

Pattern of injuries from motorcycle accidents in Abia State, Nigeria: The influence of government regulation

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Abstract

Background: Motorcycle accidents are very common and cause major injuries. The Abia State government banned commercial motorcyclists from operating in the major cities of the state in July, 2009. **Objectives:** To determine the influence of this ban on the cause and pattern of injuries due to road traffic accidents. **Design:** The study is retrospective. **Setting:** The Accident and Emergency Department of the Federal Medical Centre, Umuahia. **Subjects:** All patients involved in road traffic accidents that were brought to the Accident and Emergency Department of the Federal Medical Centre, Umuahia in 2009. **Materials and Methods:** Data obtained from patients' case notes were subjected to statistical analysis. **Results:** In the six months before the ban, a significant number of motorcycle accidents occurred compared to the other six months after the ban. More of the injuries were major, more of the patients were males, and the median age of occurrence for most of the injuries was 25.5 years. **Conclusion:** The ban on commercial motorcycle operatives significantly reduced the incidence of road traffic accidents and major injuries.

Key words: Injuries, Motorcycle, Road traffic accidents

INTRODUCTION

Motorcycle accidents are known to cause appreciable morbidity and mortality.^[1,2] In Nigeria, one of the reasons for this is the lawlessness shown by motorcycle riders: They do not undergo formal motorcycle riding training and obtain riding licence; they do not obey traffic laws; and they do not wear protective gears.^[3-5] In Abia State of Nigeria, they were additionally associated with high rate of armed robbery and kidnapping. Therefore, early in July 2009 the State Government banned motorcycle riders from operating in the State Capital among other towns. This led immediately to almost complete absence of reported cases of kidnapping in the State Capital.

This study was carried out to evaluate the influence of the ban on the pattern of injuries resulting from road traffic accidents in the State Capital in 2009.

MATERIALS AND METHODS

We retrospectively reviewed 751 consecutive cases of road traffic accidents admitted into the Accident and Emergency Department of the Federal Medical Centre, Umuahia from 1st January 2009 to 31st December 2009 after seeking ethical approval from the hospital. The admissions register of the department was used to get the registration numbers of the patients. These were then used to retrieve patients' case notes. The information retrieved from the case notes included patients' demographics, the injuries sustained, the date of the injuries, the cause of the injuries, and whether death occurred.

The data analysis involved using correlation to determine the relationship between road traffic accidents before and after the ban on motorcycle operators within Umuahia town. The Karl Pearson moment correlation coefficient was calculated. Student's

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t-test was used to compare proportions before and after the ban. The chi-square was used to test for discrepancies between observed and expected values in the types of road traffic accident cases in 2009. A p-value of <0.05 was required for significance.

RESULTS

Number of road traffic accidents and their sex distribution

The total number of road traffic accident victims that presented to the Federal Medical Centre, Umuahia, Accident and Emergency Department in the year 2009 was 751. The majority, 486 patients (64.9%), were males. Before the ban, from January 1st 2009 to June 30th 2009, there were a total of 510 road traffic accident cases. The male-female distribution is shown in Table 1.

However, between July 1st and December 31st 2009, a total of 241 cases were reported. Table 2 shows the sex distribution

within this latter time frame. The reduction in number of cases is significant. The grand-total in Table 2 shows the total number throughout the year 2009.

Age distribution of road traffic accident cases

Most of the accidents, 228 (30.4%), occurred within the 20-29 years age bracket; whereas the least number of accidents, 2.7%, were in those that were 70 years old and above. This is shown in Figure 1. The vertical axis represents the number of cases recorded. It is obvious that after the month of June, the number of cases recorded drop below 15 for all age ranges and both gender.

Causes of road traffic accidents

In this study, the causes of road traffic accidents were classified into three: Motorcycle-involved accidents (MCA), tricycle-involved accidents (TCA), and others. These causes, from 1st January to 31st June 2009 and 1st July to 31st December 2009 are shown respectively on Tables 3 and 4.

Table 1: Male-Female distribution of road traffic accident cases from January 1st to June 31st 2009

Month	Male	Female	Total
Jan	63	40	103
Feb	67	23	90
Mar	57	32	89
Apr	55	32	87
May	44	31	75
Jun	42	24	66
Subtotal	328	182	510

Table 2: Male-Female distribution of road traffic accidents from July 1st to December 31st 2009

Month	Male	Female	Total
Jul	18	15	33
Aug	31	6	37
Sep	28	16	44
Oct	30	13	43
Nov	27	13	40
Dec	24	20	44
Subtotal	158	83	241
Grand total	486	265	751

Table 3: Causes of road traffic accidents from January 1st to June 31st 2009

Month	MCA	TCA	others
Jan	47	0	56
Feb	54	0	36
Mar	32	0	57
Apr	31	0	56
May	30	0	45
Jun	37	0	29
Total	231	0	279

Table 4: Causes of road traffic accidents from July 1st to December 31st 2009

Month	MCA	TCA	others
Jul	7	0	26
Aug	6	0	31
Sep	4	3	37
Oct	3	1	39
Nov	6	2	32
Dec	2	6	37
Total	28	12	202

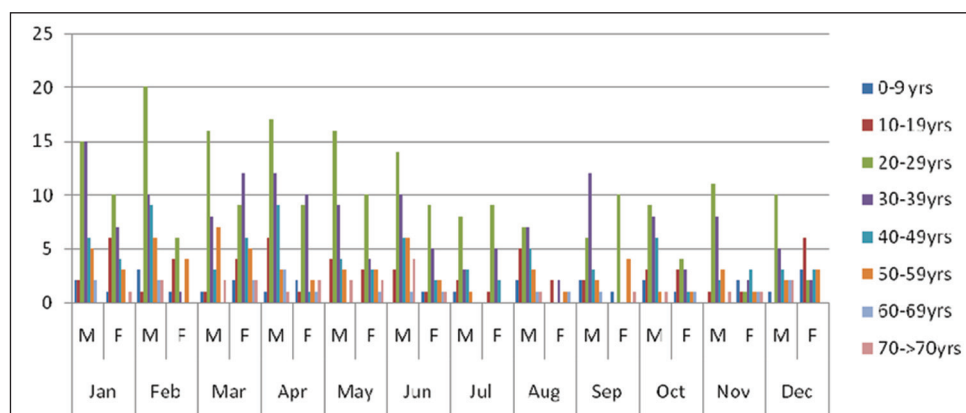


Figure 1: The age and sex distribution of road traffic accidents for 2009

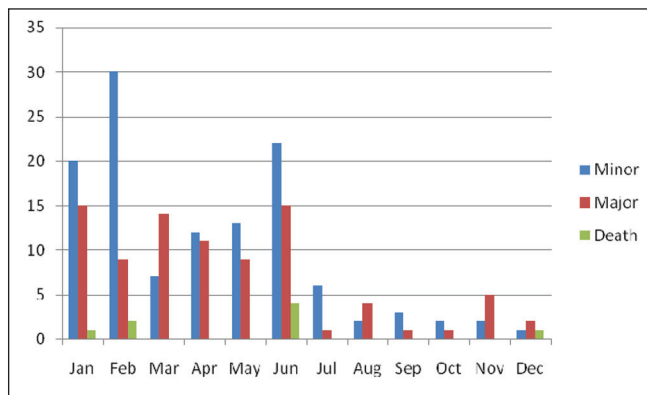


Figure 2: Injuries associated with motorcycle accidents

Injuries associated with motorcycle accidents

In this study, the injuries were classified into minor, major and death. Minor injuries were those that involved superficial abrasions and lacerations without long bone fractures, abdominal, chest or head injuries; major injuries were those that involved any combination of long bone fractures, abdominal, chest and head injuries. The group of death were those who died as a result of their accident. This is shown on the Figure 2. The vertical axis represents the number of cases recorded.

DISCUSSION

Several reasons have been given as to why there is sustained use of motorcycles in Nigeria: They are relatively cheap; with rampant unemployment in Nigeria, it is easy to make quick money by becoming a commercial motorcycle operator; they are the only means to easily navigate Nigerian roads – both rural roads which are in states of disrepair and urban roads in traffic jams.^[5,6]

There was a preponderance of males involved in road traffic accidents. The male: female ratio was 2: 1 before and after the ban. The age for the occurrence of road traffic accidents before and after the ban was 20-29 years. These were the same findings in most other studies.^[1,2,5,7] This is the population that mostly use motorcycles for commercial transportation.^[2,8]

There was a significant reduction in reported cases of road traffic accidents after the ban on commercial motorcycle operations. This was because majority of the road traffic accidents were caused by motorcycles. This had been previously reported.^[2]

The cases of major injuries were significantly reduced following the ban on commercial motorcyclists, and fewer deaths were

reported as well. This finding further highlights the reports that major injuries are associated with motorcycle accidents.^[5,9-11]

CONCLUSION

Motorcycle accidents mainly affect young adult males. The ban on commercial motorcycle operatives significantly reduced the incidence of road traffic accidents as well as major injuries and deaths that result from them. It was therefore a good development. However, it did not completely eliminate either the major injuries or deaths. Further studies may help to show the influence of other factors, including the obedience to traffic rules and wearing of crash helmets, on road traffic accidents.

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