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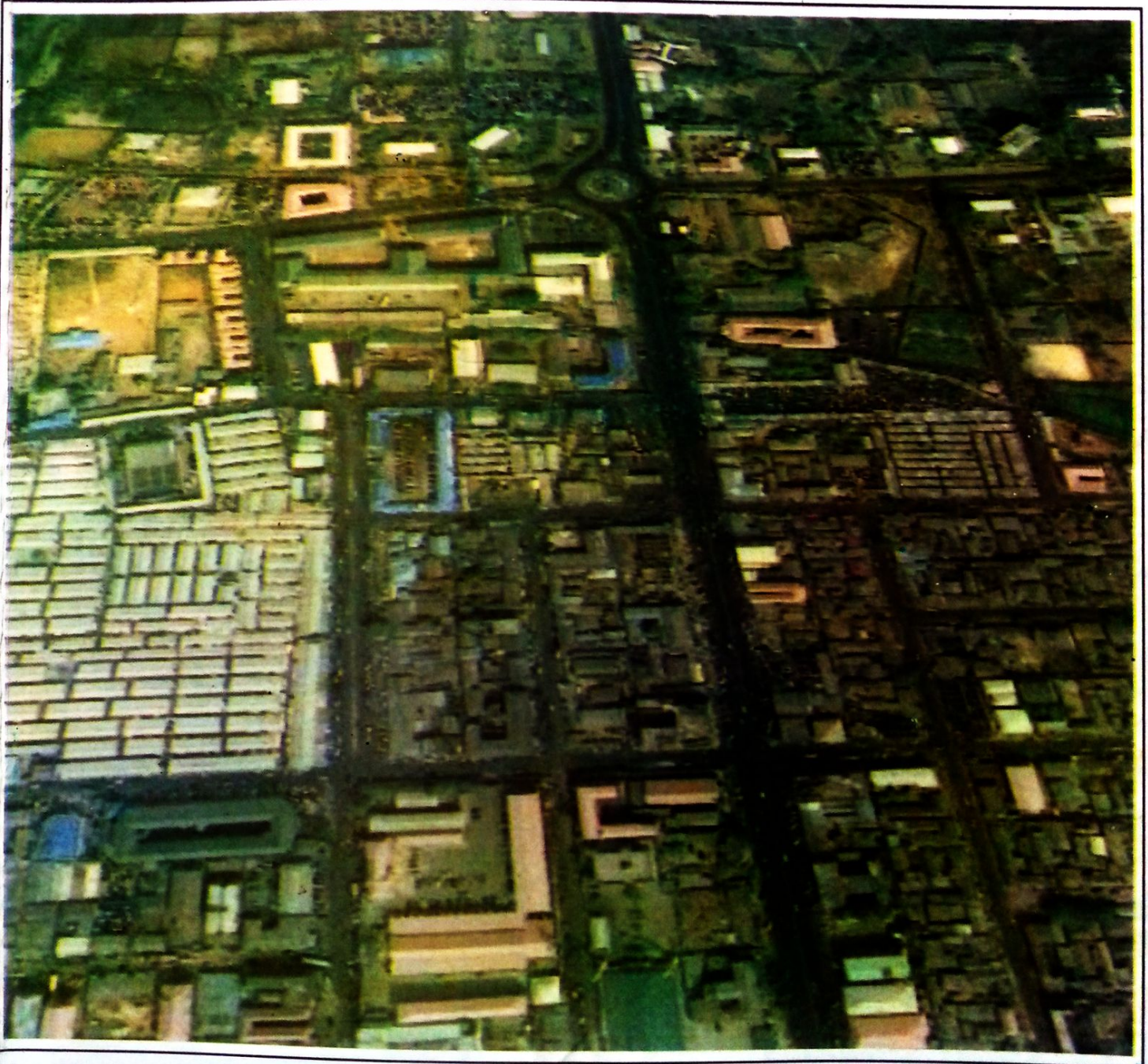
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THE IMPACT OF COMMERCIAL MOTORCYCLE OPERATION ON URBAN ROAD SECURITY IN NIGERIA: A CASE STUDY OF MINNA, NIGER STATE.

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Abstract

This paper examines the increasing use of motorcycles as means of public transportation in Minna especially against the need to overcome delays and other problems associated with the urban bus transportation system and the high incidence of traffic snarls that have become a permanent feature of urban centres. The paper also examines the implications of this mode of transportation on the security of lives of commuters and other road users in the study area. In carrying out this study 250 questionnaires were administered on randomly selected motorcycle operators in the study area on different aspects of their operations. In addition, data were sourced from both the Nigeria Police and the Federal Roads Safety Commission in Minna on the rate of accidents involving commercial motorcyclists in the city. Data were also obtained from the General Hospital, Minna on the number of patients that have either died or treated for various injuries sustained from accidents involving commercial motorcyclists. Amongst others, the study revealed that increasing number of people are being killed, disabled or injured in accidents involving commercial motorcycle operation. Amongst others, the study recommends that the time and areas of operation of the commercial motorcyclists should be controlled and their operation regularly monitored by the relevant traffic management agencies.

Keywords: *commercial motorcycle, lives, operators, security, urban roads.*

1.0 Introduction

The high incidence of urbanization in the developing countries of Asia and Africa since the 1980s has brought with it several problems, particularly as it affects urban transportation and traffic management. According to Egunjobi (1999), the pace of urbanization has been dramatic showing extraordinarily high rates of between 5% and 10% per annum in Nigeria. Closely related to the trend of urbanization in these continents is the rapid and unprecedented increase in the level of motorization which has invariably led to increased traffic congestion. It is observed that this

increase in motorization is not accompanied by sufficient investment in road construction and other related infrastructure. In the opinion of Vasconcellos (2005), if current safety conditions in developing countries are already extremely serious, it will undoubtedly worsen in the near future in the face of rapid increase in the use of motorized means within the traveling and social environments that are not prepared to experience such changes. Poor road maintenance culture and ineffective road traffic management have further exacerbated the level of traffic congestion in many urban centres in these countries. To further compound the problem is the

poor, inefficient and grossly uncontrolled urban transportation system which has left many urban travelers frustrated and thereby forced to seek alternative travel means.

In order to overcome the delays, loss of productive time and frustration associated with poor urban transportation system and ineffective traffic management in developing countries, many urban travelers resorted to the use of motorcycles as public transport means. Although this means of transportation has saved time in some congested urban centres as well as provided increased accessibility to the more remote parts of the cities, their increasing use and patronage has created new set of problems. The influx of commercial motorcycle operators in many urban centres in Nigeria has further congested the few roads and constituted menace to many road users. Apart from this, many commercial motorcycle operators and their passengers are daily being killed and maimed due to the numerous accidents that involved this means of transportation. Olagunju (2008) wrote that, in Lagos State for instance, a total of 9,979 motorcycle accidents were reported within the last ten years. This figure is said to represent about 13.5% of total vehicles involved in various accidents in the State during the period in which about 40,706 persons were reported injured and 14,372 dead. These figures were even underestimations as Oyesiku (2003) observed that there is a gross underestimation and incomprehensiveness of data on accident cases, especially road accidents involving vehicles and motorcycles.

In Minna, Niger State, commercial motorcycle operation has become a more popular means of transportation

particularly given the increased demand for public transportation and the desire by the people for a more flexible and faster means. However, the level of road traffic accidents involving the operators and their passengers are on the increase on a daily basis. In recent times, more lives and limbs have been lost to several accidents involving the motorcycle operators. In addition to this, their mode of operation is becoming a public menace and a threat to other road users. This study, therefore, examines the socio-economic background of commercial motorcycle operators, nature and modalities of their operations as well as the threats posed by this means of transportation on the security of lives of the people of the study area, particularly the commuters and other road users.

2.0 The Study Area

Minna, the capital of Niger State is a relatively medium-sized city. It is located on latitude $9^{\circ} 37'$ North of the Equator and on longitude $6^{\circ} 33'$ East of the Greenwich Meridian. It is situated on a geological base of undifferentiated Basement Complex of mainly gneiss and magmatite (Max Lock Group Ltd., 1980). It is a predominantly Gwari settlement although it is equally home to diverse ethnic groupings from different parts of the country, especially, Hausas, Yorubas and Igbos. The city is a relatively warm settlement whose daily temperature ranges from 23°C during the harmattan season and a high temperature of about 38°C during the peak of the dry season usually between February and mid-May.

The city is one of those northern settlements that owe their rise to the construction of the railway in 1911. However, its status and developmental pattern changed in February, 1976 when

it became the capital of the then newly created Niger State. The present city is widely dispersed along the main arterial road from Chanchaga along Suleja Road in the south to Tudun Fulani in the north, a distance of about 16 Kilometers. The construction of both the Eastern and Western bye passes in the 1900s further dispersed the trend of its physical development. Apart from these, there are other several secondary roads that link the major residential quarters and commercial axis of the city.

Amongst other factors, the establishment of the Federal University of Technology and the location of the headquarters of the National Examination Council (NECO) in the city have further boosted its growth and development. The city

also has a relatively functional infrastructure in the medium and low densities neighbourhoods particularly electricity and good water supply system. Save for the neighbourhood and some secondary roads, majority of the roads are in relatively good condition as road maintenance and construction have lately been given increased attention.

Public transportation system in Minna is however, yet to be fully developed and this is one of the reasons that gave rise to the use of motorcycles as a means of public transportation. The inability of the buses and taxis to ply the inner and remote parts of the city has further aided the patronage of commercial motorcycles.

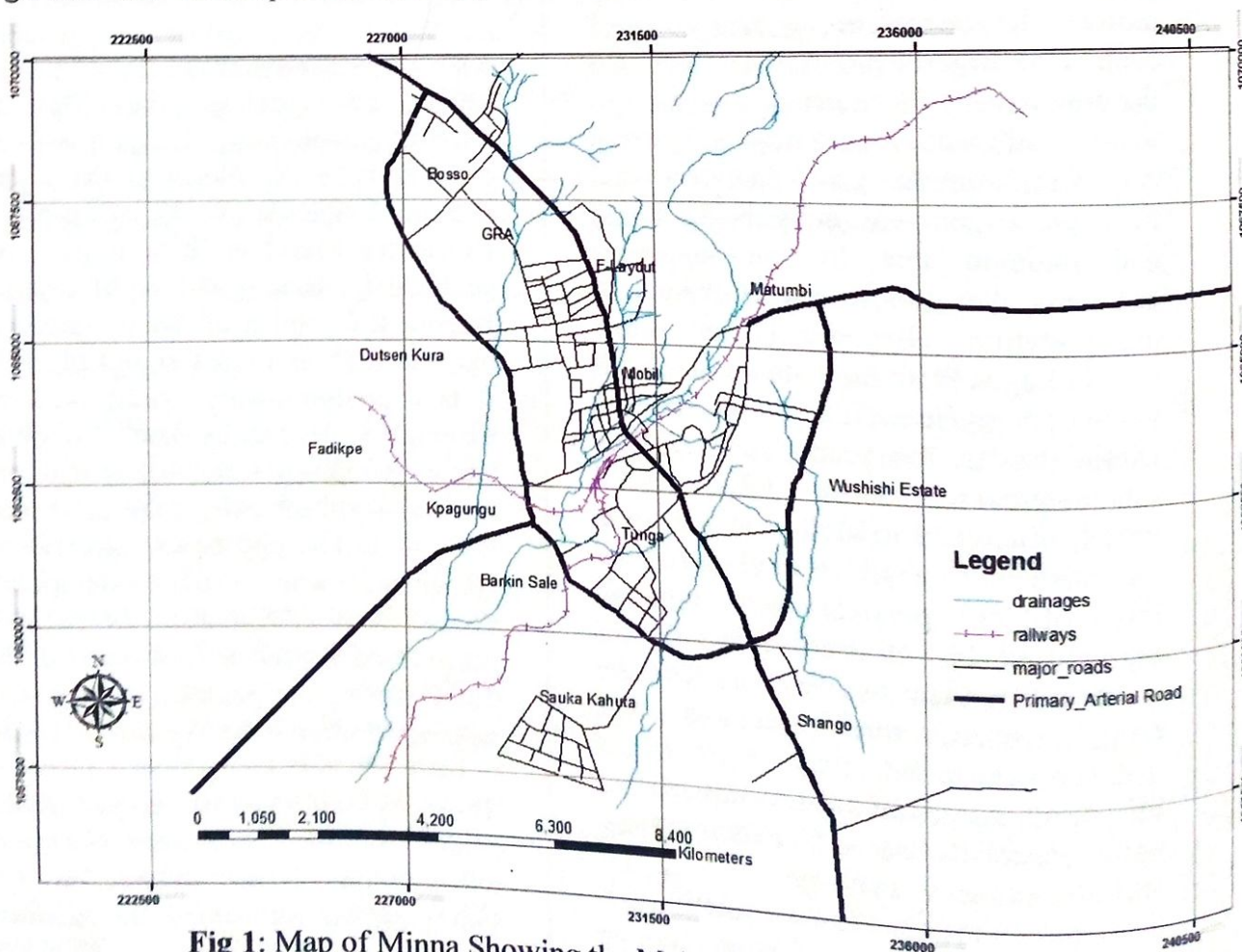


Fig 1: Map of Minna Showing the Major Road Network

3.0 Review of Related Literature

In Nigeria, the pace of urbanization has been very dramatic showing extraordinarily high rates of between 5% and 10% per annum (Egunjobi, 1999; Oyesiku, 2002a). As a result, it is observed that there has been a rapid expansion of Nigerian cities, which is sometimes said to be as much as ten times their initial point of growth. Oyesiku (2002) has attributed this trend to a situation where urbanization level far outpaces industrialization as well as the high rate of population growth. Similarly, the trend of urbanization in developing countries has been linked to road safety problem. According to Robert and Veeraragavan (undated), growth in urbanization and in the number of vehicles in many developing countries has led to increased traffic congestion in urban centres and increase in traffic accidents on road networks which were never designed for the volumes and types of traffic they are now required to carry. The authors further argued that unplanned urban growth has led to incompatible land-uses with high levels of pedestrian-vehicle conflicts.

However, it has been observed that all communities require accessibility to services, facilities and work opportunities. Accessibility however, depends on infrastructure, available and affordable modes of transportation for the movement of the people and their goods (Maunder et al, undated). The authors equally stressed that a variety of transport modes are used to carry passengers and/or freight and that these include trucks, pick-ups, buses, mini-buses, cars, motorcycles etc. They further stressed that these modes are utilized for both

private and commercial uses. Commercial transport services however, require users paying fares or hire charges and it is the combination of these components that comprise a system of transportation.

Owen (1986) has also observed that cities have become increasingly difficult places to live and work in due largely to difficulties associated with urban mobility pattern. He attributed this mobility crisis to the inability to overcome traffic congestion and to remove numerous other obstacles affecting urban transportation system. This trend is particularly so in developing countries where traffic control and management are paid little attention.

Adagbasa (2004), reviewing the nexus between urban land-use and traffic management in Nigerian cities, argued that the problem of efficient land-use and traffic management in urban centres has begun to assume profound and divergent dimensions due largely to rapid urbanization, increased car ownership and globalization. The author stressed that this has been further compounded by the fact that majority of the urban centres evolved by accretion therefore, paying no cognizance to the importance of traffic as a major land-use that makes others function effectively. Similarly, Oyesiku (2003) argued that the transportation system in intermediate cities in Nigeria can be described as a mixture of all kinds, positing that as a result issues involved in mobility difficulties have been the subjects of many studies by both local and foreign consultants as well as the World Bank agencies. The author therefore, emphasized that there is a consensus

among these consultants based on their studies particularly between 1985 and 1999 that the transportation problems in Nigeria can be categorized as : the emergence and use of tricycle vehicles and motorcycles for public transportation since the late 1980s; overcrowded public transportation system and use of road unworthy vehicles imported mostly from Europe and America; incessant traffic congestion and awkward parking system; sudden increase in level of motorization between 1999 and 2002 as well as increased scourge of road traffic accidents despite the appreciable role of government – established Federal Roads Safety Commission, amongst others. The author therefore, concluded that statistics has shown that about 50% of persons killed in fatal accidents between 1989 and 2002 in Lagos State and other major cities in the country are the commercial motorcycle operators and their passengers.

Eke (2001) is of the view that road traffic accidents constitute a major cause of untimely deaths in developing countries. According to the author, factors responsible for most road accidents are basically three. These are the person (driver), the machine (vehicle) and the road. He therefore, argued that most traffic accidents often involve the three.

Similarly, Vasconcellos (2005) posited that traffic accidents are a major problem in both developed and developing countries, although these are related to different historical reasons and circumstances. He however, argued that the single, clear and common feature is the impact caused by the use of automobiles, positing that traffic accidents are a major public health

problem all over the world. The author further emphasized that traffic accidents occur in built-up environments that are man-made and that both the way the city is constructed and the way the circulation structure is formed have a direct effect on the nature of traffic conflicts and , hence, the probability of traffic accidents occurring.

· Olagunju (2008) has however, attributed the emergence of motorcycles as means of public transportation in Nigeria to the failure of conventional public transportation means such as buses, mini-buses and taxis especially given the yawning gap between transport demand and supply in the country. He therefore, argued that the commercial motorcycle riders are exposed road users who have become very vulnerable to accidents positing that chances of a rider dying in an accident is six times higher than those of drivers and passengers of motor vehicles.

Similarly, Wikipedia (2010) pointed out that commercial motorcycles (okada) were valued mainly because they were fast and readily available, although they have a higher rate of crippling and fatal accidents per unit than automobiles. It also observed that many commuters patronized them because they are left with few options despite the awareness of the risks involved in this means of transportation. It also reported that a study carried out in Yola, Adamawa State in 1993 showed that 88% of the riders of commercial motorcycles were aged between 18 and 30 years and only 47% of them received formal education of any form which made it difficult for them to understand the traffic codes and other road traffic regulations.

In a related work, Iribhogbe and Odai (2009) reported that in Benin City, Nigeria, majority of commercial motorcycle operators were young people between the ages of 20 and 39 years and that many of them engaged in this means of transportation as a last resort following unemployment. The authors pointed out that although about 70% of these operators possessed driver's licenses, majority of them did not undergo any form of training, evaluation, or road test before being issued licenses. They further observed that apart from uncertain driving skills, many operators were unaware of road rules, ethics and proper conduct on the road thereby tending to drive at breakneck speeds in order to maximize daily financial returns.

Odeleye and Bartiett (2006) emphasized that developing countries such as Nigeria are noted for their use of intermediate means of transportation (IMT), for public transportation and that despite the comparatively low safety and efficiency of this means, it enjoys huge patronage from commuters. The authors observed that the increasing demand for travel in cities of developing countries without a matching supply in public facilities such as comfortable, reliable and decent public bus system is probably one of the factors responsible for the prevalence of this means of transportation. It is however, observed that two of the interesting features of this means of transportation in Nigeria is that it is not only unregulated, it is also not effectively integrated into the existing urban transport system as there is no specialized road infrastructure provision which could enhance the safety of passengers and as well as those of operators.

4.0 Research Scope and Methods

The study covers the entire Minna metropolis comprising Bosso and Chanchaga Local Government Areas. It equally covers the age and other socio-economic characteristics of commercial motorcycle operators, their mode of operation as well as occurrence and frequency of accidents associated with the means of transportation and casualty level. Both primary and secondary data were sourced for this study. Two hundred and fifty questionnaires (250) were used in eliciting information from some commercial motorcycle operators about the various aspects of their operations, including accident trends. Twenty five (25) questionnaires each were administered on operators who were randomly chosen in ten major transport corridors and axis of the metropolis. These include Kpakungu, Bosso, Chanchaga, Paiko Road/ Tunga, Maitumbi and Kuta Road. Others are Ketere Gwari/Mobil Filling Station, Army Barracks, GRA/Airport Road and Tunga Low-Cost/Shiroro Road.

Secondary data were collected from the five police divisions within the metropolis and the Minna Headquarters of the Federal Roads Safety Commission about reported cases of accidents involving commercial motorcycle operators and casualty figures between 2005 and 2008. Data were also obtained from the Minna General Hospital about the number of patients brought to the hospital who are either dead or injured from road accidents involving commercial motorcycle operators. Both the primary and secondary data were analyzed using descriptive statistics such as frequencies and percentages.

5.0 Research Findings

5.1 Socio-economic Characteristics of Commercial Motorcycle Operators

To properly understand the relationship between the socio-economic characteristics of commercial motorcycle

5.1.1 Age of Operators

As shown in table 1, the study revealed that almost half (48.4%) of commercial motorcycle operators in Minna were within the age bracket of 18 and 25 years. This is closely followed by operators within age bracket of 26 and 35 years who constituted about 33.6%, while those

operators in Minna and the demands of the job, the study sought to know their average age, education, experience and other socio-economic backgrounds. These are discussed in this section.

within the ages of 36 and 45 years constituted 12.8%.

It can therefore, be inferred from the above pattern of distribution of the ages of operators that a considerable number of them are relatively young and are therefore, prone to the restlessness and exuberance of their ages which could make them impatient when driving on the Roads

Table 1: Age of Operators

Age	Frequency	Percentage
Less than 18 years	6	2.4
18 – 25 years	121	48.4
26 – 35 years	84	33.6
36 – 45 years	32	12.8
Above 45 years	7	2.8
Total	250	100.0

Source: Fieldwork, 2008

5.1.2 Educational Characteristics of Operators

Table 2 shows the educational characteristics of commercial motorcycle operators in Minna. Operators without any formal education constituted 20.4%, those with either Primary or Arabic education constituted 29.6%, those with Secondary education constituted 41.6% and those with either a National Diploma (ND) or a National Certificate of

Education (NCE) constituted 8.4%. This shows that majority of operators are relatively educated and are therefore, expected to have a fair grasp of the traffic codes which are meant to help while driving.

Table 2: Educational Qualification of Operators

Level of Education	Frequency	Percentage
None	51	20.4
Primary/Arabic	74	29.6
Secondary	104	41.6
ND/NCE	21	8.4
Total	250	100.0

Source: Fieldwork, 2008

5.1.3 Experience as Operators

Table 3 shows the level of experience of commercial motorcyclists in Minna. The table shows that operators with between 1 and 2 years on the job constituted 22.8%, those with between 3 and 4 years experience constituted 28.4%, while those with between 5 and 6 years constituted 19.4%. While operators with

between 7 and 8 years constituted 15.6%, those with above 8 years constituted 13.6%. This trend therefore, shows that about half of operators had relatively few years experience and therefore, may be unable to fully understand the level of risks involved in their operation. At least over five years experience is required for effective operation.

Table 3: Experience of Operators

Experience	Frequency	Percentage
Between 1 and 2 years	57	22.8
Between 3 and 4 years	71	28.4
Between 5 and 6 years	49	19.6
Between 7 and 8 years	39	15.6
Above 8 years	3	13.6
Total	250	100.0

Source: Fieldwork, 2008

5.2 Reasons for Engaging in Motorcycle Operations

The operators sampled were asked to state the reasons for engaging in commercial motorcycle operation. Table 4 shows the various responses offered. Operators who were engaged because of lack of suitable employments were slightly more than half (54.0%), those

without education and basic skills that could make them sought other employment constituted 22.8%, while those who are involved to augment the income from their basic employment constituted 23.2%. This trend shows that majority of operators engaged do so for reasons of unemployment or underemployment and not out of interest

Table 4: Reasons for Involvement in Commercial Motorcycle Operation

Reasons	Frequency	Percentage
Lack of Employment	135	54.0
Lack of education/skill	57	22.8
Augment Income	58	23.2
Total	250	100.0

Source: Fieldwork, 2008

5.3 Period of Operation

The study equally sought to know the basic period of operation from the sampled commercial motorcyclists. Table 5 shows the different operational periods of operators. The table shows that 16.4% engaged in morning operation only, 8.4% in afternoon operation only, while 14.4% engaged in evening operation only. Operators engaged throughout the day

and occasionally constituted 56.4% and 4.4% respectively. This trend shows that slightly more than half of operators work throughout the day and could therefore, suffer from fatigue and thereby susceptible to accidents. However, the reasons why accidents are common among operators are discussed in another section of this paper.

Table 5: Period of Operation

Period	Frequency	Percentage
Morning operation only	41	16.4
Afternoon operation only	21	8.4
Evening operation only	36	14.4
Throughout the day	141	56.4
Occasionally	11	4.4
Total	250	100.0

Source: Fieldwork, 2008

5.4 Level of Operators' Involvement in Accidents

The research results revealed that 59.2% of commercial motorcycle operators in Minna have been involved in road accidents within the last three years. While 39.86% claimed to have been involved in only one accident within the period, 60.14% claimed to have had more than one accident. When asked if they or their passengers were injured in these accidents, 57.4% answered in the affirmative. When further asked if any passenger had ever died in these

accidents, only 7.4% answered yes. This poor response is however, not surprising given that matters relating to death are hardly disclosed openly in this part of the world. This further collaborate the opinion expressed by Oyesiku(2003) who observed that there is a gross underestimation and incomprehensiveness of data on accident cases, especially road accidents involving vehicles and motorcycles.

5.5 Causes of Accidents Involving Commercial Motorcyclist

Table 6 shows the various causes of road accidents involving commercial motorcycle operators. The study revealed that 30.8% of sampled operators believed that accidents involving commercial motorcyclists are caused by acts of recklessness such as drunkenness, impatience, over-speeding and thoughtlessness on the parts of operators. Another 15.2% attributed same to bad roads, while 37.6% were of the opinion

that recklessness of other road users, especially motorists is responsible. However, 16.4% of respondents were of the opinion that brakes failure or faulty machines of operators are sometimes responsible.

The study therefore, revealed that a total 68.4% of accidents are attributed to acts of recklessness of motorists including operators of commercial motorcycles.

Table 6: Causes of Accidents Involving Commercial Motorcyclists

Causes	Frequency	Percentage
Recklessness of Operators	77	30.8
Bad Roads	38	15.2
Recklessness of other Motorists	94	37.6
Brake failure/ faulty machine	41	16.4
Total	250	100.0

Source: Fieldwork, 2008

5.5 Commercial Motorcycle Operations and Security of Lives on Urban Roads

The records of the Nigeria Police in Niger State showed that level of casualty from accidents involving commercial motorcyclists is on the increase. While 24 deaths and 65 injuries were reported in 2005, these rose to 26 and 74 in 2006 and subsequently to 29 and 104 in 2007. The figures further rose to 47 and 213 in 2008. It should however, be stressed that these figures are just fractions of the

actual rates of casualties from accidents involving commercial motorcyclists as many were not reported. This poor level of reportage of such accidents was confirmed by the Police. Similarly, records obtained from the Federal Roads Safety Commission (FRSC) in Minna on the trend of casualty from accidents involving commercial motorcycle operators between the same period shows that level of casualty is equally on the increase.

Table 7: Police Reports for Commercial Motorcycle Accidents (2005 - 2008)

S/NO	YEAR	NO. OF INJURED	NO. OF DEATH	NO. OF ARREST	NO. OF COMMERCIAL M/CYCLE
1.	2005	65	24	45	51
2.	2006	74	26	50	76
3.	2007	104	29	57	111
4.	2008	213	47	78	157
	TOTAL	456	126	230	395

Source: Nigeria Police, Minna. (2009)

Records obtained from the authorities of the General Hospital, Minna about reported cases and death profile of commercial motorcycle accident victims shows a similar dimension of the problem of insecurity occasioned by the use of motorcycle for public transportation. Table 8 shows that while 505 cases and 27 deaths were reported in the hospital in 2001, the trend has since been on the upswing in subsequent years with the death toll reaching 133 and 187 in 2007 and 2008 respectively. These high figures

are even in the face of under-reporting and the fact that smaller other public and private hospitals abound in the city that could have recorded higher figures combined. It is therefore, apparent that accidents associated with commercial motorcycles are one of the sources of untimely deaths in the urban centres in recent times particularly on major routes and roads.

Table 8: Profile of Victims of Commercial Motorcycle Accidents in Minna.

S/NO	YEAR	REPORTED CASES	DEATHS REPORTED
1.	2001	505	27
2.	2002	723	28
3.	2003	800	51
4.	2004	863	66
5.	2005	NA	NA
6.	2006	NA	NA
7.	2007	935	133
8.	2008	993	187

Source: General Hospital, Minna, 2009.

6.0 Recommendations and Conclusion

In order to stem the worsening profile of insecurity associated with the use of motorcycles as means of public transportation in Minna and perhaps in

Nigerian cities' generally, government and its other agencies concerned with traffic and transportation systems control and management need to adopt new measures to address the problem. Unlike other means of public transportation, the

operations of the commercial motorcyclists are poorly regulated. It is therefore, suggested here that more regulatory framework for commercial motorcycle operations be evolved particularly in the urban centres of the country. Just as in the case of commercial vehicles, the Vehicle Inspection Officers (VIOs) should be made to carry out periodic inspection and certification of the motorcycles being used by operators.

In addition, operators need to be subjected to mental fitness test in view of the level of recklessness associated with this means of transportation. It is also necessary to restrict the operators to particular areas of the city where the volume of traffic is not only less but also safer to both operators and passengers for them to operate such as neighbourhood roads and more remote parts of the city. The time and areas of operations should be clearly spelt out and violators punished. There is also the need for an age limit of twenty five years to be set for operators of commercial motorcycles. Since it is observed that many of the accidents involving this means of transportation occurred on the major highways, it is therefore, suggested that they should be barred from further plying them.

While the promulgation of the law on wearing of crash helmets in some states of the country by both commercial motorcyclists and their passengers is commendable, its enforcement needs to be beefed up in Minna as they are hardly used regularly and particularly in the night. The enforcement of the use of crash helmets by commercial motorcycle operators and their passengers should be extended to cover the entire country and violators seriously punished.

There is no way the level of accidents generally in the country can be divorced

from the conditions of the roads. Therefore, to reduce road traffic accidents in the country to the barest minimum there is a need to give the roads, particularly in the urban centres more serious attention. It is observed that many roads in the urban centres are in deplorable conditions of disrepair and this is further causing traffic congestion.

In conclusion, the level of urban road insecurity occasioned by commercial motorcycle operations which has been on the increase in recent times can be severely reversed if the operation of this means of public transportation can be seriously regulated while paying increased attention, not only to traffic control and management, but also road construction and maintenance.

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