Assessment of Motorcycle Crashes and Road Transportation in Sango-Ota, Ogun State Nigeria

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ABSTRACT

A decline in organized public transport systems has led to rapid growth in non-conventional means of public transport, initially provided by minibuses and shared taxi/vans, and more recently by commercial motorcycles. The data was examined and analyzed using the qualitative and quantitative techniques of data analysis. The inferential statistical tools of Multiple Regression Analysis and Student T-test were employed. The multiple linear regression analysis was used to establish the relationship, association and contribution of socio-economic characteristics of the operators in predicting motorcycle crashes.

The results of the study show that there is a moderate positive relationship between motorcycle crashes and socio-economic characteristics of Income (INC), Age (AGE), Occupation (OCC), Education (EDU) and Marital status of the operators as the values of $R = 0.45$. R2 results showed that 20.5% of the variations in the (**MAC**) can be explained by the socio-economic factors while 79.5% of observed relationships are not explainable by the selected predictor. F-test $\{F (5, 321) = 16.510, p < 0.000\}$ shows that at least one of (INC), (EDU), (OCC), (MAR) and (AGE) is related to the (**MAC**) in the study area which implies that there is significant influence and relationship of the socio-economic characteristics of operators on motorcycle crash in Sango Ota. The study concludes that speed violation, phone usage while driving, poor weather, overloading of motorcycles, wrongful overtaking, and driving under alcohol/drug influence are the major causes of motorcycle crashes in the study area. The study therefore recommended a regular enlightenment campaign, rehabilitation and reconstruction of bad roads and infrastructures in the study area.

(Keywords: motorcycle, road safety, transportation, traffic crashes, Sango-Ota)

INTRODUCTION

Transportation is the movement of people, goods, and information from one point of origin to another point of destination through a crude or mechanized means. The movement can be through any combination of road, rail, air, water, pipeline and communication. A good transportation system is essential for the rapid economic, industrial and cultural growth of any country. The role of transport in spatial and economic development has been recognized in advanced and developing countries. The various modes of transport have their specific roles and service functions as well as complementary roles, but road transport has been seen as the most used because of its advantages over other forms of transport based on low capital outlay, the flexibility of the services rendered, rapid speed, less cost and provision of services to rural areas (Oyesiku, 2002; Aggarwal, 2018).

Urban mobility in Nigeria has been largely by road transportation and most of the trips made by vehicles, seventy per cent are done through the private sector dominated public transport system. Public transport includes motorcycles as means of commercial transportation which has the highest percentage in intra-city transport in Nigeria and a decline in organized public transport systems has led to rapid growth in non-conventional means of public transport, initially provided by minibuses and shared taxi/vans, and more recently by commercial motorcycles (Oyesiku, 2002).

Ogunmodede, *et al.*, (2012) believed that road transportation is the most used mode of transportation in Nigeria and is considered crucial for the growth and development of the society as it facilitates the movement of people, allows for optimum utilization of resources and provides access to previously inaccessible areas. Its prominent role in bridging the gap between producers and consumers, and production zones and consumption zones cannot be overemphasized.

Out of the numerous externalities of road transport, crashes are undoubtedly the most pressing and threatening scourge of road transport. It can be described as an unfortunate incident that happens unexpectedly, and unintentionally, typically resulting in damage or injury is referred to as a crash. A road traffic crash is classified as an unpremeditated event that results in recognizable injury and is regarded as the epidemic of the twentieth century. Road traffic crashes had a modest beginning. The first recorded death in the United States of America due to a mechanical vehicle was recorded in 1899 (Johnson, 1966). Traffic crashes and their associated injuries and fatalities are a world public health problem. Road crashes have claimed an estimated thirty (30) million lives in the last one hundred (100) years and, every day about three thousand (3,000) people die and thirty thousand (30,000) are seriously injured on the world's roads (Murray and Lopez, 2006).

Murray and Lopez, (2006) declared that about forty thousand (40,000) people die in traffic crashes every year and a further one million seven hundred thousand (1.7 million) people are injured, directly costing some one hundred and sixty (160) billion Euros in In Europe (European Commission, 2013). Meanwhile, the problems of road transport in Nigeria are multifaceted with the frequent rate of crashes, while the substantial effort at road improvement does not prevent prevalence of the crash but poor enforcement of safety regulations by law enforcement agents, over speeding, dangerous overtaking and parking and mechanical faults in vehicles largely account for the high carnage rate on Nigerian roads (Anyanwu, *et al*., 2007).

Yushau (2010), thought that Nigeria losses $6.2 billion yearly to road crashes which is translated to about 12% of Gross Domestic Product and about 17% of the current foreign reserve. He further asserted that many of the dead victims of road crashes were men in their active ages of between 25 and 45 years with resultant social problems and economic and health issues. Road traffic crashes are prevalent among various means of transportation on the road such as trucks and articulated vehicles, motorcars, buses, taxis, tricycles, and motorcycles.

Motorcycle crashes are those crashes involving motorcycles as a means of road transportation, either privately owned or for commercial purposes. All over the world, road traffic injuries are the eighth leading cause of death for all ages and 1.35 million deaths annual figures were recorded (WHO, 2015) while approximately 3700 people die on the world's roads daily (WHO, 2015). Most of this burden is experienced in low- and middle-income countries (LMICs) and vulnerable road users namely pedestrians, cyclists, and riders of motorcycles (Nantulya and Reich, 2007). More importantly, road traffic injuries cost between 1 and 2% of LMIC's gross national product, estimated at over US $100 billion a year. The most worrisome of this scourge was recorded in Africa and South-East Asia countries with higher rates of road traffic deaths than the global rate with 26.6% and 20.7% deaths per 100,000 populations respectively (WHO, 2015) and motorcycles as the means of road transportation are most exposed road users as they account for 23% of the world’s road traffic deaths and have a 34 higher risk of death per mile travelled in a crash than other types of motor vehicles (Lin and Kraus, 2014).

Nzegwu, *et al*. (2008) observed that crashes and fatalities associated with motorcycles have been on the increase as evidence from many hospitals across urban centers in Nigeria revealed that the motorcycle-related crash prevalence rate range from between 12.8% and 60%. Other records show that head injuries and other extremities lead to morbidity and death as a result of motorcycle crashes in Nigeria (Oluwadiya, *et al*., 2014) while the incidence of reported cases of a road traffic crash at Igbobi Orthopaedic Hospital had a 3000% increase in the number of patients with fractured limbs resulting from commercial motorcycle crashes (Idika and Sanni, 2009).

Adesanya, (2004) equally collaborated with this by affirming that there has been significant growth in the use of motorcycles as a means of transportation and the important operation of a motorcycles in savaging urban mobility problems in Nigeria has introduced a new dimension to traffic crashes and safety in the country.

The scourge and worrisome of the traffic crash externalities of motorcycles as a means of road transportation have been dealt with and carried out in many cities and states in Nigeria by numerous scholars but little attention has been accorded their location comparability. This study extended and replicated previous studies to investigate the conditions of motorcycles operations and operators in Sango-Ota, Ogun State.

LITERATURE REVIEW

Afolabi and Gbadamosi (2017) observed from their findings on the impact of commercial motorcycle operation on urban mobility in Ogun State, that the majority of the users were adults who were between the active working population age of 31 and 40 years and were equally married as they form 53.8% of the sampled population but had a brief distinct of education.

Mannering and Grodsky (2005) found that motorcycles are about five times more likely to be involved in road crashes than other vehicles and motorcyclists are about 20 times more likely to have a fatal injury than other automobile occupants concerning mileage travelled. The Nigeria Highway Code (2008) also states that motorcyclists have a six times higher risk of traffic injury and an 80% likelihood to die or be severely injured than people in motor vehicles.

Solagberu, *et al.* (2006) in their study of motorcycle injuries in a developing country and the vulnerability of riders, passengers, and pedestrians observed, identified and described five types of collisions in Motorcycle injury (MCI) with the highest mortality from motorcycle-motorcycle collisions. They further revealed from the study that in all road traffic injuries reported in Nigeria, the incidence of motorcycle injury (MCI) since 1966 has been about 13% which has been doubled to 27% to date, while limb and head injuries are the most common types of injury and students are the largest group of motorcycle injury victims, both as passengers or pedestrians and recommended that low-cost helmets that are appropriate in hot weather should be made available and usage strictly enforced.

Solomon, (2018) submitted that commercial motorcycle (Okada) has generated negative externalities over the years but yet it has been a viable source of employment opportunities for thousands of people in Ibadan and other major cities in Nigeria. He equally revealed from a security and safety point of view that motorcycle private ownerships are the safest and most secure group of trip makers, whereas commercial motorcycle riders, passengers and pedestrians are the most vulnerable groups that are exposed to crimes and crash respectively and adequately suggested that the challenges of safety and security challenges of Okada could be minimized if agencies responsible for traffic control and management could initiate and activate pro-active safety and security measures.

The situation in Asian countries also revealed that Indian records showed that motorcycles constituted 69% of all registered vehicles in the year 2005, out of which 4,553 motorcycle rider fatalities were recorded by the end of the same year. The study further states that 2,021 (44%) of these fatalities were from single-vehicle crashes and 2,532 (56%) were from multi-vehicle motorcycle crashes (Peden, *et al*., 2012).

The situation in Africa is worrisome, as records in Kenya, showed that between 2005 and 2009, motorbike crashes rose from 1.7% to 6.1% and specifically in Nigeria as the Federal Road Safety Commission (FRSC) 2011 reported that 10,471 motorcycle crashes had been recorded in the last ten years in Lagos State alone (Nigerian News World, 2011).

The commercial motorcycle crashes in Embu County in Kenya showed that the rate of commercial motorcycle crashes is 24% in Embu which is higher than 15% reported in the STEPs survey conducted in Kenya and major factors that explains road traffic crashes among motorcyclists include the use of alcohol, use of khat, riding while chewing khat and riding under the influence of alcohol. They further revealed that age, ethnicity, income, education, motorcycle license, insurance status, self-reported alcohol consumption in the 12 hours preceding the crash, years of on-road riding experience, kilometers travelled on the specific motorcycle at interview, posted speed limit, and weather conditions were also seen to influence motorcycle crash (Slesak, *et al*., 2015). Other factors are engine size, time of day, ownership, speed and risk-taking behavior (Lin and Kraus, 2014).

Olakulehin, *et al*. (2015) preoccupied their assessment of the car drivers' attitudes towards motorcyclists in a semi-urban community in

Southwestern Nigeria and observed that the mortality from Road traffic injury is among the highest in the world, where motorcycle crashes account for 54% of all road traffic injuries and also the reason why a motorcyclist is injured or killed in a collision between a motorcycle and a car. They, however, attributed this to four different and separate factors negative attitudes, empathic attitudes, and awareness of perceptual problems and spatial understanding on the part of motorcyclists. The majority of the respondents were dual driver/riders and they showed more positive attitudes toward the motorcyclists.

Meanwhile, the knowledge and perception of Nigerian University Undergraduates about the risks associated with using the commercial motorcycle for transportation were assessed by Ajayi, et al. (2017). They believed that among the 1000 respondents, 75% use commercial motorcycles regularly for transportation and there is a significant association between gender and the knowledge of risks p< 0.001) as well as between age and the perception of risks associated with using this mode of transportation. However, there was no significant difference in the knowledge (p=0.03 and perception of risks (p=0.97) associated with using the commercial motorcycle for transport between users and non-users.

Sanusi and Emmelin (2015) in their examination of commercial motorcycle drivers' perceptions of risk and road safety in urban Nigeria observed and showed that the training and licensing of motorcycle riders have been grossly inadequate while riders' lack of training and improper licensing has been shown to contribute significantly to their lack of knowledge of road rules and dangerous driving with consequent risk-taking. It was, however, suggested that training should be made mandatory and riding tests should be conducted before issuing motorcycle riding licenses and there should be updated traffic regulations, a policy document that can be incorporated into the training and licensing curriculum for motorcyclists as well as stricter traffic rules and regulations with consistent and maximal enforcement.

Gbadamosi (2004) stressed that more than half of all the road traffic crashes and casualties were due to drivers' errors which include recklessness, over-speeding, improper overtaking, attention or confusion, inexperience, carelessness at junctions and intoxication. Furthermore, according to him nearly six (6) per cent of the crashes were due to mechanical vehicular factors while another six (6) percent were due to road construction problems. As for mechanical causes, the incidence is traced to owners' or drivers' refusal to take adequate care of the defects in their vehicles until they degenerate into disastrous conditions.

Emiogun, *et al.*, (2017) investigates motorcycle crash mortality in Lagos, Nigeria and the result of the study shows that there was 128 motorcycle death recorded during the period of study with 96 cases (75%) before the traffic law and 32 cases (25%) after the traffic law. It was observed that the frequency of head injury was 39.8% before the law and 43.6% after the law and the percentage of road traffic crash deaths due to motorcycle crashes was from 23.4% before the law to 11.2% after the traffic law and was equally deduced that there is a 3-fold decrease in the proportion of death from motorcycle crashes following the enforcement of the traffic law.

Surulere and Campbell, (2020) in their study of comparison of road traffic crashes caused by motorcycles before and after the Lagos State new traffic laws observed that more males were affected representing 58.56% pre-law, while more females were affected post-law representing 51.56%. Before the ban, six deaths representing 5.41% occurred as compared with no death after the ban and the most common part of the body involved was the lower limb region, 76.58% and 68.13% pre-law and post-law, respectively. The most common upper limb fracture was the radial bone fracture; 36.59% pre-law and 25.71% post-law while upper limb dislocation was found in 36.59% of the respondents, pre-law and 31.43% of the respondents, post-law. Also, the most common lower limb fracture was that of tibia and fibula which accounted for 35.29% pre-law and 41.94% post-law and lower limb dislocation was found in 2.35% of the respondents, pre-law and 1.61% of the respondents, post-law.

Similarly, Moskal, *et al.* (2015), found that for both moped and motorcycle riders, being male, not wearing a helmet, exceeding the legal limit for alcohol and travelling for leisure purposes increased the risk of crash involvement.

In Nigeria over 90% of commercial motorcyclists are not formally trained and do not have the required license to ride, which contributes significantly to the high incidence of traffic injuries among them (Nwadairo, *et al*., 2016). Many of the road rules are also poorly enforced, as many commercial cyclists and passengers do not conform to the crash helmet law.

Oluwadiya, *et al*. (2014) evaluated motorcycle crash characteristics in Nigeria and the results of their study revealed that, virtually all categories of motorcycles are small with capacities of between 80 and 125 cm^3 and that 68.9% of injured crash victims sustained their injuries while working or going to work and 23.4% on their way to school. They went further to show that 176 (48.5%) of the crashes were with moving vehicles and in 83 (22.3%) cases, either the motorcycle or the other vehicle is moving against the traffic while 37.8% of all crashes occurred at junctions with no roundabout versus 5% at junctions with a roundabout with risky practices of the riders included carrying more than 2 persons (15.02%), travelling without a headlight at night (31.7%) and not wearing helmets (96.5%). They concluded that risky behavior among motorcycle riders, chaotic traffic and road design faults are the major causes of most motorcycle crashes.

It was discovered from an analysis of motorcycle traffic and crashes in Minna, Nigeria that motorcycle traffic is particularly heavy in neighborhoods off the main arterial road which concentrates 50% of all vehicular traffic, 83% of taxicabs and 35% of car movements in the entire city and heavy volume of motorcycle traffic is reflected in the number of motorcycle crashes and casualties (Morenikeji, 2017). He further claimed that the number of motorcycle crashes for the years 2000 and 2011 showed that a total of 1,295 motorcycles crashed occurred from August to December of every year as the worst months thus lending credence to the popular belief that the "ember" months are months of misfortune in Nigeria and that 13,918 motorcycle crash induced injuries and 227 deaths were recorded while the average injured victims rose astronomically from 519 in the four years of 2000 – 2003 to 2,356 for 2008 – 2011 and dangerous driving, speed and route violation and driving under the influence of alcohol factors accounted for 75% of all the crashes.

The national crash statistics in Australia showed that 41% of motorcycle fatalities involved riders with blood alcohol levels above 0.05%. The comparable figure for drivers of cars and other light passenger vehicles was 29% (FORS, 2015). The use of alcohol while riding is also a common practice among motorcyclists in Africa. For instance, the South Africa Medical Journal of 30th July 1998 revealed that of the autopsies that were performed on a total of 48 motorcycle crash victims, alcohol was present in 25 (62%) of the 40 victims whose blood was tested.

Motorcycle Crash Cause Factors and Identification of Countermeasures observed that over-speeding while negotiating sharp corners resulted in the rider sliding and falling out of the moving motorcycle. Research and Road Safety (CARRS) in Australia revealed that of all the motorcycle crashes recorded between 2006 and 2010, 39% of the riders who were involved in the fatal crashes were speeding (CARRS, 2017). Also, the National Highway Safety Administration (NHTSA) the USA in 2008 revealed that motorcyclists were mostly involved in fatal crashes as a result of over-speeding than vehicle drivers. It revealed that 35% of motorcycle riders were involved in fatal crashes as a result of speeding, as compared to 23% for passenger car drivers and 19% for light truck drivers (NHTSA, 2009).

Motorcycles injuries (MCIs) are underreported in developing countries. Globally, road traffic injuries (RTIs) are responsible for a significant proportion of overall injury morbidity and mortality; 90% of mortalities are seen in developing countries (Peden, *et al.*, 2012). Motorcycle users are vulnerable on the road and represent an important group to target for reducing RTIs. Even in developed countries with low morbidity and mortality rates from MCIs, the risk of death for every kilometer travelled from a motorcycle crash is 20 times higher than from a motor vehicle crash.

The motorcycle commonly called ''Okada'' in Nigeria, has become increasingly popular as a means of commercial transport as it is often the only means of transport available and is useful for navigating poor road networks or traffic hold-ups. The riders often ignore safety measures, making them more vulnerable to crashes with other motorized vehicles. In addition, the absence of pedestrian walkways has increased the vulnerability of pedestrians to all motorized vehicles.

METHODOLOGY, RESULTS, AND DISCUSSION

Socio-Economic Characteristics Influence on Motorcycle Crash

Hypothesis One Testing

MODEL (MAC) = $a_o + \beta_1(INC) + \beta_2(EDU) + \beta_3(OCC) + \beta_4(MAR) + \beta_5(AGE) + E$

Where (MAC) is motorcycle crash in Sango Ota.

$a_o$is the constant.

(INC) is the Income of the Operators.

(EDU) is the educational qualification of the Operators.

(MAR) is the Marital status of the Operators.

(EDU) is the Age structure of the Operators.

β_{1} - β_{5} are the coefficient of regression of the independent variables of socio-economic characteristics that influence the crashes.

ε is the error terms of the motorcycle crash model.

The results of the analysis show that there is a moderate positive relationship between motorcycle crashes and socio-economic characteristics of Income (INC), Age (AGE), Occupation (OCC), Education (EDU) and Marital status (MAR) of the operators in the study area with the value $R = 0.45$ at $p \leq 0.05$. The use of this adjusted measure leads to a revised estimate that 20.5% of the **(MAC)** in Sango Ota can be explained by the five explanatory contributing variables. In other words, the five components together explain 20.5% of the variations in the **(MAC)** by the socio-economic factors as revealed in Table 1, while 79.5% of observed relationships are not explainable by the selected predictors.

Table 1: Model Summary, ANOVA and Coefficients of Crash Influence by Socio-economic Characteristics of Operators in Sango Ota.

Model Summary

Model	R	R Square	Adjusted R Square	Std. The error of the Estimate
1	0.452^{a}	0.205	0.192	0.35066

ANOVA[a]

Model	Sum of Squares	Df	Mean Square	F	Sig
Regression	10.150	5	2.030	16.510	0.00^{b}
Residual	39.470	321	0.123		
Total	49.621	326			

Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig
	B	Std. Error	Beta		
(Constant)	0.307	0.069		4.462	0.000
INC	0.099	0.047	0.107	2.118	0.035
EDU	0.198	0.042	0.240	4.737	0.000
OCC	0.210	0.048	0.222	4.366	0.000
MAR	0.001	0.043	0.001	0.024	0.981
AGE	0.190	0.042	0.226	4.508	0.000

a. Dependent Variable: (**MAC**) Motorcycle Crash

b. Predictors: (Constant), (INC), (EDU), (OCC), (MAR), (AGE)

The output is shown in the similar Table 1 also provides estimates of the Regression Coefficients, Standard Errors of the Estimates and t-tests that a coefficient takes the value zero. The estimated Regression Coefficients are given under the heading "Unstandardized Coefficients Beta. These give, for each of the explanatory variables, the predicted change in the dependent variable when the explanatory variable is increased by one unit and other conditional variables in the model remain constant.

For example, the estimate of the motorcycle crash (**MAC**) is increased by 0.099 for every additional score on the income earned by the operators (INC) scale (or by 0.99 for an increase of 10 units INC scale) provided that all other predictors are the same. Similarly, the estimated effect for a -unit increase in the education level of the operators (EDU) is 0.198 and we would expect an increase of 1.98 in **MAC** score for every 10- unit increase in education level EDU assuming that all other variables in the model are held constant.

Equally, there will be an increase in occupation status (OCC), marital status (MAR), and age distributions (AGE) of the operators from 0.210, 0.001 and 0.190 respectively to 2.10, 0.01 and 1.90 for every ten units increase on the scale of (OCC), (MAR), and (AGE) and each will considerably have ten per cent increase on motorcycle crash in Sango Ota.

MODEL (**MAC**) = 0.307 + 0.099(INC) + 0.198(EDU) + 0.210(OCC) + 0.001(MAR) + 0.190(AGE) + ε ………………………….. **(1)**

The regression equation model of the study is given in equation 1 of the study; the model helps to eliminate from the equation the independent variables that do not make a meaningful contribution to the explanation of the dependent variable. The independent variables (INC, EDU, OCC, MAR and AGE) are the components or predictors. The sign of the coefficients of the predictors and □1, □2, □3, □4, and □2, are all positive as shown in Table 1 and Equation 1.

In terms of order of importance, the variable with the highest "t value" provides more explanation, in other words, education qualification (EDU) – 4.737 contributes more to the (MAR) motorcycle crash in Sango Ota followed by age of the operators (AGE) – 4.508, while marital status (MAR) – 0.024 of the operators contributed least in explaining study area motorcycle crash. Occupation structure and daily income realized also contribute significantly with the following values 4.366 and 2.188, respectively.

More importantly, the "ANOVA" in Table 1 provides an F-test for the null hypothesis that none of the explanatory variables is related to (**MAC**). Motorcycle Crash in Sango Ota or other words, that R2 is zero. Here we can reject this null hypothesis {$F (5, 321) = 16.510$, $p < 0.05$}, and so conclude that at least one of (INC), (EDU), (OCC), (MAR) and (AGE) is related to the (**MAC**) of Sango Ota. In this regard, we reject the null hypothesis and accept the alternative hypothesis meaning that there is a significant influence and relationship between the socio-economic characteristics of operators in the motorcycle crash of Sango Ota.

We can equally deduce from the model that four independent variables (Income □1INC (0.035), Education □2EDU (0.000), □3OCC (0.000) and Age □5AGE (0.000) are significant in influencing motorcycle crash in the study area with the following t-values 2.118, 4.737, 4.366, and 4.508 at 0.005 level of significant accordingly. This implies that other factors contribute to explaining the motorcycle crash (**MAC**) in Sango Ota apart from income, occupation, education, age and marital status which could be considered for further research.

Hypothesis Two of the Study

This section analyzed the significant difference in the number of motorcycle crashes reported by FRSC over the ten years and it was observed that the highest number of cases reported is in the region of 34.59 while the lower confidence reported cases was 23.21.

More importantly, the mean difference between the reported cases is 28.9 and the standard deviation is 7.95. The student T-test value is 11.50 which is significant at a 0.05 alpha level as the p-value is 0.05. This, therefore, implies that there is a significant difference in the motorcycle crash cases over the years in the study area as shown in Table 2.

Table 2: One-Sample Student T-Test.

Motorcycle Crash		N		Mean	Std. Deviation	Std. Error Mean
		10		28.9	7.95	2.51
		Test Value = 0				
t		Df	Sig (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Crash	11.495	9	0.000	28.9	23.2121	34.5875

CONCLUSION

The study assessed motorcycles involvement in road crashes in Sango-Ota, Ogun State and it was concluded from the findings that there is a moderate positive relationship between motorcycle crashes and socio-economic characteristics of Income (INC), Age (AGE), Occupation (OCC), Education (EDU) and Marital status of the operators as the value of R = 0.45 and 20.5% of the variations in the **(MAC)** can be explained by the socio-economic factors. Speed violation**,** phone usage while driving, poor weather, overloading motorcycles, wrongful overtaking, and driving under alcohol/drug influence are the major causes of motorcycle crashes in the study area. The recorded cases with the health facilities show that there were under-reported cases of motorcycle crashes by FRSC and there is a significant difference in the motorcycle crash cases over the years in the study area.

RECOMMENDATIONS

Based on the conclusions, the study, therefore, recommends that Government, transport stakeholders in the Sango-Ota, Ogun State, and Nigeria as a whole should as a matter of urgency:

i. The transport regulation and management agencies within the study area such as FRSC, VIS and TRACE should educate and see to caution, arrest and prosecute commercial motorcyclists on speed violations**,** usage of mobile phones while driving, weather condition related problems, overloading, wrongful overtaking, and abuse of alcohol/drug in the study area.

ii. The traffic agencies should liaise and reconcile with the health sector on up-to-date reporting and updating of road traffic crashes to forecast and forestall future occurrences.

iii. Regular enlightenment campaign.

iv. Rehabilitation and reconstruction of bad roads and infrastructures.

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