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Motorcycles Health and Traffic Safety: Evidence from Commercial Motorcyclists in Gombe State, Nigeria

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ABSTRACT

Although commercial motorcyclists are gaining acceptance by all and sundry as a means of public transport which are adapted to the contemporary Nigerian society. However, expose to all hazards including accidents are further worsened by the lack of proper knowledge on road safety measures of the commercial motorcycle riders. Therefore, this study evaluates the effects of a commercial motorcycle on health and traffic safety in Gombe metropolis, Gombe State, Nigeria. The study was carried out in Gombe Metropolis with using the random sampling technique to select 500 motorcyclists sample size. The data generated were analyzed using simple percentages. The study finds that most of the motorcycles accidents were caused by reckless riding, drug abuse and disregard to traffic rules. Similarly, the study finds that Tricycles are the most important factor causing motorcycle accidents in Gombe metropolis. Furthermore, the study finds that most of the respondents suffer from at least one health challenge as a result of their continuous use of the motorcycle. The study therefore recommends that government and other relevant agencies should be equipped with materials and human resources to embark on regular and massive breath testing of motorcyclists to detect riders who ride under the influence of drugs. This can be achieved through identifying the Drunken riders and make them face the wrath of the law.

Keywords: Health, Motorcycle, Nigeria, Traffic.

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1. Introduction

Undoubtedly, road transport is now the dominant mode of transportation for both freight and passenger in Nigeria. The mono-transport mode nature of urban mobility in the country has been responsible for the collapse of public transport and the concomitant suffering of commuters in urban centre (Gbadamosi, 2006). This leads to the introduction of commercial motorcycles as an alternative

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mode of transportation. In many urban areas in Nigeria, there has been an upsurge in the use of commercial motorcycle as a mode of transportation for both human beings and goods.

Gombe State is not an exception; this is because, in the last five years, the numbers of motorcycles per capita has doubled. Although the perceived lucrative nature of the motorcycle business might not be singled out as the reason why people venture into such business, inadequate public transport system and high rate of unemployment also lead to the emergence of motorcycles as a means of public transportation in the state and country at large.

The resort to commercial motorcycles as an alternative mode of transport in solving the problems of intra-city mobility in Gombe State has introduced varying dimensions of issues including traffic accidents and safety on the roads, poor safety conditions for passengers, noise pollution, as well as low security for the driver (Dinye, 2013). Against this background, this study intends to evaluate the effects of commercial motorcycle on health and traffic safety in Gombe metropolis, Gombe State, Nigeria.

The rest of the paper is structured into four sections. The second section presents literature review, while section three focuses on the methodology of the study. The fourth section shows the empirical results. Based on the results, the fifth section discusses the conclusion and recommendations.

2. Literature review

In virtually all the urban areas of developing countries, there has been a rapid increase in the use of commercial motorcycle as a means of transportation for both human beings and goods. The resplendent problem of urban growth of having gridlock jams has necessitated the quick solution of using motorcycles as an alternative means of transport as a solution to quick mobility (Charles, 2011). Several studies have been carried out on the use of motorcycles as a means of intra-city transportation. For example, Oluranti (2011) applies descriptive analysis and Ordinary Least Square (OLS) method to examine the roles of commercial motorcycles towards generating self-employment and income for Lagos and Ogun states, Nigeria. The author applied multi-stage random sampling to administer 777 copies of questionnaire for 55 garages in Lagos and 45 garages in Ogun states respectively. The results show that commercial motorcycle is one of the major employers of young school leavers in both the study areas. The findings also reveal that more than 80% of the operators earn above minimum wages.

Furthermore, Taruwere (2012) applied modified mincerian model to examine the determinants of earnings among commercial motorcyclists across the rural-urban divide in Kwara State, Nigeria. Using simple random sampling, the author administered 80 copies of questionnaire and found that significant variables like age of Okada riders, location and license have positively determined earnings. The results also show that Okada riders earn a minimum of ₦500 and maximum of ₦2,800 per day. Finally, the results reveal that educational background of the riders does not in any way determine earnings. Another recent study by Umaru (2013) applies descriptive statistic in the form of bar charts and simple percentages to examine the effects of commercial motorcyclists in Nasarawa state for the local economy, community and environment. Using stratified random sampling technique; the author administered 1,600 copies of questionnaire and found that commercial motorcyclists have modest contribution to the state's economy. The findings also showed that commercial motorcycles contributed to the environmental degradation in the state. Finally, the results revealed that motorcycles are becoming major source of road traffic morbidity and mortality. Thus, the study calls for effective regulation of the commercial motorcycle business in the state.

Dinye (2013) applied descriptive statistic in the form of pie-charts and simple percentages to examine the effects of motorcycle growth in the social and economic development of Wa, regional capital of upper West Region of Ghana. Using purposive sampling, the study administered 253 copies of questionnaire for both the owners and riders. The results reveal that motorcycles have created ripples of job opportunity for the jobless and also rekindled the local economy. However, findings from the study reveal a consistent and persistent harassment by the police. In addition, Tuan & Meteo-Babiano

(2013) applied descriptive statistic in the form of mean, standard deviation, pie-charts, histogram and simple percentages to examine the impact and possible roles of commercial motorcycle for Hochiminh city, Vietnam. The authors administered 520 copies of questionnaire structured into users (400), operators (100), and stakeholders (20). The authors suggest necessary changes in the survival business model and regulatory measures so as to improve the quality of the service.

Adenike, Rebecca, & Olalekan, (2012) applied simple percentages and t-test statistical tools to examine the effects of socioeconomic survival of Okada riders in Abeokuta and Odeda local government areas of Ogun state, Nigeria. The authors used questionnaire to elicit information from 100 respondents who were randomly selected from 10 Okada parks within Abeokuta and Odeda Township respectively. The results reveal that majority of the riders engaged in the business because of the pressing need to survive and sustain their families. The results also show that recklessness associated with the business tends to erode certain cultural and moral values.

Olabode *et al.* (2013) applied simple percentages to examine the socioeconomic challenges of road accidents among motorcyclists in Ile-Ife, Osun State, Nigeria. The authors used simple random sampling technique to select 1,000 motorcyclists as the sample size and found that all the respondents have heard about road traffic accidents via motorcycles. Similarly, more than 70% of the respondents have at one time or the other involved in road traffic accidents. Finally, the results evidenced that 95% of the respondents are willing to attend seminars on how to prevent road accidents. Similarly, Aderamo & Olatujoye (2013) applied Ordinary Least Squares (OLS) model in the form of multiple regression analysis to examine the trends of motorcycle accidents in Lokoja, Kogi State, Nigeria for the period 2000-2009. The results reveal that significant relationship exists between the number of accidents, number of injuries, number of deaths and the increasing number of registered motorcycles in the city. Thus the study recommends that public enlightenment should be organized and use of protective head helmets should be enforced in order to reduce rate of motorcycle accidents in the city.

Ikot, Akpan, Benson & Etim (2011) examined the implications of banning commercial motorcycles in Uyo metropolis of Akwa Ibom State, Nigeria. The authors applied stratified random sampling to select 100 respondents. The results revealed that despite the efforts made by the government in solving the problems of intra-city transportation within Uyo municipality, the spate of insecurity and crime in the state may not be unconnected with the recent ban of commercial motorcyclists. Therefore, the study recommended among others that government should create more job opportunities as well as skill acquisition centres so as to be able to cater for themselves and their families. Moreover, Michael, Ojedokyu, & Chinwokwu, (2013) applied simple percentages and chi-square to examine the implications associated with the abolition of commercial motorcyclists as a means of transportation and its effect on criminality in Calabar, Cross Rivers, Nigeria for the randomly selected 984 respondents. The findings revealed that factors such as upsurge in criminal activities rise in traffic accidents, traffic congestion and recklessness on the part of riders among others account for the abolition of commercial motorcycles business as a means of transportation in Calabar metropolis. The results also showed an increase in criminal activities such as armed robbers, pick-pocketing and snatching of valuables as a result of abolition of commercial riders.

Amoran, Owagen, Giwa, & Gbalahan (2005) applied Chi-square analysis to examine the current level of practice of road safety codes among 299 motorcyclists in Igbo-Ora community of Oyo state, Nigeria. The results revealed that more than forty-five percent have been involved at least one accident in the preceding year. However, the study revealed a statistically significant association between the road safety codes and the occurrence of road safety accident. The study recommends a road safety education particularly targeted at educating the motorcyclists on the relevance of practice of road safety measures. In addition, Owagen, Amoran, Osemeikhain, & Ohnoferei (2005) applied Chi-square and logistic model to examine the incidence of accidents and pattern of non-fatal injury among 299 commercial motorcyclists in Igbo-Ora community of Oyo state, Nigeria. The results revealed that forty-five percent had involved in road accident for at least one time. Similarly, the results of the nature of injuries sustained were abrasions and cut (67.6%) and fractures of the upper and lower limbs (16.2%).

Sufiyan & Ahmad (2012) applied Chi-square, means and standard deviation to examine the knowledge, attitude and compliance with safety and protective devices among 250 commercial motorcyclists in Tudun-Wada, Zaria Nigeria. The results revealed that all the respondents were males with more than seventy percent of them within the age range 20-29 years. Similarly, the results revealed that majority of the respondents did not receive any formal training before commencement of the business. However, seventy-six percent of the respondents have been involved in accidents. The study therefore recommend a formal training, various enlighten campaigns on the safety protective devices by the relevant authorities.

In another recent study, Ogunmodede & Akangbe (2013) applied percentages, mean and standard deviation to examine the effect of road safety information availability on commercial motorcycle accidents among 450 motorcyclists in Oyo state, Nigeria. The results revealed that road safety information is availability in the study area. Also, the revealed that more than seventy percent of the respondents had involved in one motorcyclist accidents at one time or the other. The study recommends that government that government should provide fund for the creation of road safety awareness using different media of communication as a form of national orientation on road signs and their interpretations.

3. Methodology

3.1 Study area

Gombe State has, for long, been the commercial nerve centre of the entire Northeast sub-region. It earns this reputation not only because it is centrally located in the region but because of the highly enterprising nature of its people. Commercial activities ranging from the household retail trade to the large wholesale distributive trade on various commodities are carried out. Major articles of trade in the state include both agricultural and manufactured goods.

Indeed, commerce is the second highest employer of labour (after agriculture) in the state. Gombe State has dedicated loyal and hard-working civil servants and well developed social and infrastructural facilities. In addition, she has egalitarian, enterprising, hardworking, and very loyal and peace-loving people. Hence, the State is named the "Jewel in the Savannah." Many people in the state are also engaged in the service industries, especially in the informal sector of the economy. Fashion designing and tailoring, hairdressing, catering, motorcycle transportation, entertainment, hotel off license, building/construction and roadside motor vehicles repairs, are among the numerous small-scale business activities in the state. Indeed, today Gombe State has at least one distributor/dealer for all the known manufacturing industries in the country (Online Nigeria, 2014)

3.2 Sampling size and sampling technique

Commercial motorcyclists have been interviewed as the basic unit of observation. Stationed or parked motorcycles have been selected because it is convenient for both the researchers and the respondents for the interviews engagement. A total of five (500) hundreds motorcyclists has been selected using stratified random sampling technique. The reason for choosing this sample size is justified because as at the time of commencement of this research, the government of Gombe State is registering all commercial motorcycles in Gombe metropolis, therefore having their total population is impossible. This is not farfetched because it is not all the motorcyclists that registered with their union or registered at all.

The study area has been divided into three (3) strata, each of the stratum consists of three wards (location 1; Gabukka, Pantami, and Bolari, location 2; Kumbia-Kumbia, Jekadafri, and Herwagana, and location 3; Dawaki, Shamaki, and Ajiya). Gombe Local Government Area (Gombe metropolis) has been purposively selected for this study because it is the main city of the community where this business

really flourishes. The structured questionnaire method has been adopted to elicit information from the respondents.

3.3 Method of data collection

The data were sourced through primary source from the commercial motorcyclists based on the sampling technique explained above. The researchers distributed copies of questionnaire to the respondents, waited and collected the instruments from the respondents. The uneducated respondents have been assisted by explaining sections of the questionnaire to them.

3.4 Method of data analysis

Data generated from the survey have been analyzed using descriptive statistics in the form percentages with the aid of Statistical Software for Social Sciences (SPSS).

4. Empirical results

This section presents the empirical results of the analysis. The rest of the section is structured into five (5) sections excluding this brief introduction. Section two presents the demographic characteristics of the respondents, while section three focuses on the socioeconomic effects of the commercial motorcycle. Section four presents motorcycle accident and its causes and then followed by health status of the motorcyclists in section five. Finally, results of Chi-Square are presented in section six.

Table 1: Demographic characteristic of the respondents

Personal Characteristics of the Respondents	Frequency	Percentage
Gender:		
Male	500	100.0
Female	0	0.0
Total	500	100.0
Age:		
10-20	45	9.0
21-30	317	63.4
31-40	111	22.2
51 and above	22	4.4
No response	5	1.0
Total	500	100.0
Religion:		
Muslim	494	98.8
Christian	5	1.0
Others	1	0.2
Total	500	100.0
Education:		
Qur'anic	163	32.6
Primary	70	14.0
Secondary	222	44.4
NCE/Polytechnic	37	7.4
University	6	1.2
Never been to school	2	0.4
Total	500	100.0
Employment Status:		
Employed	40	8.0
Unemployed	21	4.2
Self-employed	408	81.6

Pensioner	2	0.4
Student	24	4.8
Applicant	5	1.0
Total	500	100.0
Number of Dependents:		
1-3	192	38.4
4-5	111	22.2
5-7	72	14.4
8 and above	96	19.2
No Dependents	29	5.8
Total	500	100.0
Ownership Structure:		
Sole	231	46.2
Rental	205	41.0
Hire Purchase	64	12.8
Total	500	100.0
Training of Motorcycle Riding:		
At a riding School	30	6.0
In an Informal way	470	94.0
Total	500	100.0
Period of the Training:		
Less than a Week	150	30.0
More than a Week	145	29.0
Less than a Month	97	19.4
More than a Month	108	21.6
Total	500	100.0

Source: Field Work, 2016.

Table 1 presents the results of demographic characteristic of the respondents. The results revealed that all the respondents are male. This implies that commercial motorcycle is a male-dominated business. Furthermore, the study found that commercial motorcycle business is dominated by youths because out of five-hundred (500) respondents, 317 representing 63.4% of the respondents are within the age 21-30 years. While, only 45 and 22 representing 9.0% and 4.4% of the respondents aged less than 20 and more than 50 years, respectively.

In terms of religion, 494 out of 500 respondents are Muslims, while only 5 representing 1% of the respondents are Christian. With regards to educational background of the respondents, 32.6% of the respondents have Qur'anic education, 14.0% have primary education, 44.4% secondary education, 7.4% have NCE/Polytechnic education, 1.4% of the respondents have attained the level of university and only 0.4% among the respondents have not attained any form educational height. Moreover, more than 80% of the respondents are self-employed. This implies that most of the respondents relied on commercial motorcycle business as their means of livelihood.

As for dependents, 38.4% have 1-3 dependents, 22.2% have 4-5 dependents, 14.4% have 5-7 dependents, 19.2% have 8 and above and only 5.8% respondents have no dependents. Furthermore, 46.2% of the respondents owned motorcycles, 41.0% are on work on shift (rental), while only 12.8% of the respondents are on hire purchase. In terms of training of motorcycle riding, only 6.0% received their training at riding school, while 94.0% learnt riding motorcycle in an informal way.

This implies that majority of the commercial motorcyclists in Gombe metropolis learnt riding in an informal way. Moreover, the period taken in learning to ride motorcycle both in riding school and in an informal way varies with 150 out of the 500 respondents representing 30% took less than a week, 145 representing 29.0% took more than a week, 97 representing 19.4% took less than a month and 108 representing 21.6% took more than a month.

Table 2: Motorcycle accident and its causes in Gombe Metropolis, Gombe State

Questions	Frequency	Percentage
Motorcycle accidents that cause injuries to the rider or the pillion passenger		
Yes	361	72.2
No	139	27.8
Total	500	100.0
Friends or associates who sustain injuries from motorcycle accidents		
Yes	435	87.0
No	65	13.0
Total	500	100.0
Factors causing motorcycle accidents		
Bad road	43	8.6
Reckless riding	180	36.0
Poor condition of road	17	3.4
Disregard of traffic rules	85	17.0
Drunkenness/drug abuse	175	35.0
Total	500	100.0
Categories of road users that cause motorcycles accidents		
The motorcyclists themselves	92	18.4
Tricycles	202	40.4
Car drivers	95	19.0
Pedestrians	63	12.6
Large commercial vehicle	48	9.6
Total	500	100.0

Source: Field Work, 2016.

Table 2 depicts that 72.2% of the respondents had accidents that caused the sustenance of injuries either to themselves or to their pillion passengers. Majority of the respondents 36.0% and 35.0 % believe that reckless riding and drunkenness/drug abuse by motorcyclists are the major factors causing motorcycle accidents. On the categories of road users that cause motorcycles accidents, a little above 40% of the respondents indicate that Tricycles (KEKE NAPEP) are the users with most tendencies of causing accidents to motorcyclists. A reasonable number of the respondents 92 (18.4%) agree that motorcyclists themselves cause motorcycle accidents. Of the road users, pedestrians with a score of 63 representing just 12.6% are the second least with the tendencies of causing motorcycles accidents. The implication of this finding is that, though they (motorcyclists) are fully aware of the causes of their accidents, a sizeable number of them do not take precautions.

Table 3: Health status of the commercial motorcyclists in Gombe Metropolis, Gombe State

Questions	Frequency	Percentage
Health conditions suffered from the continued use of motorcycles		
Yes	383	76.6
No	117	23.4
Total	500	100.0
Nature of the health condition suffered		
Chest infections	16	3.2
Runny nose	59	11.8
Frequent headaches	53	10.6
Teary eyes	46	9.2
Painful eyes	30	6.0
Backache	26	5.2
Persistent headache	9	1.8

Pile	144	28.8
Total	383	100.0

Source: Field Work, 2016.

Table 3 portrays the results of health-related issues of the respondents as a result of their continued use of motorcycles. The majority of the respondents 383 equivalent to 76.6% of the respondents suffer from at least one health challenge. The specific identified health challenges revealed that 3.2% suffer from Chest infections, 11.8% from runny nose, 10.6% from frequent headache, 9.2% from teary eyes, 6.0% from painful eyes, 5.2% from backache, 1.8% from persistent headache and 28.8% from pile. This implies that the nature of the health challenges suffered by the respondents differs.

5. Conclusion and recommendations

This study examines the effects of commercial motorcycle business on health and traffic safety in Gombe metropolis, Gombe State, Nigeria. Data generated from survey were analyzed using simple percentages. The study finds that most of the motorcycles accidents were caused by reckless riding, drug abuse and disregard to traffic rules. Similarly, the study finds that Tricycles are the most important factor causing motorcycle accidents in Gombe metropolis. Furthermore, the study finds that most of the respondents suffer from at least one health challenge as a result of their continuous use of the motorcycle. The study therefore recommends that government and other relevant agencies should be equipped with materials and human resources to embark on regular and massive breath testing of motorcyclists to detect riders who ride under the influence of drugs. This can be achieved through identifying the Drunken riders and make them face the wrath of the law. Also, since the study finds that most of the respondents can read and write, it is therefore recommended that government should be organizing regular educational campaigns to all motorcyclists and other categories of road users as the way of increasing awareness of the consequences of reckless riding and driving so as to reduce the rate of accidents in Gombe metropolis, Gombe state. It will also add color to the campaign if some victims of motorcycle accidents are included.

Continuous use of motorcycle causes many health challenges to the motorcyclists, the study therefore, recommends that Gombe state ministry of health should partner with their unions and other relevant agencies to undertake periodic clinics and training on the health hazards of motorcycle and consequent effects on economic well-being. This will lead to better health and safer riding which in turn prevent loss of life and earning ability. Since the study found that road traffic accidents occur frequently among commercial motorcyclists in the study area as results of drunkenness/drug abuse. Therefore study recommended that an introduction of road safety education targeted at discouraging drug abuse/alcohol use among these motorcyclists while riding and ensuring periodic visual acuity assessment.

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