



Original Research Article

## Pattern Of Limb Injuries In Those Involved In Motorcycle Road Traffic Injury In Ogbomoso, Nigeria

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### ABSTRACT

**Introduction:** Increase in the use of motorcycle as a means of public transportation as led to a corresponding increase in motorcycle road traffic injury, some resulting in injuries which are disabling and others in fatal injuries. Limb injuries are very common among people who were involved in motorcycle road traffic injury.

**Objectives:** This study aimed to determine the pattern of limb injuries in those involved in motorcycle road traffic injury in Ogbomoso, Nigeria

**Methodology:** This was a cross-sectional, hospital-based prospective study conducted at the accident and emergency department from September 2005 to June 2006. A semi-structured interviewer administered questionnaire was used to collect information. Data was analyzed using SPSS 11. Proportions were determined and statistics presented in tables.

**Results:** A total of 156 subjects were recruited with a mean age of  $34.33 \pm 16.48$  years. There were more male (119, 76.3%) than female participants (37, 23.7%). The month of September recorded the highest frequency (27, 17.3%) of accident. Abrasion (24, 16.8%) was the leading type of limb injury and the most common long bone fracture was tibial fractures (23, 16.1%). Radius (5, 3.5%) and ulna (5, 3.5%) fractures were the commonest upper limb fractures.

**Conclusion:** Limb injury is very common among those involved in motorcycle road traffic injury in Ogbomoso. The passengers as well as the pedestrians were more at risk than the riders and most of the riders involved were commercial motorcycle riders.

**Keywords:** Road traffic injury, Motorcycle, Limb Injury, Abrasion, Ogbomoso, Nigeria.

### INTRODUCTION

Road Traffic Injury has been established as one of the leading causes of mortality and morbidity worldwide and is estimated to be responsible for the death of over 3,000 people every day. <sup>[1]</sup> More than 90% of deaths that result from road traffic injury occur in low- and middle-income

countries. <sup>[2]</sup> The use of motorcycle as a means of public transportation worsened the incidence of road traffic injuries in Nigeria. Inadequate means of transportation that followed the rapid rate of urbanization in Nigeria was one of the factors responsible for the use of motorcycles as a means of transportation. <sup>[3]</sup> The high level of

unemployment also made a lot of people to join the business of commercial motorcycling. [4] The use of motorcycle as a means of public transportation was accepted by many people because of its ability to take them to their door steps, manoeuvre their way through traffic congestion and reach areas where other forms of transportation cannot reach because of bad roads. [3,5-8]

With this increase in the use of motorcycle as a means of public transportation is a corresponding increase in motorcycle road traffic injury, some resulting in injuries which are disabling and others in fatal injuries. Limb injuries are very common among people who were involved in motorcycle road traffic injury. Limb injuries can involve damage to bones, joints, ligament, muscles, the major blood vessels and nerves of the limb. Depending on the severity, limb injuries may be life-threatening, or cause considerable pain and long term disability. Blood loss and shock may result, particularly in cases of multiple injuries. Disabling limb injuries and limb loss have profound economic, social and psychological effects on the patient and their families. [9,10]

This study aimed to determine the pattern of limb injuries in those involved in motorcycle road traffic injury in Ogbomoso, Nigeria.

## STUDY AREA

Ogbomoso is a town in South-western Nigeria. It is an inter-religious town situated about 100km north of Ibadan, the capital of Oyo state, Nigeria. The projected population for the year 2005 was 555,716. Farming is a prominent occupation with the motorcycle being a common mode of transportation. There are also many artisans, traders and civil servants living in the area. A state general hospital, a Baptist Mission Hospital, a few Primary Health Centres and an increasing number of private hospitals meet the health needs of the population.

Ogbomoso is one of the main gateways to the northern region of Nigeria. The Ilorin-Ibadan trunk, a federal road that serves this purpose facilitates interstate transportation of goods and is bound by the Central Business District in the city. Baptist Medical Center is situated along this highway.

## MATERIALS AND METHODS

This study was a cross-sectional, hospital-based prospective study conducted at the accident and emergency department of the Baptist Medical Center, Ogbomoso (now Bowen University Teaching Hospital) from September 2005 to June 2006 following approval from the Ethical Review Committee of the hospital. Over the study period, all patients that presented in the emergency department of the hospital within 48 hours after being involved in a motorcycle road traffic accident and who gave consent were included in the study. Those included motorcyclists (riders), pillion riders (passengers) and pedestrians. Written consents were obtained from all patients with the understanding that their choice to be or not to be part of the study will not affect the quality of the care they were given.

Data collected were recorded in a structured recording schedule and included: Name age, sex, mode of involvement and the use of motorcycle either for commercial or private use. Information on domicile, occupation, educational level and marital status were documented.

Data were analyzed by computer using the statistical package for social sciences (SPSS 11). Means and standard deviations were calculated. Proportions were determined and statistics presented in tables.

## RESULTS

A total of 156 subjects participated in the study and there were more male (119, 76.3%) than female participants (37, 23.7%). The age of the subjects ranged from

5 to 82 years with a mean age of 34.33 ±16.48 years. The age range 20-29 had the highest frequency (50, 32.1%) of the subjects who were involved in motorcycle road traffic injury. More than one-half (81, 51.9%) of the subjects were married and 21.2% (33) of the subjects were students. Majority of the subjects were from Ogbomoso township (117, 75%).

**TABLE 1: SOCIO-DEMOGRAPHIC CHARACTERISTICS**

VARIABLES	FREQUENCY (%)
<b>Age group(n=156)</b>	
0-9	4 (2.6)
10-19	19 (12.2)
20-29	50 (32.1)
30-39	35 (22.4)
40-49	14 (9.0)
50-59	16 (10.3)
60-69	10 (6.4)
70-79	6(3.8)
80-89	2(1.2)
<b>Mean Age = 34.33 ± 16.48</b>	
<b>Gender(n=156)</b>	
Male	119(76.3)
Female	37(23.7)
<b>Marital Status(n=156)</b>	
Single	68(43.6)
Married	81(51.9)
Divorced	1(0.6)
Widowed	6(3.9)
<b>Place of Abode(n=156)</b>	
Ogbomoso	117(75.0)
Outside Ogbomoso	39(25.0)
<b>Occupation(n=156)</b>	
Farmers	28(17.9)
Students	33(21.2)
Artisans	18(11.5)
Traders	22(14.0)
Civil Servants	13(8.3)
Drivers	5(3.2)
Cyclists	11(7.2)
Teachers	14(9.0)
Others	12(7.7)
<b>Level of Education(n=156)</b>	
No Formal Education	25(16.0)
Primary	36(23.1)
Secondary	56(35.9)
PostSecondary	39(25.0)
<b>Mode of Participation(n=156)</b>	
Rider	72(46.2)
Passenger	54(34.6)
Pedestrian	30(19.2)
<b>Use of Motorcycle(n=156)</b>	
Commercial	78(50.0)
Private	68(43.6)
Unknown	10(6.4)

**TABLE 2: PATTERN OF LIMB INJURIES**

VARIABLES	FREQUENCY (%)
Abrasion	24(16.8)
Tibial fractures	23(16.1)
Lacerations	22(15.4)
Fibular fractures	19(13.3)
Femoral fractures	16(11.2)
Ankle fractures	5(3.5)
Radial fractures	5(3.5)
Ulnar fractures	5(3.5)
Tendon injuries	4(2.8)
Metatarsal fracture	3(2.1)
Pelvic fractures	3(2.1)
Clavicular fracture	3(2.1)
Hip dislocation	2(1.4)
Digital amputation	2(1.4)
Humeral fractures	2(1.4)
Shoulder dislocation	2(1.4)
Vascular injuries	1(0.7)
Clavicular dislocation	1(0.7)
Patella fracture	1(0.7)
<b>Injured Limb(n=99)</b>	
Lower limb	72(46.2)
Upper limb	20(12.8)
Both limb	7(4.5)
<b>Side of the Body Injured(n=99)</b>	
Right limb	22(22.2)
Left limb	53(53.5)
Both side	24(24.3)
<b>Types of Fractures(n=99)</b>	
Open	25(25.3)
Closed	27(27.3)
Both	11(11.1)
Nil	36(36.3)

The month of September recorded the highest frequency (27, 17.3%) of accident while the month of February and March recorded the least frequency (6, 3.8%). Most of the subjects had secondary education (56, 35.9%) and less than one-half (72, 46.2%) of the subjects were motorcycle riders. One-half of the motorcycle (78, 50.0%) involved in road traffic injury are been used as commercial means of transportation. More than one-half (99, 63.5%) of the subjects sustained injury to their limbs, out of which (76) 72.7% sustained injury to their lower limb while (20) 20.2% sustained injury to their upper limbs. Majority of the subjects (63, 63.6%) who sustained limb injury had fractures and 27.3% (27) of those fractures were closed. Majority (53, 53.5%) of the subjects sustained injury to their left limbs. Abrasion (24, 16.8%) was the leading type of limb injury, followed by tibial fracture (23,

16.1%) while patella fracture, clavicular dislocation and vascular injuries (1, 0.7%) were the least form of injury found in this study. The most common long bone fracture was tibial fractures (23, 16.1%), followed by fibular fractures (19, 13.3%). Radius (5, 3.5%) and ulna (5, 3.5%) fractures were the commonest upper limb fractures.

## DISCUSSION

The age of the subjects who participated in this study ranged from 5 to 82 years with a mean age of  $34.33 \pm 16.48$  years and the age group with the highest frequency was 20-29 years. This age group is the active and productive age group of any nation. Therefore, their involvement in road traffic accident usually results into serious socio-economic consequences to their family and the nation. The family spends a lot of money in the treatment of the injured and the nation loses man-hours. This finding is in agreement with findings of several studies [9,11-13] in Nigeria. It was discovered from this study that there were more male (119, 76.3%) than female participants (37, 23.7%). This finding is not surprising because overwhelming majority of the motorcycle riders in this environment are male and this finding is in agreement with what Amole [14] et al found in Ogbomoso, Nigeria. This study revealed that the month of September recorded the highest frequency (27, 17.3%) of accident and this is not unexpected because it has been established that most accidents occur in the “ember” months of the year. This may not be unconnected with the unnecessary economic rush that is associated with the ember months. It was discovered from this study that one-half of the motorcycle (78, 50.0%) involved in road traffic injury are been used as commercial means of transportation. Inadequate means of transportation that followed rapid rate of urbanization and the high level of unemployment may be the factors that are

responsible for this finding. The fact that more than one-half (99, 63.5%) of the subjects sustained injury to their limbs in this study is not surprising because the limbs are not protected by the riders and this findings is similar to what was found in Calabar<sup>9</sup>, Nigeria. More than one-half (84, 53.8%) of those involved in motorcycle accident in this study were either motorcycle passengers or pedestrians. This showed that the passengers as well as the pedestrians are at more risk of developing limb injury following motorcycle road traffic injury than the motorcycle riders. This study also revealed that majority of the subjects (78, 50.0%) in our study were commercial motorcycle riders and this finding is not surprising because the high level of unemployment made a lot of people to join the business of commercial motorcycling in order to make ends meet. It was also discovered that majority of the subjects sustained injury to their lower limbs than the upper limbs and this is the same pattern seen in most of the studies [8,9] in Nigeria. More than one-half (53, 53.5%) of the subjects sustained injury to the limbs on the left side of the body and this may not be unconnected with the fact that driving and riding is done on the right side of the road with on-coming traffic faced on the left. Therefore if a collision will occur with on-coming traffic, there are higher chances of injuries occurring on the left. We found that abrasion (24, 16.8%) was the leading type of limb injury in our study and this is at variance with what was found in Calabar [9] where they discovered that fracture was the leading form of injury. The most common long bone fracture was tibial fractures (23, 16.1%), followed by fibular fractures (19, 13.3%) and this is in agreement with what was found in Calabar, [9] Nigeria.

## CONCLUSION

Limb injury is very common among those involved in motorcycle road traffic

accident in Ogbomoso. The passengers as well as the pedestrians were more at risk than the riders and most of the riders involved were commercial motorcycle riders. The federal road safety commission needs to intensify campaign on safety on our road to limit the disability resulting from motorcycle road traffic injury.

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