisticated road network and volume of vehicular traffic are (Atubi 2010a; 2015a). Road traffic accidents have physical, social, emotional and economic implications. The global economic cost of road traffic accident was estimated at \$518 billion per year in 2003 and \$100 billion of that occurring in poor developing countries (WHO, 2009). Nigeria loses about 80 billion naira annually to road accidents of all subjects that are involved in road traffic accidents in Nigeria, 29.1 percent suffer disability and 13.5 percent are unable to return to work (Labinjo et al, 2010; Atubi, 2010a).

**Study Area (Location)**

Warri metropolis is located between latitude 5°30'N and 5°35'N and longitude 5°29'E and 5°48'E. Warri is situated within the Niger Delta region of Nigeria. It is bounded to the North by Okpe and Sapele Local Governemnt Areas, to the south by Warri South west and the Atlantic Ocean, to the East by Ughelli South and to the West by Warri North Local Government Areas (See Fig. 1). Warri metropolis is made up of Warri South, Udu and Uvwie Local Government Areas (See Fig. 2). The areal expansion of Warri during the past two decades has been remarkable from a small riverine settlement, Warri has grown to cover the surrounding towns of Effurun, Ekpan, Enerhen Edjeba, Ogonu, Jakpa, Ovwian-Aladja, Udu Road, etc. With the results that Warri is now over 100km<sup>2</sup>. This areal expansion has led to increase in the number of road networks in the area.



**Fig. 1:** Map of Delta State showing study areas

Source: Modified after Ministry of Lands, Survey and Urban Development Asaba, 2015

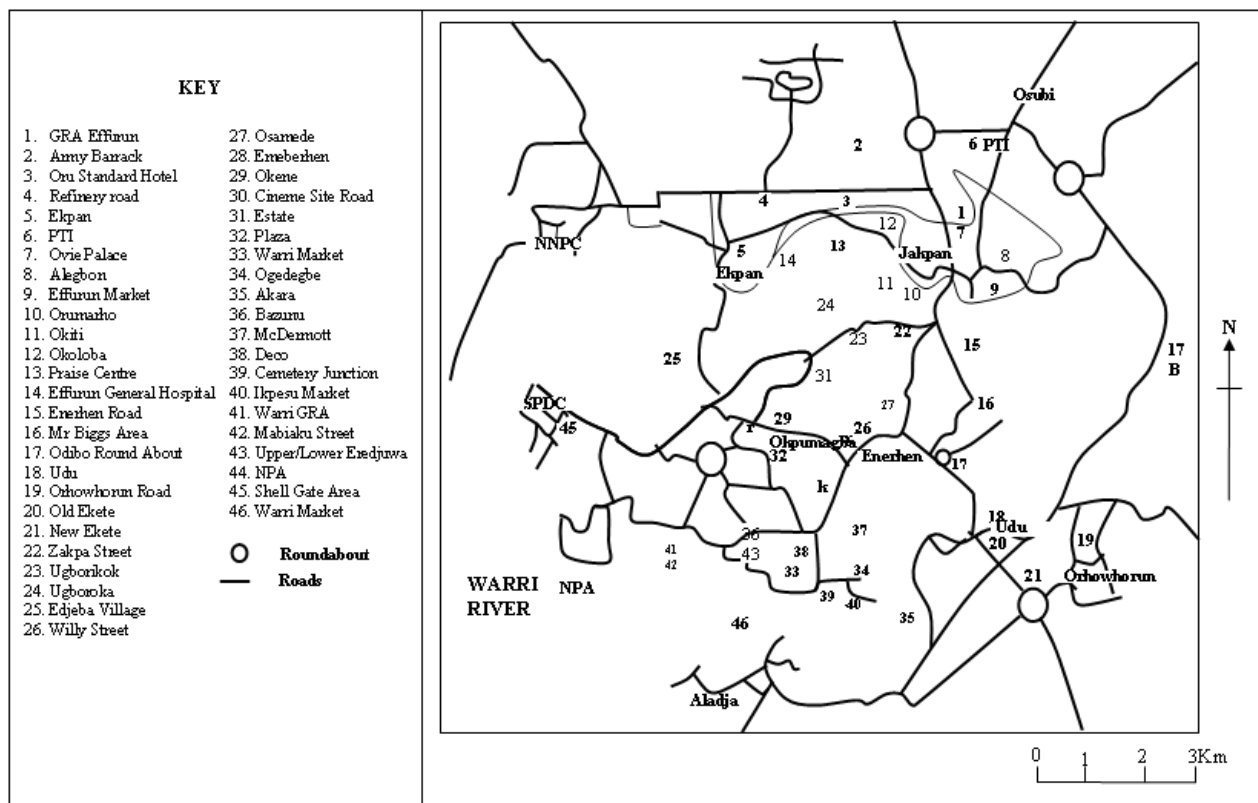


Fig. 2: Road Network Map of Warri and Environs

### Social and Economic Effect of Road Traffic Accidents on the Population

It is apparent that road accident is a complex phenomenon not only in terms of its diverse causes but also in the nature of its effects on lives and property. Apart from the humanitarian aspects of road safety, the injuries and fatalities which occur as a result of road accidents, have serious social and economic consequences, which has made prospective travellers to develop phobia for spatial interaction. This under normal circumstances would have prevented and nipped in the bud all business initiatives that would have taken place at locations different from the locations of business tycoons given the fear of the unknown in relation to the likelihood of being involved in road traffic accidents (Atubi and Gbadamosi, 2015).

As part of the study a total of (300) three hundred questionnaires were administered to motorists/drivers, health workers and commuters were selected from some principal peak-period congested areas in Warri metropolis. The responses of the sample for this study were analysed for mean ( $\bar{x}$ ) and standard deviation (SD).

**Table 1:** Mean ( $\bar{x}$ ) and Standard Deviation (SD) of scores in responses on the economic effects of road traffic accidents

S/N	Economic Effects	No. of Questionnaire (N)	( $\bar{x}$ )	SD	Decision
1	Loss of breadwinner	300	2.80	0.68	Agree
2	Loss of source of income	300	2.80	0.71	Agree
3	Damage to valuable property	300	3.00	0.72	Agree
4	Damage to roads	300	2.60	0.70	Agree
5	Damage to crops	300	2.50	1.00	Agree
6	Loss of man-hour	300	3.10	1.00	Agree
7	Expenditure medical treatment, hospitalization and burial	300	3.20	0.95	Agree
8	Loss of productive population	300	2.70	0.75	Agree
9	Loss of good/luggage	300	3.20	0.95	Agree
10	Loss of cash	300	3.00	0.96	Agree
11	Loss of certificatres/documents	300	2.90	0.72	Agree
12	Loss of jobs	300	2.70	0.81	Agree

**Source:** Fieldwork, 2014

**Table 2:** Mean ( $\bar{x}$ ) and Standard Deviation (SD) of scores in responses on social effects of road safety policies and interventions for Nigeria

From Table 1, it is shown that all the respondents “agreed” that the twelve factors are some of the economic effects of Road Traffic Accidents on the population. The economic effects of RTA on the population are enormous. They include:

### ***Loss of Bread Winner***

A lot of lives have been lost through Road Traffic Accident that it is rated as the 9<sup>th</sup> leading cause of death (WHO, 1998). Recently, the Federal Ministry of Health (2005) stated that RTA has claimed more lives than the dreaded HIV/AIDS pandemic. Earlier in 2013, the Federal Road Safety Commission (FRSC.) released an alarming casualty figure in RTA linked to bad roads. National Road Safety Committee (1992) indicated that an average of 74 persons were either killed or maimed in road traffic accidents every day in Nigeria, a figure described as one of the highest casualty rates worldwide.

In Warn and environs, adults who are bread winners died more frequently in RTA than children and the aged. Commuters including traders and returning students have lost their lives in RTA along the major roads. For instance in February 2013 a luxurious bus travelling to Port Harcourt was involved in R.T.A. along the Warri-Ughelli road a notorious black spot, in which 4 passengers lost their lives. The death of this bread winners result in strain and depletion in the economic fortunes of their respective families.

### ***Loss of Source of Income***

From Table 1 the respondents agreed that RTA results in loss of source of income. With a mean (X) response of 2.8 and standard deviation of 0.71, the respondents “agreed” that one of the economic effects of RTA is that the sample population lose their source of income; in RTAs. The Standard Deviation indicates the extent the opinion of the respondents deviates from the calculated mean score.

About the second quarter of the year, 2012 petroleum tanker drivers in Nigeria raised an alarm on the deplorable state of the federal highways when they gave a 21 -day ultimatum to government to repair the bad roads or face an indefinite ‘strike’ action. The Petroleum Tanker Drivers (PTD) unit of the National Union of Petroleum and Natural Gas (NIJPENG) workers reported to the government that many of their members had died and source of income lost in RTA. This was attributed to bad roads. Many National Union of Road Transport Workers (NURTW) members who were lucky to survive in RTA ended up losing their vehicles and income source due to irreparable damage to vehicles Some are permanently maimed that they cannot engage in any meaningful employment any longer The victims end up losing their jobs.

### ***Damage to Valuable Properties***

From Table 1 the valuable properties such as vehicles, goods, buildings, roads, economic trees and farmlands located within the vicinity of RTA are usually damaged due to RTA.

Goods and properties worth millions of naira have been destroyed in RTA. A case in point is the lorry conveying tomatoes and Salad condiments from the northern part of the country to Warrin, which got involved in RTA at the Warri-Sapele road in which several baskets of tomatoes and Salad materials perished. In some cases, long trucks conveying soft drinks are involved in these RTAs, in such a situation both the liquid content and the glass bottles are destroyed. They were evidence of rickety and damaged vehicles at the black spots identified in this study especially at the WarriEku-Abraka road. Bad roads and RTA have inflicted avoidable costs on the nation leading to high cost of vehicle maintenance.

### ***Damage to Roads***

The respondent also agreed that roads and even crops are damaged through RTA. Apart from damage to the vehicles involved in these RTAs, the vehicles sometimes vies off from the roads and crash into buildings, shops, and other structures along the roads. This is common at the black spots within Warrin metropolis road where tankers trying to discharge fuel or other petroleum products in filling stations are often the culprits. In the process several Lives have been lost, that were not directly involved in RTA. The results of this study are in conformity with the report by National Road Safety Committee (1992) which revealed that an average of 74 persons were either killed or maimed in road traffic accident every day in Nigeria.

### ***Damage to Crops***

In most cases the vehicles involved in multiple accidents along the roads vies off into farms along the roads and damage the crops and other economic trees. Some of the vehicles in RTA explode in flames during the dry season and set the bush and farm on fire. Hence the respondents' agreed' that damage to crops constitute an economic effect of RTA on the population.

### ***Loss of Man-Hour***

Table 1 indicates that the respondents 'agreed' on loss of Man-hour as one of the economic effects of RTA. This item has a mean of 3.1 and SD of 1 .0. Since 3.1 is above the 2.4 acceptable mark for 'agree' on the 4-point scale, this effect is regarded as one of the effects of RTA on the sampled population. The spread of the responses on this item away from the mean is 1.0 [SE). This shows that most of the respondents rated this factor on the higher side of the scale than on the lower side. Many RTA victims spend a lot of economically productive hours in mechanic workshops to repair damaged vehicles or in hospitals receiving treatment.



***Expenditure on Medical Treatment***

In addition expenditure on medical treatment, hospitalisation and burial of victims of RTA are enormous. Scarce resources that would have been used in the maintenance of families and investments in other economic ventures are spent in treatment, hospitalisation and burial of road Traffic Accident victims. This particular effect attracted a mean ( $\bar{x}$ ) response of 3.2 and standard deviation (S.D.) of 0.95 (Table 1) Thus, the finding of this study therefore indicates that Expenditure on medical treatment, hospitalisation and burial of dead RTA victims constitutes an economic effect on the sampled population.

***Loss of Productive Population***

From Table 1, the respondents “agreed” that RTA affects the population in terms of loss of productive age group. This effect particularly attracted a mean ( $Z$ ) of 2.7 and a standard deviation of 0.75, indicating that the respondents did not vary much in their opinion on this particular effect. The active or working population engaged in travels more frequently than the aged (more than 70 years) and children, the dependent age group. In addition the O.E.C.D., (1993) observed that in developing countries majority of road crash victims (injuries and fatalities) are not the motor vehicle occupants but pedestrians, motorcyclists) bicyclists and non-motor vehicles (NMV) occupants. These are people in their active productive age in the society.

***Loss of Goods/Luggage***

Similar to loss of cash and important documents several goods and luggage were lost in RTA scene on the major roads

***Loss of Cash***

Many commuters, especially traders have lost raw cash at RTA scenes on these major roads. In some cases the money is either stolen or burnt when the accident is associated with fire outbreak

***Loss of Certificates/Documents***

Another aspect of the economic effects of RTA on the sampled population is the loss of important documents such as certificates, text books, receipts and agreements in Road Traffic Accidents. Table 1 shows that the respondents “agreed” that loss of certificates and documents constituted part of the economic effects of RTA on the population.



***Loss of Jobs/Unemployment***

In Item 12, Table 1 subsequently indicates that the respondents “agreed” on loss of jobs or employment as constituting an aspect of economic effects of RTA on the population. When road traffic accidents occur some of the commuters and drivers are in some cases permanently injured that they can no longer engage in any meaningful employment. The victims end up losing their jobs and means of livelihood.

***Social Effects of RTA on the Population***

Similarly, the respondent’s opinion on social effects of Road Traffic Accidents on the population is presented on Table 2.

**Table 2:** Mean (x) and Standard Deviations (SD) of scores on responses on the social effects of road traffic accidents

S/N	Social Effects	No. of Questionnaire (N)	( $\bar{x}$ )	SD	Decision
1	Loss of esteem	300	2.2	0.91	Disagree
2	Social stagnation	300	2.3	0.79	Disagree
3	Deprivation of loved ones	300	3.4	0.84	Agree
4	Loss of love and affection	300	3.0	0.71	Agree
5	Psychological trauma	300	2.8	0.71	Agree
6	Body pains and stress	300	2.6	0.56	Agree
7	Increased unemployment	300	2.2	0.72	Disagree
8	Increased number of destitute	300	3.1	0.94	Agree

**Source:** Fieldwork, 2014

From Table 2, this study revealed that loss of esteem; Social stagnation and increased unemployment were not part of the social effects of RTA on the population. These social effects attracted the mean (x) responses of 2.2, 2.3 and 2.2 which were below the acceptable mark (2.5). From the standard deviation scores, the responses were also more homogeneous on these effects than others. The responses were more clustered around the mean (x) on these effect.

However, the remaining social effects were rated as constituting the social effects of RTA on the population these include; deprivation of loved ones, loss of love and affection, psychological trauma, body pains and stress; and increased number of destitute.

### ***Deprivation of Loved Ones***

When fatal road traffic accident occurs, life is lost. The victim(s) come from homes and have blood relations such as brothers, sisters, mothers, and fathers and children who are left to mourn and feel the pain of the irreparable loss. The love and concern shown by the victim while he or she was alive is lost forever. Such losses are difficult to quantify monetarily. No amount of money is able to raise a dead man from his grave.

### ***Loss of Love and Affection for Victims***

This social effect is closely related to the deprivation of loved ones. When a victim of RTA dies or is hospitalised, all the friends and admirers who loved them are deeply shocked and saddened by the terrible event. Even after the family of a RTA victim has had time to get over the shock of the event, the tragic loss of a life that radiated warmth and happiness remain irredeemable.

### ***Psychological Trauma***

In every RTA incident both the victim and rescue workers are in bitter emotions of anger especially when the accident was as a result of recklessness of the driver. Even after a number of years the incident occurred, the RTA victims experience a number of panic attacks, sometimes for fear of loss of job or employment due to injuries sustained. Some victims even had attempted committing suicide having realized the consequences of a permanent injury or handicap that arose from RTA.

### ***Body Pains and Stress***

Many victims who sustained serious injuries in a RTA usually spend weeks in hospitals in persistent unbearable pain, wishing that they had died in the accident. A victim who was interviewed in the course of the present study, confessed to having a neuropathic pain which became so unbearable. She said “I felt I was closer in having to take my own life than at any time in the two previous year&’. The aftermath of a terrible road traffic accident three years earlier. The negative social effect is therefore not restricted to the victims and their families only, but to colleagues in office, school, business, and on-lockers as well.

***Increased Number of the Destitute***

Many RTA victims sustain life long injuries and handicap that may lead to increase in the number of street beggars and dependants. Some of the victims had their legs or arms amputated and walk on clutches begging for alms at the motor parks and petrol filling stations. Street begging by destitute constitute one of the social problems in urban centres in Warrington metropolitan area and its environs.

In summary, the effects of RTA on the population are not always interpreted in terms of economic factors. When a spouse or a friend dies in a RTA, the loss in terms of love and affection, psychological trauma, body pains and stress are enormous.

RTA victims sustain permanent injuries that may lead to loss of jobs and increase in the number of street beggars. Body pains and stress may lead to economic losses as a result of medication. This indirectly affects the economic resources of the family of road traffic accident victims. Moreover when a commercial transport employee loses his vehicle to RTA, he may remain unemployed for a number of months. In all these situations, the nation is the ultimate loser because the productive age which usually engaged in these RTAs may end up not contributing enough to the economic growth of the population.

**Road Safety Policies and Interventions for Nigeria**

Oyo State was the first to establish a Road safety commission in Nigeria through edit 18 of 1977. It was referred to as “Oyo State Road Safety Corps” and nicknamed “MAJAMAJA”. The commission’s mandate included preventing and minimising road accidents , taking prompt care of victims of road accidents, educating drivers and prospective drivers in the proper use of highways, conducting research into causes of motor accidents and methods of prevention. The corps along Federal , State and Local Government roads in Oyo State with emphasis on the first two. An Evaluation of the effectiveness of the Corps revealed that it slightly reduced the rate of injuries resulting from road traffic accidents between 1978 and 1981. It , however, did not make a meaningful impact on reduction of accident fatality rates. The Oyo State Corps died a natural death when the then Federal Government banned it from operating on Federal Roads in that State resulting from inter-party feuds between NPN controlled Federal Government and the UPN government of Oyo State.

After the demise of Oyo State Road Safety Corps, the Federal Road Safety Commission (FRSC) was formed with bases at the Federal Ministry of Works and Housing and States’

Ministries of Transport. The Commission worked with two important committees, namely, the Research Committee and Implementation Committee. The Commission was successful in getting many people in the entire country and more importantly at the federal level to become more aware of the road safety problem.

The Federal Road Safety Commission was established under Decree 45 of 13<sup>th</sup> December 1988 with jurisdiction limiting its operations to only Federal Highways. The Jurisdiction was enlarged and further extended by an amendment Decree 35 of August , 1992 to cover all roads in Nigeria.

*The most strategic and enduring road safety policy is the establishment of the Federal Road Safety Commission (FRSC). The Commission was empowered by law to carry out the following:*

1. Prevent or minimizing accidents on the highways.
2. Clearing obstructions on any part of the highway
3. Education drivers, motorist and other members of the public generally on the proper use of the highways
4. Giving prompt attention and care to victims of accidents.
5. Conducting researches into cause of motor accidents and methods of preventing them
6. Determining and enforcing speed limits for all categories of road s and vehicles.

All these and many others are what the law permits the Federal Road Safety commission to execute with measures of force when the need arises. The Commission had been able to live of to expectation as the country has witnessed a gradual reduction in the magnitude of accident occurrence since their introduction.

Experience in developed countries shows that multiple programme and policy initiative can produce a rapid decline in deaths associated with road traffic injuries. Interventions such as the use of seat belts, child car seats, motorcycle helmets, enhanced enforcement programmes, alcohol control policies and traffic calming have all proved effective in reducing traffic injuries and preventing crashes in high – income countries. Policies of the developed countries however, cannot simply be transferred to low and middle – income countries because vulnerable groups at risk and the cultural, social economic and political contexts in developing countries are different (Nantulya et al, 2002; Nantulya et al, 2003).

Furthermore, approaches shown to be effective in developed countries may not give similar results in the developing world. For example the mere presence of a seat belt in an automobile may not suffice for effective intervention unless complemented with public education and enforcement by law enforcement officers. Additionally, many specific interventions and

strategies requires some administrative infrastructure for implementation, epidemiology for planning and prioritising and some fundamental pragmatic requirements (Trinca et al, 1988; Atubi and Ekrudjalgar, 2008).

### **Interventions Programme on Accident Prevention Policies in Nigeria**

With a daily average of 76 fatalities and 104 causalities and 14.2 deaths per 100,000 population for the year 2004 from road traffic accident (Atubi, 2013). Nigeria seems to have increased its fatality rate per accident even though the absolute number of the accident seems to have decreased. The establishment of the Federal Road Safety Commission to evolve a scientific and cultural relevant programme to meet the objective of its role as enunciated in degree No. 45, 1988 is another in the efforts of government to increase safety measures in Nigeria.

One factor that has worsened this accident rate is the use of poorly maintained vehicle occasioned by the structural adjustment policy of 1989. This is further worsened by lack of genuine spare parts, and the flooding of the market by fake spare parts. These further put the life of the drivers and passengers at greater risk. Similarly, the cost of tyres which has been put beyond the reach of the average car owners has led a lot of people to their untimely death. Inability to change these bad tyres lead to blowouts. This situation therefore have turned many a vehicle to “mobile coffins”. However some of the interventions for Nigeria include;

#### ***i. Seat Belts***

No matter how you will drive there is always a chance that you will be involved in an accident. You cannot predict when it may happen. From statistical analysis of road traffic accidents in Nigeria since independence the chance that one will be injured in an accident in his life time is 1:3; that he may be killed in an accident is 1:9. The best protection inside the vehicle is the use of seat belts (Federal Road Safety Commission Highway Code, 1997).

Similarly, the use of seat belts in Nigeria was optional, hence many vehicle are not fitted with seat belts. In those that have them, they are not being utilized by drivers and passengers alike. But currently, the Federal Road Safety Commission has made the use of seat belts compulsory to all motorists with effect from July 1<sup>st</sup> 2005 (The Guardian Newspaper, July 2<sup>nd</sup>, 2005, p. 14). In most developed nations especially Britain, a lot of money has been sunk into the implementation of the use of seat belts. The seat belt is an example of an active intervention for occupants because it requires some action on the part of the users. Its effectiveness in preventing injury and death in motor vehicle collisions has been well established by many earlier research studies (Final rule, 1984; Mueller et al, 1988; Rivera et al, 2000).

**ii. *Motorcycle Helmets***

Safety helmet worn in the correct way and properly fastened is the most effective way could increase your chances of surviving an accident (Federal Road Safety Commission Highway Code, 1997). In the time past, various laws were enacted by Federal, State and Local governments to curb the excesses of the riders. These include the National Road Traffic Regulation of 2004 and FRSC Establishment Act 2007 to mention a few. The acquisition of motorcycle helmets is well within the budgets of the people who afford motorcycles in this country. In addition, promulgating helmet laws has been associated with significant decrease in mortality and injuries sustained from motorcycle crashes (Fasakin, 2000; Fasakin, 2002). When a motorcycle is acquired, purchase of an approved helmet should be encouraged or even mandated in low-income countries (LICs) given the feasibility and potential sustainability of this intervention.

Just like seat belts have proven effective in motor vehicle crash related injury reduction, motorcycle helmets have proved effective in motorcycle crash related injury reduction making motorcycle helmet laws a strategy with proven effectiveness. In fact, recent research findings in settings other than the United States corroborate the evidence for the effectiveness of mandatory motorcycle helmet laws (Tsai et al, 2000; Conrad et al, 2001; Atubi, 2006).

**iii. *Speed Limits***

Drivers often think that the faster they drive, the more they impress themselves and others. They fail to remember that anybody's tyre can burst that accidents at high speed are more disastrous than accidents at low speed; that the vehicle is a machine and can fail at any time. At 100kmph, your vehicle moves at 28 metres per second, just imagine where you could be in only one second if you veer off the road which is usually less than 12 metres wide. (Federal Road Safety Commission Highway Code, 1997; Atubi and Ekruwdjiakpw, 2008).

The Federal Road Safety Commission also imposed speed limit for all categories of vehicles i.e. 100kmph maximum speed for all private cars, 90kmph for commercial vehicles and 60kmph for trucks. But common sense often dictates lower speed limits.

Speeding on highways is a major cause of traffic crashes. The effect of speed on causing traffic related crashes, injuries and deaths has been documented in many settings (Farmer et al, 1999; Posada et al, 2000). For example, the 1995 repeal of the United States national maximum speed limit, allowing states to raise interstate speed limits, resulted in a 15% increase in fatalities

in 24 states that raised speed limits. In Adelaide, Australia the risk of severe crash involvement was found to increase as vehicles speed increased (Moore et al, 1995). Infact, the over 20% reduction in traffic crashes and deaths in Brazil has been partly attributed to speed limits which have been posted on many roads since 1998 (Polidefigueiredo 2001).

*iv. Public Education Targeting Motorists*

Your safety depends on what you see and how you react. If you need spectacles to meet the official eye sight standard, wear them. It is an offence to drive with uncorrected defective vision. For example, a Nigerian study found a third of taxi drivers to have poor vision (Alakija, 2003). Although the findings from a 1999 study revealed the ineffectiveness of driver education for young drivers (Vernick et al, 2001), there is some evidence that general public education along with some behavioural modification that targets motorists may have some impact on road safety. One area is education of motorists on posted traffic signs. A recent study in three countries i.e. United States, Sweden and United Kingdom, showed that comprehension of 28 posted traffic signs for drivers were related to years of driving experience (Al-madani, 2000)

*v. Traffic Control by Signs*

A thorough knowledge of traffic signs, signals, road and markings together with signals by authorized traffic officers are to ensure a smooth and safe traffic flows. You must know them and be able to recognize them immediately. In the case of regulatory signs such as stop at intersection, stop police, stop highway survey, no left turn, no right turn, No “U” turn, No entry for lorries, no waiting, etc, you must obey them without hesitation.

**Conclusion**

In road traffic, so many accidents occur unlike in the aviation maritime and railway transport modes where relatively few accidents occur. Hence statistics about road traffic accidents as reported in this study are significant source of information for policy development and decisions. Living safely is a challenge that must be accepted by every one if we are to continue to move forward in an ever-changing and dynamic society.



**References**

- Alakija, W. (2003) poor visual activity of taxi drivers as a possible cause of motor traffic accidents in Delta state, Nigeria. *Journal of social and occupational medicine*, Vol. 31, pp. 167-176.
- Al-madani, H. (2000) Influence of drivers comprehension of posted signs and their safety related characteristics. *Accidents Ann. Prev.*, 32, pp. 575-581.
- Atubi A.O. (2010a) Spatial and Temporal perspective on road traffic accident variations in Lagos mainland, South Western Nigeria. *African Research Review*, Vol. 4(1), Pp. 256-272.
- Atubi A.O. (2012d) Effective traffic control in Warri metropolis using Geographic information System (GIS). *Journal of Environmental sciences and policy evaluation*, Vol. 2, No. 1, Pp. 1-11.
- Atubi A.O. and Onokala, P.C. (2009) Contemporary analysis of variability in road traffic accidents in Lagos State Nigeria. *Journal of African geographical review*; Vol. 28, Pp. 11-41.
- Atubi, A. O. and Ewhrudjakpor, C. (2008) Road Safety Approaches in Nigeria: An Overview. *Journal of Social and Policy Issues*, Vol. 5, No. 1, Pp. 209-219.
- Atubi, A.O. (2006) The effectiveness of para-transit transport services in Nigerian town. The case of motorcycle transport in Abraka. Akinbude, A and Ugbomeh, B. (Eds): In: *Abraka region. An occasional*, publication series of the department of geography and regional planning, Delta State university, Abraka, Pp. 103-117.
- Atubi, A.O. (2009a) Transport and environment for sustainable development of the Third world; strategies for Nigeria. *Journal of Sustainable Human Development Review*. Vol. 1 No. 3 Pp. 1-17.
- Atubi, A.O. (2012a) Determinants of Road Traffic Accident Occurrences in Lagos State: some Lessons for Nigeria. *International Journal of Humanities and Social Science*. Vol. 2, No. 6, Pp. 252-259
- Atubi, A.O. (2012c) Road Traffic Accidents in Warri and Environs: A Ten-Year Survey. *International Journal of Arts and Humanities*, Vol. 1, No. 2, Pp. 195-210.

- Atubi, A.O. (2013) Road traffic accident patterns in Lagos State from 1970-2001. *Lambert Academic Publisher, Germany*, (397 pp).
- Atubi, A.O. (2015a) Epidemiology of Deaths from road traffic accidents in Nigeria: A Baseline study of Lagos State. *International Journal of Science and Technology*, Vol. 4, No. 1, Pp. 24-36
- Atubi, A.O. and Gbadamosi, K.T. (2015) Global positioning and socio-economic impact of road traffic accidents in Nigeria: Matters Arising. *American International Journal of Contemporary Research*, Vol. 5, No. 5, Pp. 136-146.
- Conrad, P. Bradshaw, Y.S.; Lamsudin, R.; Kasnigah, N.; Costell, O.C. (2001) helmets injuries and cultural definitions. Motorcycle injury in urban Indonesia. *Accident analysis prevention*, 28: 193-210.
- Farmer, C.M.; Rettinger, R.A.; Lund, A.K. (1999) Changes in motor vehicle occupant fatalities after repeal of the national maximum speed limit. *Accident analysis and prevention*. 1: 537-543.
- Fasakin, J.O. (2000) *A landuse analysis of operational characteristics of commercial motorcycles in Akure*, Unpublished Ph.D. Thesis Federal university of Technology, Akure.
- Fasakin, J.O. (2002) Daily cost consideration in the operation of commercial motorcycles in Nigeria: A locational analysis for Akura township. Transport research part A policy and practice. Elsevier science publication. *Ereteruk*, 36: 186-202.
- Federal Ministry of Health (2005) *Morbidity and Mortality Annual Report*, 3<sup>rd</sup> Edition, Abuja, Nigeria.
- Final Rule (1984). Occupant crash protection, 49 CFR, Part 571, Washington, D.C. National Highway traffic safety administration.
- Gbadamosi, K.T. (2003) *Traffic regulation and road traffic accidents in Nigeria: A spatial analysis*. (An unpublished Ph.D. Thesis Submitted to the Department of Geography University of Ibadan.
- Korter, G.O.; Olusanya E.O. and Afees, A.S. (2014) Spatial analysis of road traffic crashes in Oyo state of Nigeria. *Journal of Sustainable development*, Vol. 7, No. 4, Pp. 151-164.

- Labinjo, M.; Jullrard, C.; Kobusingye O.C.; Hyder, A.A. (2010) Socio-Economic impact of road traffic injuries in West Africa: Exploratory data from Nigeria. *Inj. Prev.* 16,389-392.
- Levine, N.; Kim K.E. and Nitz, L.H. (1995a) Spatial analysis of Honolulu motor vehicle crashes: Spatial patterns. *Accident Analysis and prevention*, 27(5), 663-674.
- Mohammed, N. (2008), *Methods of forecasting deaths due to road accidents in Pakistan*, Comsats university of technology, Islamabad, Pakistan.
- Mueller, O.F.; Turnbull, T.L. and Dunne, M. (1988) Efficacy of mandatory seat belt use legislation. *Journal of American medical association*, Vol. 260, 3593-3597.
- Nantulya, V. and Rerch, M. (2002). The Neglected epidemic, road traffic injuries in developing countries. *Basic medical journal*, 824: 1139-1141.
- Nantulya, V. and Rerch, M. (2003). Equity dimensions of road traffic injuries in low and middle – income countries. *Injury control and safety promotion*, 10(1-2): 13-20.
- Onakomanya, S.O. (1988) Unsafe at any speed “Towards road transportation for survival” *Inaugural Lecture*. University of Ilorin, Nigeria.
- Polidefigueiredo (2000) Increase in fines and driver license withdrawal have effectively reduced immediate deaths from trauma on Brazilian roads. First year report on new traffic code. *Journal of injury*, 32:91-94.
- Posada J, Ben-Michael E, Herman A, Kahan E, Richter E (2000). Death and injury from motor vehicle crashes in Colombia. *Rev Panam Salud Publica*, 7(2): 88-91.
- Rivara, F.P. Koepsell, T.D.; Grossman, D.C.; Mock, C. (2000). Effectiveness of automatic shoulder belt systems in motor vehicle crashes. *Journal of American medical association*, 283: 2826-2828.
- Trinca, G.w. Johnson, I.R.; Campbell, B.J. (1988). *Reducing traffic injury – a global challenge*. Royal Australian college of surgeons.
- Tsai, M.C. and Hemenway, D. (2000). Effects of the mandatory helmet law in Taiwan. *Injury prevention*, 5:290-291.

Vanick, J.S.; Ogaitis, S. and Mackenzie, E.J. (2001) Effects of high school driver education on motor vehicle crashes, violatums, and licensure. *American journal of preventive medicine*, 1b(1). 40-46.

World Health Organisation (1998) “*Road Accidents: A Majuor causes of mortality*” *World Report*, United Nations, Geneva, Pp. 23-30.

World Health Organisation (2009) *World report on road traffic injury prevention: Summary*. World Health Organization Geneva Switzerland.

World Health Organization (2004) *World report on road traffic injury prevention: Summary*, World Health Organisation, *Geneva, Switzerland*.