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## Original Article

# Inter personal violence-related facial injuries: a 10-year survey

Toua Antoine Coulibaly[1,*], Rasmané Béogo[1], Ibraïma Traoré[1], Héra Michel Kohoun[1], Biévianda Vincent Ili[2]

[1] Department of Stomatology and Maxillofacial Surgery, CHU Souro Sanou, Bobo-Dioulasso, Burkina Faso
[2] Department of Stomatology and Maxillofacial Surgery, CHU Yalgado Ouédraogo, Ouagadougou, Burkina Faso

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**Abstract – Introduction:** Interpersonal violence (IPV) has emerged as a worldwide health problem affecting predominantly the face. **Patients and methods:** This study reports the characteristics of violence, victims and injuries in IPV-related facial injuries patients, in a 10-year survey, in a tertiary hospital of Burkina Faso. **Results:** Patients' age ranged from 11 to 75 years (mean 31 years) and 58.2% of the patients were aged between 20 and 39 years. There were 74 males and 24 females giving a male-to-female ratio of 3.1:1. The circumstances of injuries were brawls (80.6%) consisting mostly in facial blows, and hold-ups (19.4%). Fractures involving predominantly the mandible or the zygomatic complex were the most common injury, accounting for 53.2%. Soft tissues injuries accounted for 37.2% and dental trauma for 9.2%. In 27.5% of the patients, extra facial injuries were encountered, dominated by cerebral trauma and limb fractures. **Conclusion:** In this study, IPV-related facial injuries are mostly mandibular or zygomatic fractures in young and adult males involved in brawls. These findings command strategies for prevention of violence in this specific group.

## Introduction

Interpersonal violence (IPV) has emerged as a worldwide health problem affecting predominantly the face in most areas [1–3]. In some reports, IPV represents until up the leading aetiology of facial fractures before traffic accidents [4–6]. IPV-related facial trauma patients, beside psychological stress, may experience facial injuries resulting in functional and aesthetical impairments and a variety of associated injuries (AI) with some of them being even life-threatening. Additionally, IPV may lead to medico legal conflicts as well as familial disruption.

The type and severity of IPV-related facial injuries may vary with the violence pattern as well as geographic, socioeconomic, and cultural factors. Published studies on IPV-related facial injuries from developing countries are scarce and none is from Burkina Faso. This study aims to report characteristics of violence, victims and injuries in IPV-related facial injuries patients, in a 10-year survey, in a tertiary hospital of Burkina Faso. That knowledge can assist in establishing strategies of prevention of intentional injury.

## Patients and methods

Medical records of patients referred to the department of stomatology and maxillofacial surgery of CHU Sourô Sanou in Burkina Faso, for facial injuries due to IPV, between 2001 and 2010 are retrospectively reviewed. CHU Sourô Sanou is the tertiary hospital of reference of an urban, suburban and rural population of about 5 000 000 in Burkina Faso. Violence was defined as behaviour in which one or more persons intentionally hurt another person physically [7]. Facial injury was defined as facial trauma excluding the soft tissue contusion or abrasion *i.e.* wounds requiring surgical repair, soft tissue loss, facial bone fracture, dental avulsion, dental fracture, dentoalveolar fracture. Intimate partner violence referred to violence perpetrated by a spouse or significant other [8]. Lynching was defined as one victim battering by a crowd. The collected data included the patient's age and gender, circumstance and mechanism of the violence, type of the facial injury, and eventual AI. AI was defined as any extra facial injury excluding brain commotion and wounds *i.e.* intracranial, vascular, thoracic or abdominal organs injuries, fractures other than those of the face. Polytrauma was defined as the presence of at least two injuries with at least one of them being life-threatening. The study didn't require ethical approval

* Correspondence: tonycoulby@gmail.com

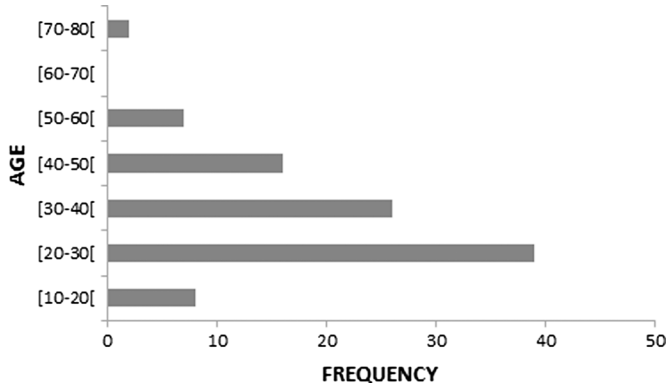


**Fig. 1.** Patients' age.

according to the review board standards of the institute where it was carried out.

## Results

### Patients' age and gender

Out of 1100 facial trauma patients recorded, 98 (8.9%) were victims of IPV. Their age ranged from 11 to 75 years (mean 31 years). More than half of the patients (58.2%) were aged between 20 and 39 years (Fig. 1). There were 74 (75.5%) males and females 24 (24.5%) giving a male-to-female ratio of 3.1:1.

### Violence characteristics

Details of circumstances and mechanisms of the violence are listed in Table 1. The leading circumstance was brawls accounting for 80.6% and consisting mostly in facial blows. Of these, intimate partner violence accounted for 12.5% with as victims, mostly females. Human bite involved predominantly females as victims as well as perpetrator. Hold-ups which accounted for 19.4% involved quite exclusively males.

### Injuries' types and severity

The most common injury was facial bones fractures involving predominantly the mandible or the zygomatic complex (Tab. 2). In 32 patients (20.5%), these fractures were isolated. No patient presented with isolated nasal bone fracture. The 98 patients sustained 156 injuries as 63 (61.7%) had 1 injury, 18 (17.6%) had 2 injuries, 11 (10.8%) had 3 injuries and 6 (5.9%) patients had 4 injuries.

Apart from facial injuries, 27 patients sustained 32 other corporeal lesions giving a frequency of 27.55% AIs patients. The most common of these AIs was cranial trauma (11.1%) followed by limb fractures (5.1%), eye globe rupture (2%).

Three patients had polytrauma as they presented additionally to facial injuries, brain trauma with a GCS $< 8$.

## Discussion

Violence has emerged as a worldwide societal problem affecting developed as well as developing nations. It strikes principally the face as the most easily reachable part of the body to human violence leading some authors to consider facial injuries as the sensitive yet non-specific markers of IPV [9,10]. Papers dealing with facial injuries related to IPV, particularly those of African origin are however scarce in the literature. Some of the prevailing factors of IPV reported in this literature are culture, industrialization, alcohol and drug abuse, unemployment and urbanization [7,11,12]. The setting of this study fulfils most of these conditions as well as that of a recent explosion of opencast mines and uncontrolled movement of firearms. In such a setting which accounts about 5 million inhabitants predominantly young, a frequency of 98 IPV-related facial injuries patients in a 10-year period is obviously an underestimation. This under record may be due in part to the fact that some patients with minor injuries or supposed as may not seek care at hospital. Furthermore, in some patients, violence-induced injuries may be recorded as "accidental" as IPV victims particularly those of domestic violence are often reluctant to disclose the mechanism of their injury out of fear or embarrassment. Characteristics of the victims as well as injuries and mechanisms of violence in this study are in accordance with what is classically reported in the literature. A peak incidence is recorded in young and male adults as the group of population classically involved in violence as aggressor as well as victim [6,13–15]. Lee *et al.* report that act of violence consists in a punch or kick to the face by one aggressor targeting the prominent points on the face and results in isolated fractures [13]. Fractures of the mandible are preponderant followed by that of the zygoma [13,16] even if Hussain *et al.* [17] report until up 60% of isolated nasal bone fractures. Apart from facial injuries, IPV-victims may experience a variety of injuries of other regions of the body whose incidence varies from 18% to 54% [11,16]. Out of these AIs, cerebral injuries and upper limb fractures are by far predominant [2,11,16] as the head and the forearm are frequently involved respectively as a selected target and for self-defense in human violence. Intimate partner violence victims are mainly females [18,16]. It deserves special awareness as being a health and social problem. Although generally associated to mild physical lesions [18] it may result in life-threatening injuries such as brain trauma and always results in psychological pain. In addition, apart from being a risk of family disruption, intimate partner violence is reported to be a risk factor for a child for becoming its perpetrator or victim in adulthood when witnessing its history [19,20]. Victims of lynching deserve special awareness in emergency room as they may sustain multiple injuries and even a crush syndrome with acute renal failure. Fire arms use accounting for a less common type of violence is reported in other studies [6,11]. However, their role in violence could be an underestimated as some of their victims may die before arrival to hospital. In the surviving patients, challenging surgical repairs may be required as the injuries are complex, involving frequently soft tissues as well as bones. The quite exclusive involvement of women in human bites as both the victim and the perpetrator is also reported in some African series [21,22].

**Table I.** Circumstances and mechanisms of violence.

| Circumstance of violence | Male n (%) | Female n (%) | Total n (%) |
|---|---|---|---|
| **Brawls** | **56 (57.1)** | **23 (23.5)** | **79 (80.6)** |
| - Intimate partner violence | 01 (01) | 06 (06.1) | 07 (07.1) |
| - Lynching | 06 (06.1) | - | 06 (06.1) |
| - Non-domestic individual violence | 49 (50) | 17 (17.4) | 66 (67.4) |
| **Hold ups** | **18 (18.4)** | **01 (01.0)** | **19 (19.4)** |
| **Total** | **74 (75.5)** | **24 (24.5)** | **98 (100)** |
| **Mechanism of violence** | **Male (n)** | **Female (n)** | **Total (n)** |
| Direct blow (punch, kick, heading) | 33 | 17 | 50 |
| Blunt weapon | 16 | 01 | 17 |
| Knife | 17 | - | 17 |
| Bite | 04 | 06 | 10 |
| Fire weapon | 04 | - | 04 |
| **Total** | **74** | **24** | **98** |

**Table II.** Facial injury types.

| Injury | n | % |
|---|---|---|
| **Fracture** | **83** | **53.2** |
| - Mandible | 48 | 30.8 |
| - Zygomatic complex | 25 | 16 |
| - Maxilla | 10 | 06.4 |
| **Soft tissue injury** | **58** | **37.2** |
| - Wound | 48 | 30.8 |
| - Tissueloss | 10 | 06.4 |
| **Dental trauma** | **15** | **09.6** |
| **Total** | **156** | **100** |


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## Conclusion

IPV-related facial injuries in this study consist mostly in mandibular or zygomatic fractures. Their typical victim is a young and male adult involved in brawls. These findings command strategies for prevention of violence in this specific group.

**Conflicts of interests:** The authors declare that they have no conflicts of interest in relation to this article.

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