

# ASSESSMENT OF PATTERN AND INJURY SEVERITY OF PATIENTS WITH MAXILLOFACIAL INJURIES DUE TO PHYSICAL AGGRESSION IN A NIGERIAN TEACHING HOSPITAL: A RETROSPECTIVE SURVEY

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## **ABSTRACT**

### **AIM:**

*Injuries due to assault are underreported in Nigeria because of medico-legal reasons and there are still some unreported on the aetiology. We conducted a retrospective study on the prevalence, pattern, severity and outcome of maxillofacial injuries due to physical aggression in our centre with the aim of quantifying the severity of the injuries*

*Method: Patients' demographics, site and type of injury, tissue involved as well as presence of associated injuries were recorded. Soft tissue injuries were categorized as contusions, laceration, avulsions, degloving and multiple injuries. The treatment outcome was based on aesthetic appearance of the scars and patients satisfaction.*

### **RESULT:**

*Out of the 425 patients that presented with injuries to the whole body due to physical aggression, 32(7.5%) of them sustained maxillofacial injuries, 22(68.8%) were males and 10 (31.2%) were females. Two cases (6.3%) had both soft and hard tissue injuries while 30(93.7%) cases had only soft tissue injuries. Age range was between 7 and 68 years with mean and standard deviation of  $25.4 \pm (11.6)$  years. There was associated mild to moderate head injury in 10(31.3%) cases and such injuries were considered serious based on the injury severity scores*

### **CONCLUSION:**

*We documented a prevalence of 7.5% of assault from physical aggression with over 30% sustaining serious injuries to brain; other injuries to the maxillofacial soft and hard tissues were mild in 62.6% and 6.2% respectively.*

### **KEYWORDS:**

Physical aggression; injury; severity; head; face; outcome.

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## **INTRODUCTION**

In the developed countries, assault is the leading cause of injuries because of interactions of individuals and involvements in domestic and outdoor activities<sup>1</sup> The situation is however, different in Nigeria and Africa<sup>2,9</sup>. Despite increasing violence from various factors, cases of assault to various parts of the body are highly underreported and worse still are the dearth of reports on maxillofacial injuries due to this aetiology. A prospective report on this subject has been recently published in our centre<sup>2</sup> but it was necessary to

compare such reports with a retrospective analysis which will reflect the trend of this event when our center was located in the heart of the Port Harcourt city. We reviewed the prevalence, pattern, severity and outcome of treatment of maxillofacial injuries due to assault from physical aggression seen in our tertiary centre before the commencement of relocation to the permanent site in 2005. The aim of the study was to quantify the injury severity.

### **Patients and method**

The study was a retrospective study of all patients with maxillofacial injuries due to physical

aggression that presented to the accident and emergency of the University of Port Harcourt Teaching Hospital, Port Harcourt, Rivers State, Nigeria between June 1992 and May 2004. The hospital had a total of 120 bed spaces and it was one of the four federal tertiary health care centres in the South-South geopolitical zone that provided services for patients within and beyond the State.

Ethical approval was obtained from the Ethics and Research committee of the hospital to carry out the study. Information regarding patients' demographics, site and type of injury, presence of bone, head and systemic injuries as well as family/social histories were obtained from the case files from the hospital records and casualty departments.

Soft tissue injuries types were categorized as contusions, lacerations, avulsions, degloving and multiple soft tissue injuries. The sites of the injuries were noted. Severity of head injuries was based on the Glasgow coma scale (GCS) and Injury severity scores (ISS). Abbreviated injury scale was allocated to each associated injury and the top three highest scales were squared and added together for each case to determine the ISS. AIS of 1 is mild, 2 is moderate, 3 is serious and 4 is severe, 5 is critical and 6 is unsurvivable. ISS is between 0 and 75.

The investigations done such as CT scan and plain radiographs (posterior-anterior and oblique lateral views for the lower jaw, occipitontal and true lateral views of the skull for the midface), treatment done and outcome of treatment were also documented. Patients were categorized into two groups; those that sustained soft and hard tissue injuries and those with only soft tissue injuries. The treatment outcome was based on aesthetic appearance of the scars and patients satisfaction. Data obtained was analyzed with SPSS version 16 (Illinois, Chicago) and expressed as simple frequencies and percentages.

## Results

Out of the 425 patients that presented with injuries to the whole body due to assault/physical

aggression in this survey, a total of 32(7.5%) patients presented with maxillofacial injuries within this period of review 22(68.8%) were males and 10 (31.2%) were females. Two cases (6.2%) had both soft and hard tissue injuries while 30(93.8%) cases had only soft tissue injuries **Table 1**. Age range was between 7 and 68years with mean and standard deviation of  $25.4 \pm (11.6)$  years. There was associated head injury in 10 (31.3%). Seven (21.7%) had mild head injury GCS of 12-14 and 3(9.4%) had moderate head injury, GCS of 8-11. There were injuries to other parts of the body or cases with multiple injuries.

Head injuries were due to a blow from the fist or hit with an object, exact number of cases of domestic violence could not be ascertained because most of the patients could not disclose and there were no positive histories on intake of alcohol and hard drugs and no suicidal attempts were reported in this study.

Two (38.1%) had both soft and hard tissue injuries while 30(61.9) cases had only soft tissue injuries (**table 2**). The scalp was involved in 21(65.6%) followed by the cheek, (12.5%). Contusion was present in 24(66.7%) cases with swelling and ecchymosis. There was laceration in 6(18.6%) cases, degloving and avulsion of the lower lip in 2(6.2%) and 1(3.1%) cases respectively. Eighteen (56.3%) patients had laceration in addition to the contusion to the scalp and cheek. Radiological investigations confirmed fractures in the two cases with bone involvement.

Fracture of the mandible was managed by closed reduction and intermaxillary fixation (IMF) for 6weeks while the orbital fracture was managed by conservative means of medications and observation. All lacerations were sutured primarily and undermining when necessary, while contusions were managed by conservative treatment. The cases with avulsed lower lip had reconstruction with skin of the lower lip and undermining of the mucosa, while another case of incomplete avulsion (degloving) had a successful repair of the lip. There were no cases of death in this study. The cases with

mild to moderate head injury with GCS more than 8 recovered with supportive therapy. Twenty (62.6%) patients with only soft tissue injuries had AIS of 1 and injury severity score of 1, 2(6.2%) with bone fractures had AIS of 2 and ISS of 4. Ten (31.3%)

cases had head injury with AIS of 3 and ISS of 9. Outcome of treatment was successful and satisfactory in all the patients.

**Table 1: Distribution of Age and gender of 32 Patients with Maxillofacial trauma from assault**

Age	Male N(%)	Female N(%)	Total N(%)
0-9yrs	1(3.1)	0(0)	1(3.1)
10-19yrs	8(25.0)	2(6.2)	10(31.3)
20-29yrs	9(28.1)	6(18.6)	16(50.0)
30-39yrs	3(9.4)	1(3.1)	4(12.5)
40-49yrs	0(0)	1(3.1)	1(3.1)
50-59yrs	0(0)	0(0)	0(0)
60-69	1(3.1)	0	1(3.1)
<b>Total</b>	<b>22(68.8)</b>	<b>10(31.2)</b>	<b>32(100)</b>

**Table 2: Distribution of hard and soft tissue injuries sustained 32 Patients with Maxillofacial trauma from assault**

Hard tissue	N(%)	Soft tissue	N(%)
Frontal bone	0(0)	Ear	2(6.2)
Nasal bone	0(0)	Scalp	21(65.6)
Mandible	1(3.1)	Eyelid	1(3.1)
Maxilla	0(0)	Salivary gland	0(0)
Orbital	1(3.1)	Lip	3(9.3)
Glabella	0(0)	Nose	0(0)
Zygoma	0(0)	Cheek	4(12.5)
<b>Total</b>	<b>2(6.2)</b>		<b>32(100)</b>

## DISCUSSION

The prevailing economic depression in most African countries has adversely affected the status of many citizens leading to psychosocial imbalance, altered emotions in the society with consequent result to frequent altercations<sup>3</sup>. Injuries sustained to the face, compounds the psychological trauma to the victims. The most common cause of oral and maxillofacial injuries in Nigeria still remains road traffic accident (RTA) but we observed that most cases of assaults are still not presenting to our tertiary centre for fear of medico-legal reasons<sup>4</sup>.

The incidence of such injuries reported in this present study was quite low; a lower figure in the incidence of physical aggression was noticed when compared with our previous study<sup>2</sup>. In this retrospective study, it was 7.5% in contrast to our prospective study when we obtained, 23.0%<sup>2</sup>. It is also in contrast to reports from the South West zone of the country where assault constituted about 21.8%<sup>7</sup>. Olasoji et al.<sup>10</sup> documented a prevalence of 57.1% from the North Eastern part of the country. A study in Tanzania also reported a prevalence of 22.1%<sup>1</sup>. Recently, there are also changing trends in India with assault taking the lead. The lower figure in this retrospective study may reflect a lower number of patients reporting to our tertiary centre due to the initial location of our center within the city, which was in competition of attendance with the State hospital. Also, increased socio-economic activities are reasons attributed to higher incidences in these recent times.

The pattern and severity of injuries sustained from assault are usually different from RTA. In most cases of assault, injuries are not usually multiple, bone involvement is less and head injury are severe in few cases<sup>5,6</sup>. In our study, the head injuries were classified as serious on the Abbreviated Injury Scale.

The peak age incidence of 21-30 years was found in this study and this corroborates our previous study and other studies in literature<sup>8,9</sup>. This is attributable to the quest for economic sustenance in this age group and they are usually involved in violence and criminal activities. Males were more in this study in

comparison with earlier studies<sup>7-10</sup>. Low socioeconomic status and emotional stress from unemployment result in aggression by men who react by assaulting their wives who demand resources for the upkeep of the family. A major limitation was the lack of documentation of the socioeconomic status of the patients or their assailants. Alcohol consumption and hard drugs intake predispose to physical aggression to a large extent, but such relationship was not found in this study as none of our patients declared any use of alcohol or psychoactive drugs<sup>7,11</sup>. However, in a study in Brazil there was a significant relationship between intake of alcohol and assault<sup>12</sup>.

As documented by other studies<sup>7,13</sup> contusion was the most common soft tissue injury in our study and was found in almost 70% of the patients. This is due to the fact that regardless of the object used for assault, there is always an accompanied inflammation and swelling of the subcutaneous tissue injury<sup>14</sup>. In our study, facial lacerations were caused by objects such as fist, bottles and piece of wood.

Scalp injuries were the commonest site for soft tissue and this was similar in pattern to our prospective study; also we recorded cases of associated head injuries in over 30% of the cases with ISS of 9. Dentoalveolar fracture constituted the highest figures in other studies<sup>15-18</sup>. In our study, mandibular and orbital fractures were sustained 6.2% of cases with ISS of 4. They were treated with closed reduction and intermaxillary fixation and supportive therapy respectively

## Conclusion

We recommend that every youth and unemployed in the African countries must be duly targeted from the grassroots and at the three levels of government, education and/or vocational skills must be made compulsory and government/private or corporate partnership schemes should be established and well monitored. The Ghanaian policy of giving stipends to the unemployed and aged should be emulated. Reforms in the power sector and continuous

orientation of engaged youths on effects of insecurity will also help to attract investors and create employment in Africa as a whole. Birth control is essential to check population growth. We documented a prevalence of 7.5% of assault from physical aggression with over 30% sustaining serious injuries to brain; other injuries to the maxillofacial soft and hard tissues were mild in 62.6% and 6.2% respectively with satisfactory treatment outcome. Assault is an increasing cause of trauma in Africa and improved documentation will help us to appreciate the burden and thereby adopt relevant policies/strategies to combat the effects of such injuries. There is need to establish a unit in the National bureau of Statistics that will enforce the report of such cases in all the hospitals across the country. This will further help to strengthen the implications of some predisposing factors.

### Competing Interest

The author declares no conflict of interest with regard to the writing of this article.

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