APPRAISAL OF ROAD TRAFFIC CRASHES ON THE LAGOS-IBADAN CORRIDOR IN NIGERIA

Nwoye, Casmier Friday

Asaju, Joel Ayodeji

Ajewole, David Ojo

Abstract

A comparative assessment of all the modes of transport that people can opt for use day-in-day-out will reveal that road transport is the most complex and the most dangerous. On a daily basis, the world over, almost 16,000 people die from all types of injuries. These injuries represent 12 percent of the global burden of disease, the third most important cause of overall mortality and the main cause of death among 1-40 year olds. The class of injuries worldwide is dominated by those incurred in road crashes. Therefore, this study was designed to examine the factors influencing road traffic crashes and analyse such factors in relation to identified socio-economic indicators and variables in Nigeria with particular reference to the Lagos-Ibadan corridor with a view to developing an evidenced based framework required for policy formulation in addressing road traffic crashes. The study explored relevant primary and secondary data while employing both qualitative and quantitative data analysis techniques. Analysis was carried out using both descriptive and simple average techniques. This helped at the estimation of the various descriptive and inferential statistics used in making decisions relative to the findings and the conclusions of the study. It was revealed that every year from 2010-2016, most of the RTC cases had been very serious and had an increased rate of happening while minor and fatal cases had been relatively average or low over the years. The highest record of RTC was in 2016. It was also noted that the number of adult males involved in road accidents compared to female adults was always higher and the adult male that were injured had its most occurrence in 2011. The number of adult males killed in between 2010-2016 was very high while those of adult females were relatively low. The number of male children injured was higher than the number female children between 2010-2012, and then in 2013 it was the opposite. In 2014, the male children injured were then more than the females while between 2015-2016, the female children injured were more the male. During 2010 & 2015, only a male child was killed in RTC. In 2011, the number of male children

1 Department of Management Technology, College of Management Sciences, Bells University of Technology, Ota, Ogun State, Nigeria. webbercas@yahoo.com 08094243940, 08060766694

2 School of Transport, Lagos State University, Ojo Lagos, Nigeria.

3 Department of Geography and Environmental Sciences, University of Ilorin, Kwara State.
killed in RTC was more than the females. In 2012, no children were killed in RTC. Between 2013-2014, only female children were involved in RTC. By 2016, an equal number of male and female children were killed in RTC. With respect to vehicle involvement, the vehicle classes with the highest involvement rate in RTC were cars, minibuses or trucks. Every other vehicle class involved had low rates of involvement. Also, the vehicle categories with the highest rate of involvement in RTC belonged to either private or commercial. Governmental and diplomatic vehicles had little to no involvement in RTC. The current accident rate of 1.8% on the Lagos Ibadan expressway was observed and it is expected that the rate of RTC will be almost 180 in terms of annual frequency by 2020. It was also evidenced that there is a significant negative impact of RTC on the socio-economic indices of the corridor under review. Finally, the FRSC was adjudged as having contributed the highest in the reduction of road accidents in Nigeria when compared to other agencies. In conclusion this study has carefully outlined some major RTC manifestations on the corridor under review. It recommends amongst other things that, concerted plans and procedure should be put in place for constant training and proper certification of drivers. This will remarkably improve their driving culture that will in turn improve safety on Nigerian roads and drastically reduce the rate of road crashes as well as enhance economic development.

Keywords: Road Traffic Crashes (RTC), Mortality, Fatal, Accident.

Introduction
The World Health Organisation (WHO, 2004) noted that road traffic crashes are a major but neglected global public health problem, requiring concerted efforts for effective and sustainable prevention. Of all the systems that people have to deal with on a daily basis, road transport is the most complex and the most dangerous. It further estimated that worldwide, the number of people killed in road traffic crashes each year is almost 1.2 million, while the number injured could be as high as 50 million. This is the combined population of five of the world’s largest cities. In Europe, the average number of transport fatalities within the European Union (EU) is approximately 41,000 each year and road crashes account for over ninety percent among all transportation modes (European Transport Safety Council, 2003). Every day around the world, almost 16,000 people die from all types of injuries. These injuries represent 12 percent of the global burden of disease, the third most important cause of overall mortality and the main cause of death among 1-40 year olds. The category of injuries worldwide is dominated by those incurred in road crashes. Hence, deaths from road traffic injuries account for around 25 percent of all deaths in the world. The problem is increasing at a fast rate in developing countries due to rapid motorisation, increase population and other factors. Although, public policy responses to this epidemic have been muted at national and international levels, there is an urgent need for action in the developing countries (in low-income countries and regions -in Africa, Asia, the Caribbean and Latin America) where it has been shown that the majority of road deaths are among pedestrians, passengers, cyclists, users of motorised two wheelers, and occupants of buses and minibuses.
The leading casualties in most high-income countries, on the other hand, are among the occupants of cars.

The African Union’s report on the state of Transport Sector Development in Africa (2008), also noted that road traffic crashes are the leading causes of morbidity and mortality accounting for over one million deaths per year. It has been further estimated that 59,000 people lost their lives in road crashes in 1990 and this figure will be 144,000 people by 2020, a 144 percent increase (Kopits et al, 2005). The road traffic death toll represents only the tip of the iceberg of the total waste of human and social resources from road injuries. Although, the number of lives lost in road crashes in high-income countries indicates a downward trend in recent decade, for most of the world’s population, the burden of road traffic injury, in terms of societal and economic consequences is rising substantially. The best available evidence suggests that the burden is greatest and growing in low-income and middle-income countries. But estimates in these regions seem to be unreliable as surveillance systems that can enable countries to monitor patterns of crashes and influence on preventive strategies are lacking. The need therefore, for more studies in the developing countries are required. The outcome of these studies if well adopted and implemented can lead to an effective strategy that may be relevant in low-income countries.

The social and economic implications of road crashes in Nigeria are immense. According to Maduekwe (2000), the road traffic crashes situation in Nigeria had been and of course is still of serious concern. It was compared to an epidemic by researchers [for example Jegede (1986), Agunloye (1988) and Gbadamosi (2000)], near only to war in casualty toll in terms of loss of human lives and property. The implication of this epidemic and sadistic human disposal process is that it negatively affects the socio-economic position of the individual and the country in general. The direct effect of traffic casualties can perhaps best be understood in terms of the labour lost to the nation’s economy. It has been estimated that persons injured in crashes on Nigerian highways and streets no longer participate in the economic mainstream and this amounts to a loss of labour of millions persons years to the nation (Pratte, 1998). Road Traffic Crashes have significantly retarded Nigeria’s socio-economic aspirations and development due to the premature loss of qualified and potential contributing professionals and able-bodied men and women in the labour force (Aderamo, 2012). Indeed, a strong case can be made for reducing road crash deaths on economic grounds alone, as they consume massive financial resources that the countries can ill-afford to lose, (Jacobs et al, 2000). The morbidity and mortality burden seems to be rising with motorisation and population growth as well as other socio-economic factors that have the tendency to influence road traffic crashes in Nigeria. This need to be further examined and analysed in order to provide a policy guide and framework for reducing road traffic crashes. This is of importance and challenge to this research.
Study area
The Lagos – Ibadan expressway unarguably is one of the busiest roads in Nigeria. The 127.6 km road was the first intercity dual carriageway in Nigeria. The road was commissioned in August 1978. The road has undergone series of remedial works and rehabilitation but lacked major maintenance since the construction about thirty four years ago. However, the highway is undergoing a total reconstruction costing the Federal Government of Nigeria a whopping sum of 167 billion naira (about $1 billion US Dollars). The road currently is sub-divided into two sections. The first section is an Expressway from old toll gate of Oregun Motorway/Ikosi, Ketu in Lagos State to Shagamu interchange in Ogun State. The length of this section is 43.6 km. The second section is also an Expressway from Shagamu end in Ogun State to Ojo in Oyo State. The total length of this portion is 84 km. The Lagos Ibadan expressway is one of the most important access roads in Nigeria linking the economic nerve centre of Nigeria to various other States of the Federation.

Statement of the Problem
Road transportation is one of the most popular and common mode of movement in Nigeria. It has been considered as a strong instrument of social and economic development. Unfortunately, the near dependence on road transportation has its attendant problems. Principal of these being road traffic crashes. Roads traffic crashes in Nigeria tend to be on the increase due to increased motorisation, agricultural output and commercial activities. This increase in road traffic crashes overtime had made it possible for government to show concern by the introduction of programmes and measures at reducing these crashes which include the introduction of standard Driver’s Licence, provision of pavement markings, standard speed limit signs, mandatory use of seatbelt and crash helmet usage among riders of motorcycles and enhanced public enlightenment among others. Despite these measures, no meaningful reduction was achieved especially when there are no considerations on socio-economic development indicators that are influencing theses crashes.

Therefore, this study is designed to examine the factors influencing road traffic crashes and analyse such factors in relation to identified socio-economic indicators and variables in Nigeria with particular reference to the Lagos-Ibadan corridor with a view to developing an evidenced based framework required for policy formulation in addressing road traffic crashes.

Objectives of study
The aim of this research is to examine the consequences of road traffic crashes on Lagos-Ibadan corridor with a view to providing policy guides to road safety planners and practitioners. The specific objectives are to;

i. examine the trend in the rate and classes of road traffic crashes on Lagos-Ibadan corridor;
ii. assess the temporal pattern and forecast the rate of accidents in the near future;
iii. evaluate the impact of road crashes on the corridor under review;
iv. examine the contributions of road safety related agencies on the rate of reduction of road

Research Questions
In order for this research to achieve its stated objectives, it has raised and will attempt to answer the following questions:

i. What is the trend in road traffic crashes in Nigeria between?
ii. What is the temporal pattern and forecast rate of accidents in the near future?
iii. What is the impact of road crashes on the corridor under review?
iv. What are the contributions of road safety related agencies on the rate of reduction of road?

Scope of Study
The research focused on examining the trend and impact as well as temporal dimensions of road traffic crashes a view to developing an evidence based framework required for policy formulation at reducing road traffic crashes in Nigeria. Furthermore, the research concentrated on information from 2010 to 2016, including various occurrences that have influenced road traffic crashes. The data covers only Lagos-Ibadan corridor.

Research Hypotheses
The paper hypothesised that (H0): There is no significant negative impact of RTC on the socio-economic indices of the corridor under review.

Literature review
Theoretical framework
One of the major concepts on which this study hinges is the framework provided by R.J. Smeed’s “Law” which was first published in 1949 states that as the number of automobiles in a country increases so do fatalities in a predictable way: the number of deaths equals .0003 times the two-thirds power of the number of people times the one-third power of the number of cars. After that point, road fatalities begin to fall off and then level off at a much lower point. Smeed claimed his law expresses a hypothesis of group psychology: people take advantage of improvements in automobiles or infrastructure to drive ever more recklessly in the interests of speed until deaths rise to a socially unacceptable level, at which point, safety becomes more important, and recklessness less tolerated. The law is an empirical rule relating traffic fatalities to traffic congestion as measured by the proxy of motor vehicle registrations and country population. Thus, increasing traffic volume leads to an increase in fatalities per capita, but a decrease in fatalities per vehicle. His hypothesis in relation to road traffic safety has been disputed by several authors, who pointed out that fatalities per person have decreased; when the "Law" requires that they should increase as long as the number of vehicles per person continues to rise. Critics observed that fatality rates per vehicle are now decreasing faster than the formula would suggest, and that, in many cases, fatality rates per person are also falling, directly contrary to Smeed's prediction. They attributed this improvement to

**Trends in Road Traffic Crashes**

Road transport and safety remains the engine of growth and development in most parts of the world. In Africa, it plays a vital role in the socio-economic development of the continent particularly in facilitating movement of goods and services. However, while all parts of the world are vulnerable to road traffic crashes, some regions are particularly very serious and alarming. This is the case with developing countries generally and those of the sub-Saharan African countries in particular. Moreover, while the developed countries that have attained advanced stages in their socio-economic and technological development have been able over the years to control the number of fatal crashes through a variety of counter measures, the developing countries are still facing the developmental challenges that impact on their abilities to develop counter measures. According to Kopits et al (2005) the burden of traffic casualties rises in developing countries in the early stages of economic development which witnessed increased motorisation of the economy.

Moreover, the estimated 1.2 million people killed in road traffic crashes in 2002 throughout the world, 90 percent occurred in low and middle income countries. Peden et al (2004) and Chen (2010) have shown that Africa has the highest fatality rate in relation to their population. Chen (2010) particularly posited that Africa with about 4 percent of the world’s motor vehicles has the highest fatality rate. After adjusting under-reporting and factoring the low vehicle ownership, the traffic crash rate in African countries (especially Nigeria), where 28.3 per 100,000 people die from road traffic crashes (Chen, 2010). He further showed in his study that the rate of traffic crashes in African countries range from 10-fold to more than 100-fold compared to those of the United States of America. Jacobs et al (2000); and Peden et al (2004) have presented similar results.

Furthermore, around 85 percent of all global road deaths, 90 percent of the disability-adjusted life years lost due to crashes, and 96 percent of all children killed worldwide as a result of road traffic injuries occurring in low-income and middle-income countries. Over 50 percent of deaths are among young adults in the age range of 14-55 years. Among both children aged 5-14 years, and young people aged 15-29 years, road traffic injuries are the second-leading cause of death worldwide. (WHO, 2004).

In another study by the United Nations (2010), statistics affirmed that every year, around 80,000 children aged 5-14 in developing countries lose their right to education for a single traffic reason of road traffic crashes while making journeys to school. The study further reinforced the link that associates greater fatalities in road traffic crashes to developing countries than developed countries in spite of the comparatively lower volume of traffic in the low and middle income countries. Along the same vein, fleet growth has led to increased road traffic crashes in
developing countries (Mekky, 1985). This explains for example, the reported 400 percent increase in road deaths in Nigeria from 1960-1980 (Oluwasanmi, 1993).

**Research Methodology**

The primary data was captured through the administration of questionnaire to one hundred (100) respondents comprising of public and private motorists as well as officials of Lagos Metropolitan Transport Authority (LAMATA) Traffic Compliance and Enforcement (TRACE) unit of Ogun state and the men of the Nigerian Police force and Federal Road Safety Corps (FRSC). These respondents were drawn from as many educational, ethno-social and income level/background as feasible as possible. The age range of these respondents was wide, so as to accommodate all age groups except those below 18 years of age. Both sexes were also considered in the questionnaire administration. An interview session was also conducted for these different groups of respondents as applicable.

**Sample and Sampling Techniques**

One hundred (100) samples of respondents were drawn comprising public and private motorists as well as officials of Lagos Metropolitan Transport Authority (LAMATA) Traffic Compliance and Enforcement (TRACE) unit of Ogun state and the men of the Nigerian Police force and Federal Road Safety Corps (FRSC) within the study area. A non-probability sampling technique (purposive sampling technique) was adopted for the study. The type of purposive sampling technique adopted for this study is the homogeneous one. This means that respondents are homogenous to the extent that only respondents within only the confines of the study corridor were analysed at a given time. Purposive sampling technique was adopted because of the rich knowledge base of the researcher on the subject matter and because of the ease of it.

**Data processing and analysis**

The data sets gathered from this research exercise were analysed with the use of excel and statistical packages for social sciences (SPSS). The results of the analysis and the accompanying explanations were presented in the form of chats, figures, tables, maps, graphs, plates etc. as shown in the following chapter.

**Data Analysis and Interpretation**

*Trend in the rate and classes of road traffic crashes on Lagos-Ibadan from 2010 to 2016.*
From, Fig 4.1 above, it can be seen that every year from 2010-2016, most of the RTC cases have been very serious and have an increased rate of happening while minor and fatal cases have been relatively average or low over the years. The highest record of RTC was in 2016 with a total of 161 cases with the class “serious” being the highest recording 105 cases.

According to the graph above, it can be seen that the number of adult males involved in road accidents compared to female adults is always higher and the adults male that were injured had its most occurrence in 2011 with a total of 229 same with the female adults with a total of 121. In 2014, the lowest number of adults injured was recorded with a total of 93 male and 48 female. Similarly the
minimum adults injured were in the year 2012 with a total of male adults of 185 and female adults 116.

**Fig 4.3: Number of adults killed from 2010-2016**

According to the graph above, it is shown that the number of adult males killed in between 2010-2016 is very high while those of adult females are relatively low. The highest adults’ male killed was recorded in 2011 with a total of 39 while that of the adults’ female had the lowest in the years 2013 and 2014.

**Fig 4.4: Number of adults involved from 2010-2016**

According to the graph above, it can be seen that between 2010-2016, the number of adult males involved in road travel accidents is higher than those of female adults. The male adults recorded were 905 in the year 2016 and that of the female with its highest as 410 still in the year 2016. The lowest was recorded in the year 2013 with a total of 367 for adults male while that of the female adults
Fig 4.5: Number of children involved from 2010-2016
According to the graph above, the number of male children injured was higher than the number female children between 2010-2012, then in 2013 it was the opposite. In 2014, the male children injured was then more than the female while between 2015-2016, the female children injured was more the male.

Fig 4.6: Number of children killed from 2010-2016
According to the graph above, during both 2010 & 2015, only male children killed in RTC. In 2011, the number of male children killed in RTC was more than the females. In 2012, no children were killed in RTC. Between 2013-2014, only female children were involved in RTC. By 2016, an equal number of male and female children were killed in RTC.
According to the graph above, the number of male children injured was higher than the number female children between 2010-2012 with a difference of 11, and then in 2013 it was the opposite. In 2014, the male children injured was then more than the female while between 2015-2016, the female children injured was more the male.

According to the graph above, the vehicle classes with the highest involvement rate in RTC were either cars, minibuses or trucks. Every other vehicle class involved had low rates of involvement.
According to the graph above, the vehicle categories with the highest rate of involvement in RTC belonged to either private or commercial. Governmental and diplomatic vehicles had little to no involvement in RTC.

**Temporal pattern and forecast the rate of accidents in the near future by 2020**

This sub-section presents the result of the analysis of the done to forecast the future trend of accidents, given the current annual rate. To achieve this, the mathematical formula

\[ P_n = P_0(1+r)^n \]

was adopted.

Where;

- \( P_n \) = Current rate of accidents (Current year)
- \( P_0 \) = Previous rate of accidents (Base year)
- \( n \) = number of years under consideration
- \( r \) = average annual rate of accidents.

Thus, using the information in table 4.1 below, the average annual rate of accident is obtained in order to carry out the required prediction.

**Table 4.1: Total RTC in Lagos-Ibadan 2010-2016**

<table>
<thead>
<tr>
<th>YEAR</th>
<th>FATAL</th>
<th>SERIOUS</th>
<th>MINOR</th>
<th>TOTAL CASES</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>19</td>
<td>73</td>
<td>50</td>
<td>142</td>
</tr>
<tr>
<td>2011</td>
<td>29</td>
<td>78</td>
<td>45</td>
<td>152</td>
</tr>
<tr>
<td>2012</td>
<td>12</td>
<td>59</td>
<td>22</td>
<td>93</td>
</tr>
<tr>
<td>2013</td>
<td>7</td>
<td>47</td>
<td>13</td>
<td>67</td>
</tr>
<tr>
<td>2014</td>
<td>7</td>
<td>44</td>
<td>25</td>
<td>76</td>
</tr>
<tr>
<td>2015</td>
<td>21</td>
<td>70</td>
<td>5</td>
<td>96</td>
</tr>
<tr>
<td>2016</td>
<td>18</td>
<td>105</td>
<td>38</td>
<td>161</td>
</tr>
</tbody>
</table>

**Source:** FRSC, 2017.
Hence,
\[ P_n = 161 \] (Current year, 2016)
\[ P_o = 142 \] (Base year, 2010)
\[ n = 7 \]
\[ r = ? \]
so that, employing the equation

\[ P_n = P_o (1+r)^n \]

\[ 161 = 142(1+r)^7 \]
\[ (161/142) = (1+r)^7 \]
\[ 1.1338 = (1+r)^7 \]
\[ 7\sqrt{1.1338} = 1+r \]
\[ 1.0181 = 1+r \]
\[ r = 0.018 \]
\[ = 0.018 \times 100 \]
Therefore,
\[ r = 1.8 \]

Again, returning to equation 1, \( P_n = P_o (1+r)^n \) but with different forecast time limits we now have
\[ P_n = \text{Current rate of accidents (Current year, 2020)} \]
\[ P_o = \text{Previous rate of accidents (Base year, 2016)} \]
\[ n = 5 \]
\[ r = 1.8. \]
So that,
\[ P_{2020} = 161(1+1.8)^5 \]
\[ P_{2020} = 161(1+0.018)^5 \]
\[ P_{2020} = 161(1.018)^5 \]
\[ P_{2020} = 161(1.0933) \]
\[ P_{2020} = 176 \]

Hence, the current accident rate of 1.8% on the Lagos Ibadan expressway, it is expected that the rate of RTC will be almost 180 in terms of annual frequency by 2020. It there calls for measures to curb the current annual rate of occurrence if this forecast is to be forestalled from manifestation.

**Impact of road crashes on the corridor under review**

This subsection presents the results of the hypotheses tested in order to achieve the third objective of the research. The hypotheses are restated as;

**H**\(_0\): There is no significant negative impact of RTC on the socio-economic indices of the corridor under review.

**H**\(_1\): There is a significant negative impact of RTC on the socio-economic indices of the corridor under review.

**Hypothesis Testing Using Chi-Square**

In this section, the earlier stated hypotheses are tested using the chi-square distribution at 5% level of significance. The method measured the expected frequency and the observed frequency of the collected data, the computation of
which is done below. Responses to the relevant questions on the questionnaire were used for the hypothesis.

**Decision Rule**

Accept the null hypothesis (H0) if the calculated chi-square value is less than the table value (i.e. the critical value) of chi-square. For easy analysis, the Likert scale of 1-5 was used in the questionnaire has been coded as ‘YES’ and ‘NO’ responses in testing the hypothesis. Responses of ‘AGREE’ and ‘STRONGLY AGREE’ have been coded ‘YES’ as they provide affirmative responses to the question asked and by extension, to the hypothesis. Responses of DISAGREE, STRONGLY DISAGREE have been coded ‘NO’ as they provide negative responses to the question asked, and by extension, to the hypothesis. The ‘UNDECIDED’ responses are therefore not taken into consideration in the test of hypothesis.

**Test of Hypothesis**

**Table 4.2: Observed distribution**

<table>
<thead>
<tr>
<th>RESPONSE ROAD USER GROUPS</th>
<th>Government employee</th>
<th>Private sector employee</th>
<th>Self employed</th>
<th>Unemployed people</th>
<th>Other</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>14</td>
<td>15</td>
<td>13</td>
<td>6</td>
<td>5</td>
<td>53</td>
</tr>
<tr>
<td>NO</td>
<td>3</td>
<td>5</td>
<td>12</td>
<td>8</td>
<td>9</td>
<td>37</td>
</tr>
<tr>
<td>TOTAL</td>
<td>17</td>
<td>20</td>
<td>25</td>
<td>14</td>
<td>14</td>
<td>90</td>
</tr>
</tbody>
</table>

*Source: Survey Data, 2017*

**Table 4.3: Chi Square Contingency Table**

<table>
<thead>
<tr>
<th>Observed Frequency (oi)</th>
<th>Column Total</th>
<th>Row Total</th>
<th>Grand Total</th>
<th>Expected Frequency (ei)</th>
<th>(oi-ei)</th>
<th>(oi-ei)^2</th>
<th>(oi-ei)^2/ei</th>
<th>Chi Square Critical Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>17</td>
<td>53</td>
<td>90</td>
<td>10.0111</td>
<td>3.98889</td>
<td>15.91123</td>
<td>1.589357504</td>
<td>3.988889</td>
</tr>
<tr>
<td>15</td>
<td>20</td>
<td>53</td>
<td>90</td>
<td>11.7778</td>
<td>3.22222</td>
<td>10.38272</td>
<td>0.881551363</td>
<td>3.222222</td>
</tr>
<tr>
<td>13</td>
<td>25</td>
<td>53</td>
<td>90</td>
<td>14.7222</td>
<td>-1.72222</td>
<td>2.966049</td>
<td>0.201467505</td>
<td>1.722222</td>
</tr>
<tr>
<td>6</td>
<td>14</td>
<td>53</td>
<td>90</td>
<td>8.24444</td>
<td>-2.24444</td>
<td>5.037531</td>
<td>0.611021264</td>
<td>2.244444</td>
</tr>
<tr>
<td>5</td>
<td>14</td>
<td>53</td>
<td>90</td>
<td>8.24444</td>
<td>-3.24444</td>
<td>10.52642</td>
<td>1.276789458</td>
<td>3.244444</td>
</tr>
<tr>
<td>3</td>
<td>17</td>
<td>37</td>
<td>90</td>
<td>6.98889</td>
<td>-3.98889</td>
<td>15.91123</td>
<td>2.276647235</td>
<td>3.98889</td>
</tr>
<tr>
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<td>20</td>
<td>37</td>
<td>90</td>
<td>8.22222</td>
<td>-3.22222</td>
<td>10.38272</td>
<td>1.262762763</td>
<td>3.222222</td>
</tr>
<tr>
<td>12</td>
<td>25</td>
<td>37</td>
<td>90</td>
<td>10.2778</td>
<td>1.722222</td>
<td>2.966049</td>
<td>0.288588589</td>
<td>1.722222</td>
</tr>
<tr>
<td>8</td>
<td>14</td>
<td>37</td>
<td>90</td>
<td>5.75556</td>
<td>2.244444</td>
<td>5.037531</td>
<td>0.875246675</td>
<td>2.244444</td>
</tr>
<tr>
<td>9</td>
<td>14</td>
<td>37</td>
<td>90</td>
<td>5.75556</td>
<td>3.244444</td>
<td>10.52642</td>
<td>1.828914629</td>
<td>3.244444</td>
</tr>
</tbody>
</table>

*Source: Survey Data, 2017*
The table value of chi-square at 5% level of significance of 4 degrees of freedom is 9.49 (2 d.p) while the calculated chi-square is 11.09 (2 d.p). Since the calculated value of chi-square is greater than its table value, the null hypothesis is rejected and the alternative hypothesis accepted based on the decision rule stated above. It is therefore concluded that there is a significant negative impact of RTC on the socio-economic indices of the corridor under review.

**Contributions of road safety related agencies on the rate of reduction of road**

Attempt was made to rate the contribution of each of these agencies. The details of each of its rating are seen in the appendix. However a summary of the aggregate rating was presented in Table 4.4. The scale of rating is as follows: Very Poor=(0-39), Poor=(40-44), Fairly Poor=(45-49), Fairly Good=(50-59), Good=(60-69), Very Good=(70-100).

**Table 4.4: Contributions of Road traffic related agencies**

<table>
<thead>
<tr>
<th>Agencies</th>
<th>Poor</th>
<th>Fair</th>
<th>Good</th>
<th>Very Good</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Federal Road Safety Corps</td>
<td>0</td>
<td>12</td>
<td>20</td>
<td>68</td>
</tr>
<tr>
<td>2 Nigeria Police Force</td>
<td>15</td>
<td>45</td>
<td>35</td>
<td>5</td>
</tr>
<tr>
<td>3 Civil Defense Corps</td>
<td>14</td>
<td>81</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>4 Vehicle Inspection Officer</td>
<td>10</td>
<td>69</td>
<td>9</td>
<td>12</td>
</tr>
<tr>
<td>5 Federal Road Maintenance Agency</td>
<td>6</td>
<td>62</td>
<td>35</td>
<td>7</td>
</tr>
<tr>
<td>6 National Emergency Management Agency</td>
<td>2</td>
<td>45</td>
<td>51</td>
<td>2</td>
</tr>
<tr>
<td>7 State Emergency Management Agency</td>
<td>2</td>
<td>45</td>
<td>51</td>
<td>2</td>
</tr>
<tr>
<td>8 Non-Governmental Organisations on road</td>
<td>3</td>
<td>90</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>safety related activities.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9 Nigeria Army</td>
<td>2</td>
<td>62</td>
<td>28</td>
<td>8</td>
</tr>
</tbody>
</table>

*Source: Field survey, (2017)*

On a cumulative rating, the respondent rated the FRSC as having contributed the highest in the reduction of road accidents in Nigeria when compared to other agencies. The rating of the respondents in the question was done in a percentage (which was used in testing hypothesis four) in a four Likert-Scale measurement. Aside the FRSC, 12percent of the respondents rated the VIO as having contributed very well. None of the respondents judged the contribution of the civil defence and the NGO as very good. When assessed on the scale of fairness in their contribution in accident reduction, 81percent of the respondents posited that the civil defence agency contributed fairly, 69percent rated VIO has been fair, while 90percent rated NGO’s has been fair in the scale.

On the poor scale, no respondents rated FRSC as poor, 15percent and 14percent of the respondents rated the NPF and the civil defense as contributed poorly in reduction of accident. See Table 4.4 for further presentation.

**Discussion of Findings**

This sub section presents the summary of the data analyses done to examine the factors influencing road traffic crashes and analyse such factors in relation to identified socio-economic indicators and variables in Nigeria with particular
reference to the Lagos-Ibadan corridor. It was revealed that every year from 2010-2016, most of the RTC cases had been very serious and had an increased rate of happening while minor and fatal cases had been relatively average or low over the years. The highest record of RTC was in 2016. It was also noted that the number of adult males involved in road accidents compared to female adults was always higher and the adult male that were injured had its most occurrence in 2011. The number of adult males killed in between 2010-2016 was very high while those of adult females were relatively low. The number of male children injured was higher than the number female children between 2010-2012, and then in 2013 it was the opposite. In 2014, the male children injured were then more than the females while between 2015-2016, the female children injured were more the male. During 2010 & 2015, only male child was killed in RTC. In 2011, the number of male children killed in RTC was more than the females. In 2012, no children were killed in RTC. Between 2013-2014, only female children were involved in RTC. By 2016, an equal number of male and female children were killed in RTC.

With respect to vehicle involvement, the vehicle classes with the highest involvement rate in RTC were cars, minibuses or trucks. Every other vehicle class involved had low rates of involvement. Also, the vehicle categories with the highest rate of involvement in RTC belonged to either private or commercial. Governmental and diplomatic vehicles had little to no involvement in RTC. The current accident rate of 1.8% on the Lagos-Ibadan expressway was observed and it is expected that the rate of RTC will be almost 180 in terms of annual frequency by 2020. It was also evidenced that there is a significant negative impact of RTC on the socio-economic indices of the corridor under review. Finally, the FRSC was adjudged as having contributed the highest in the reduction of road accidents in Nigeria when compared to other agencies.

Conclusion
From the forgoing, it is clear that a number of bodies and agencies have related responsibilities for different aspects of road safety work in Nigeria this calls for a very high degree of coordination and synergy if complex road safety programmes are to be effectively executed or implemented. The research also reveals the general evaluation of some vital inter-agency collaboration, the need however for regular evaluation of road safety work cannot be over emphasised. In conclusion this study has carefully outlined some major RTC manifestations on the corridor under review. Also it established that socio-economic variables are affected by road crashes and has created great negative consequences on them. It was able to examine the factors associated or influencing the increasing rate of road crashes in Nigeria. The succeeded in establishing road traffic crash as one of the highest single killer of man than any other form of death in Nigeria. The current accident rate of 1.8% on the Lagos-Ibadan expressway was observed and it is expected that the rate of RTC will be almost 180 in terms of annual frequency by 2020.
Recommendations
Having examined some of the findings of the study, the following recommendations are put forward that could possibly help to handle the issue of the factors influencing road traffic crashes in Nigeria. Also, these areas are worthy of further researches. They are;

i. That concerted plans and procedure should be put in place for constant training and proper certification of drivers. This will remarkably improve their driving culture that will in turn improve safety on Nigerian roads and drastically reduce the rate of road crashes as well as enhance economic development.

ii. Federal, State and Local Government councils should prioritise Rehabilitations, Construction and Reconstruction of our roads. Intervention agency such as Federal Roads Maintenance Agency (FERMA) should be well funded so as to enable them carry out their statutory functions of rehabilitation and maintenance of our roads.

iii. Activities of haulage companies, whose heavy duty vehicles are involved in the movement of heavy consignments and materials, are taking their tolls on existing roads and therefore, it has become very important for the delineation of our roads according to the type of vehicle that should ply certain road. This is evident in Annexure 9 which shows the pictures of frequency of crashes involving these heavy duty vehicles.

iv. Maintenance of our roads should not be left for government alone. This should be the concern of all Nigerians. We should therefore not engage in things such as blocking drainage, cutting across the road so as to put water pipes, excavating stone along ‘HARD SHOULDERS’.

v. It is also recommended that road construction in Nigeria should conform to international standard; it means then that roads must be constructed to meet specification by providing all necessary road furniture such as markings and appropriate road signs. These combine to give road users necessary guide on how to properly use the road.

vi. Government should as a matter of priority, adequately increase funding of relevant agencies such as Federal Road Safety Commission (FRSC), The Nigeria Police Force (NPF), Nigeria Security and Civil Defence Corps (NSCDC) and Vehicle Inspection Officers (VIO) among others. This will enable them function properly and carry out their statutory functions effectively as it relates to reducing road traffic crashes.

vii. Considering the fact that transportation business is an all comers venture in Nigeria, operators carry out their business with all shades and type of vehicle without any form of control. Therefore there should be efforts at standardising the type of vehicle that should be used for public transportation.

viii. In order to reduce road traffic crashes, it has become imperative for government and relevant agencies to step up the education of its citizenry of how to properly use the road. Therefore, there should be re-invigoration of aggressive and effective public enlightenment campaigning for all road users to keep them abreast of the dos and don’ts on road usage.

ix. It is recommended that in the construction of our roads, all categories of road users must be put into consideration. Pedestrians especially aged, school
children and physically challenged that are vulnerable to road crashes, should be provided for by constructing footbridge, markings, signs, road walks and devices to assist them. This consideration will encourage the full participation of all road users in the provision of the infrastructure for the benefit of all.

x. Relevant agencies should create synergies towards achieving save motoring environment. This will create an interface that will bring about genuine solutions at reducing crashes on our roads and improving socio-economic development in Nigeria.

References

Aderamo A.J., Road traffic accident deaths and socio-economic development in Nigeria.


European Transport Safety Council (2003); ETSC update, Vision and strategies; a newsletter on road safety management sixth edition: summer 2003


Appraisal of Road Traffic Crashes on the Lagos-Ibadan Corridor in Nigeria


Mekky A (1985). Effects of rapid increase in motorisation levels on road fatality rates in some rich developing countries. Accident analysis preview 17: 101-109.


