

The Impact of Motorcycle Accidents on the Obstetric Population in Calabar, Nigeria

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Abstract

Contexts: Motorcycle accidents are very common in most cities in Nigeria since the introduction of motorcycle for public commercial transportation in the early 1980s and because most pregnant women use this popular means of transport it may contribute to non-obstetric causes of maternal and perinatal morbidity and mortality. The impact of this on our obstetric population is yet to be studied in Calabar.

Objectives: is to assess the influence of motorcycle accidents on maternal and perinatal performance in patients manage in the University of Calabar Teaching Hospital, Calabar.

Study Design, Setting and Subjects: This was a retrospective descriptive study carried out in the maternity Annex of the University of Calabar Teaching Hospital (UCTH), Calabar. One hundred and four patients managed as a result of motorcycle accidents in the index pregnancy over two years were studied.

Results: Motorcycle accounted for 7.1% of all obstetric emergencies during the period. The victims were mostly married (43.3%); multiparous (23.1%) and 34.6% were civil servants. Twenty (19.2%) of patients were riding the motorcycles themselves. Of the 64 victims who were passengers, 68.8% sat sideways. Most of the victims (40.4%) were in the third trimester of gestation while 23.0% were actually in labor. The maternal complications included premature labour and deliveries (7.6%), abruptio placentae (3.8%) and ruptured uterus (1.9%). Complications occurred in 33.0% of the babies, which included birth asphyxia and prematurity with perinatal death of 5.5%.

Conclusion: Motorcycle accidents are common among the Obstetric population in Calabar. There is high rate of life threatening maternal complications and perinatal morbidity. Relevant authority should ensure that only those duly licensed are allowed to ride the motorcycle when carrying pregnant women who should be the only passenger and sit astride.

Key words: Motorcycles Accidents; Obstetric Population.

Introduction:

Prior to the early nineteen eighties taxi cars were the commonest means of intra-city commercial transportation in Calabar metropolis¹. The dwindling economy in Nigeria, which coincided with the introduction of structural adjustment programs of the Federal Government in the 1980s² made people convert motorcycles into commercial means of transportation. At present, this is the commonest means of intra-city commercial transportation in almost every city in Nigeria.¹ Most motorcycle taxi operators have no formal training. They lack basic knowledge of traffic rules and regulations.³ Many of them are reckless and ride under the influence of alcohol. Hence this means of transport contributes about 80% of all road traffic accident encountered daily in the City^{1,3}.

Road traffic accident is the commonest cause of non-obstetric maternal morbidity and mortality as well as fetal death from trauma^{4,5,6,7}. In Calabar and other cities in Nigeria women with advance pregnancy are seen riding or sitting on a motorcycle in an awkward manner which makes the vehicle unstable and therefore results in accident^{1,4,8}. The use of safety-belt restrains which has been shown to be very effective in preventing maternal and fetal injuries in pregnancy are not available in motorcycle^{9,10}. Certain anatomical and physiological changes in pregnancy affect the woman's swift body movement and balance which are necessary to present

certain injuries in non-pregnant victims^{4,11,12}. These changes also make interpretation of clinical signs difficult and may mask or delay diagnosis of major injuries with serious consequences for both mother and fetus^{4,7,12,13}.

Traumatic blunt or penetrating injuries to the abdomen of a pregnant woman predispose to ruptured uterus, abruptio placentae and preterm delivery. Fetal injuries including skull fracture and internal hemorrhage^{4,13} as well as maternal and fetal mortality have also been reported^{5,14,15,16,17}. Motorcycle accidents, which are very rampant in the cities in Nigeria, may contribute significantly to such injuries and therefore becomes necessary to assess its contribution to certain obstetric complications. Other studies centre on diagnosis, management and outcome of trauma during pregnancy from motor vehicle accidents, gunshots and domestic violence^{6,15,17,18,19}. No studies specifically address the effect of motorcycle accidents on the obstetric population in our environment hence this study was under taking to assess: the contribution of motorcycle accidents on the obstetric outcome and Socio-demographic conditions of the victims with these

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accidents. It is hoped that, the results of this study will assist in the education of the public on the appropriate use of this means of transport by pregnant women. Certain measures that will help to reduce accidents and effect on obstetric complications are recommended.

Subjects and methods:

This study was carried out in the maternity Annex of the University of Calabar Teaching Hospital Calabar. Calabar city is the capital of Cross River State that is located in the South South geopolitical zone of Nigeria. It has a population of 1.9 million people. It is a cosmopolitan town inhabited by the indigenous Efik, Ibibio, Annang, Igbo and other tribes in Nigeria. They are mainly civil servants, traders, farmers and fishermen. The University of Calabar Teaching Hospital is the only tertiary health institution in the state. Though a tertiary institution, it receives patients directly as they present themselves and referrals from private and public hospitals in Cross River, Akwa Ibom, Abia and Benue states as well as Republic of Cameroun.

All pregnant women managed in the maternity Annex of Hospital as a result of motorcycle accidents in the index pregnancy between 1st January 2001 and 31st December 2002 were studied. All those with pre-existing medical conditions such as hypertension, anaemia, diabetes mellitus and other obstetric complications prior to the accident were excluded. Non-motorcycle related accidents such as motor vehicle, fall, fight, gunshot and those patients whose case files did not have complete information for analysis were also excluded.

The total number of obstetric emergencies during the period was noted. The case files were retrieved from the hospital records' Department. Information was also obtained from the delivery, theatre and special care baby units' registers. Information obtained included maternal age, occupations, gestational age at injury, sitting position and other activities at the time of accident as well as obstetric complications and perinatal outcome. Analysis of result was done using tables, proportion and percentages. The results form the basis for discussion and conclusion drawn.

Results

A total of 146 pregnant women with motorcycle related accidents were managed in the maternity Annex of the U.C.T.H. during the period out of which 104 case-files were available for analysis. Also a total of 2,063 patients were seen in the obstetric emergency clinic. Motorcycle accidents constituted 7.1% of all obstetric emergencies. Table 1 shows the socio-demographic characteristics of the patients. A total of 48 patients (46.2%) were aged 20 to 30 years, single women 37(35.6%) and married 45 (43.3%). Occupational distribution shows that 36(34.6%) patient were civil servants, followed by petty traders 30 (28.8%) and 16(15.4%) were farmers.

Table 1:
Socio-Demographic Characteristic of the Victims.

Age (years)	No	(Percentage)
19 and less	28	(26.9)
20-30	48	(46.2)
31-40	26	(25.0)
Above 40	2	(1.9)
Marital status		
Single	37	(35.6)
Married	45	(43.3)
Others	28	(26.9)
Occupation		
Farmer	16	(15.4)
Petty Trader	30	(28.8)
Civil Servant	36	(34.6)
House wives	6	(11.5)
Others	16	(15.4)

Table 2:
Parity and Gestational Age at the Time of Accidents

Parity	No	Percentage
0 -	24	(23.1)
1-4 -	62	(59.6)
5 and above	18	(17.3)
Gestational age (weeks) at the time of accident		
13 and less	12	(11.5)
14 - 27	26	(25.0)
28 - 37	18	(17.3)
38 and above	20	(19.2)
Labor	24	(23.0)

Table 3:
Sitting Position and Other Activities of Victims at the Time of Accidents

Position	No	%
Riders	20	(19.2)
Passengers	64	(59.3)
Walking by the road side	8	(7.6)
Standing/ sitting by the road side	12	(11.3)
Number and positions of 64 passengers on the motorcycle		
One	22	(34.4)
Two or more	42	(65.6)
Sitting Astride	20	(31.3)
Sitting Sideways	44	(68.8)

Table 4:
Obstetric Complications

	No	%
None	60	(57.7)
Abortion	6	(5.7)
Preterm Labour and delivery	8	(7.6)
Pre-labour rupture of fetal membranes	8	(7.6)
Abruption placentae	4	(3.8)
Ruptured uterus	2	(1.9)
Primary postpartum haemorrhage	5	(4.8)
Sepsis	8	(7.6)
Prolong hospital stay (> 10 days)	6	(5.9)

Table 2 shows the parity and gestational age at the time of accidents. There were 24 (23.1%) nulliparous women and 62 (59.6%) were para 1-4. Gestational age at the time of the accident shows that 42 (40.4%) patients were in the third trimester and 24 (23.0%) were actually in labor. Table 3 shows the sitting position on the motorcycle and other activities that the patients were performing at the time of accident.

A total of 20 (19.2%) of the patients were riders themselves. Of the 64 patients who were passengers, 42 (65.6%) sat more than one on the same vehicle and 44 (68.8%) were sitting sideways. Twenty (19.2%) of the pregnant victims were hit by motorcycle on the roadside.

Table 4 shows obstetric Complications. Majority (57.7%) had normal pregnancy. However eight (7.6%) had preterm labour and delivery. Abruptio placenta and ruptured uterus occurred in 4 (3.8%) and 2 (1.9%) respectively. Some of the patients had more than one complication. There was no maternal death. Sixty two (59.6%) had uneventful vaginal vertex delivery, 22 (21.1%) were delivered by caesarean section while 2 (1.9%) had Laparotomy for uterine injuries.

A total of 109 babies were delivered. Average birth weight was 2.9kg with a range of 1.7-4.2 kg. Perinatal complications occurred in 36 (33.0%) of the 109 babies delivered by the victims. these included 6 cases of birth asphyxias, prematurity in 8 (7.3%) newborns and sepsis in 4 (3.7%) babies. There were 6(5.5%) perinatal deaths.

Discussion

It is now a common knowledge that the recklessness and total disregard of traffic rules coupled with poor state of the motorcycles have resulted in many avoidable accidents and trauma in most cities in Nigeria.^{1, 3} It constitutes a public health and social problems^{3, 20, 21, 22 23}. A lot of financial and materials resources as well as personnel have been diverted from provision of social and other health facilities to the care of the victims of these unfortunate accidents. Many trauma units and orthopedic centres have created special sections or ward for the treatments of these victims.

The incidence of 7.1% of all obstetric emergencies seems low considering the frequent occurrence of these accidents on Nigeria roads. This can be explained by the fact that most of these victims who have minor injuries or those occurring in early pregnancy are seen in the general emergency and trauma section of the hospital. Some will even get treatments from chemist shops, pharmacy shops, other public or private health institutions and even traditional bonesetters. It is however in agreement with incidence of 1:12 (8.3%) accidents in pregnancy seen in United States of America

^{4, 7} and less than 9 to 35% of all automobile accidents in Nigeria^{3, 24}.

Most victims of motorcycle accidents were married (43.3%), multiparous (59.6%) and junior civil servant with large families who could not afford the luxury of private cars and the few taxi cars available do not cover most of the routes to their offices^{23, 24}. The sitting position and the activities of the victims at the time of accident are particularly important. Twenty (19.2%) of the women were ridding the motorcycles themselves. Among 42 patients who were passengers, 68.8% sat sideways while 65.6% were more than 2 on the same motorcycle. Women in advanced pregnancy are seen ridding on motorcycles on most Nigerian roads with some of them sitting sideways as passengers. Appropriate sitting position and the number of persons on a motorcycle that will reduce incidence of accidents among pregnant women is yet to be studied in our environment. It is however, believed that these arrangements make the vehicle unbalanced and prone to fall with slightest movement.² Further studies in this direction will allow a firm recommendation to be made on the use of this popular means of public transport by pregnant women.

The dangerous maneuvers,^{1, 3, 8, 25} high speed often undertaken by these riders and lack of safety restrains as seen in motorcars^{9, 10} not only make accidents more often but also results in more serious injuries in mothers and fetuses that are not seen in non-pregnant women. The absence of overhead bridges and pedestrian's walk path on most roads in Calabar and many other cities in Nigeria result in accidents in those walking or standing in 7.6% and 11.3% respectively. Poor transport systems including bad roads has been shown to constitute delay in the process of women getting skilled care during pregnancy and childbirth²⁶. Therefore, any form of transport systems even locally made which will reduce this delay is usually encouraged. Motorcycle that can even travel on the bad roads that are not accessible by cars will be seen to be assisting in this direction.

Although majority 60 (57.7%) had no obstetric complications, there were few life threatening complications such as abruptio placenta (3.8%) and ruptured uterus (1.9%). There was however no maternal death. These are pattern of injuries seen in road traffic accidents in pregnancy^{4, 12, 17, 18, 19}. The ruptured uterus in one of the patients was due to penetrating injury of the abdomen by the broken part of the motorcycle. That perinatal complications such as fetal skull fracture, splenic and other abdominal injuries seen in other automobile accidents were not obtained in this study may be explained by the fact that motorcycle accident is

associated with relatively less acceleration and deceleration impact^{7,17,27,28}. Pregnant women involved in these accidents should however be thoroughly assessed by trauma and obstetric teams to exclude these complications no matter how minor the external injuries may be^{5,6,7,12,14}.

It is important to note that majority 59.6% had uneventful deliveries. However some women had Caesarean sections (21.1%) which included one patient who had unstable hip fracture at term. This injury has changed the woman's future reproductive performance as she may be delivered by repeat caesareans section in subsequent pregnancies.

In conclusion, the contribution of motorcycle accidents and the associated obstetric complications to high maternal morbidity and perinatal mortality and morbidity has clearly been highlighted by this study. The shortcoming of this study included the fact that the

sample size was small, retrospective in design and limited to a tertiary institution. It however, has the advantage of targeting one of the most vulnerable groups of women population. It is therefore recommended that staff buses or car loans be provided to junior civil servants to reduce the use of commercial motorcycles by women in advance pregnancy; women in the third trimester of pregnancy should not ride the motorcycles, they should be the only passenger and sit astride. Those who are in labour may be encouraged to use other means of transportation that are more stable and can negotiate non-motorable road. Only those who are duly licensed should be allowed to operate the motorcycle. Strict observant of traffic rules, avoidance of careless and dangerous manoeuvres particularly those carrying pregnant women should be enforced by the relevant authorities. Construction of pedestrians' walk path and overhead bridges will reduce the number of accidents on our roads including the obstetric population.

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