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Research Article

Profile of Assault Victims Attending an Emergency outpatient department of a Teaching Hospital in India

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Abstract: Studies pertaining to the magnitude and pattern of assault related injuries in Northern India are few. The aim of this study is to assess the epidemiology and details of injuries sustained by assault victims. A prospective study of 284 assault victims attending the casualty of Sir Sunderlal, BHU, Varanasi, India over a period of four months was undertaken. All assault victims were examined and interviewed in detail by casualty medical officers and data collected was entered in SPSS version 11.0 for statistical analysis. Out of 9600 new patients who attended casualty over four months study period, 284 (2.96%) had been assaulted. The mean age of the victims were between 17 – 70 years with male to female ratio being 3:2.1 (P=0.004). Majority of the assault victims were unmarried (72.54%) and unemployed (57.04%). Alcohol abuse was reported in 37.68% cases. 60.16% cases had been reported to the police. Majority of the victims (72.53%) were assaulted away from their residence. In 26.38% cases assailants were unidentified. The commonest mode of assault was physical assault (66.20%) while 9.15% had assault by firearms. Blunt and sharp weapons were used in 34.51% and 20.77% cases, respectively. The most common cause of assault was old familial conflict (27.46%) followed by property related conflict (21.14%) and election or politics related (16.90%). The head and neck region was the commonest site (52.95%) of injury followed by upper limb (17.01%), thorax (12.82%) and lower limb (10.45%) while the abdomen was least affected (6.75%). Out of 593 injuries noted, commonest were bruises/haematoma (43.51%), abrasions/lacerations (28.16%) and fractures (21.75%). In 23.24% cases hospitalization was required while rest were treated on OPD basis. 81.34% victims got completely cured while 4.58% cases had fatal outcome. Assaults were more common among the young unmarried and unemployed male. Prevention of assault needs modification of violent behavior, to resolve the conflicts as early as possible.
Keywords: Assault, Blunt trauma, Casuality, Contusion, Laceration

INTRODUCTION

Assaultive violence has been recently recognized as an important public health problem. Assault is a any injury sustained by person as a result of deliberated physical violence. In 1990 assaultive violence was estimated to account for 1.3 percent of the total global health burden. It is estimated to increase up to 2.4 percent by the year 2020 [1]. Attribute to violence varies from country to country. More than 90% of all violence related deaths occur in low and middle income countries [2]. Although young adult males are the primary victims of violence throughout the world but violence against women is also on the rise [3, 4].

Violence has physical, psychological, social and economical impacts. The economic costs of violence include the costs of medical & legal services, loss of earning and productivity and reduced quality life. The magnitude of health consequences of assaultive violence and its psycho-social and economic sequelae indicates the need for effective preventive strategies. The formulation of strategy for prevention of assault and assaultive behaviour require detailed

epidemiological study of the assault. Most of the clinical and epidemiological studies has been carried out in developed countries [5-8]. As the causative factors for assaultive injury in developing countries are different from those in developed countries, there is a need to carry out clinico epidemiological study on assault related injuries in our country. This prospective study was therefore undertaken to identify the demographic profile, characterstics of assault and injuries sustained in population of Northern India. Department of Emergency Medicine of Sir Sunderlal Hospital, BHU, Varanasi serves as a major referral center for serious patients from large geographic area of the Eastern Uttar Pradesh, Bihar, Chhattisgarh and Jharkhand State of India and also from part of Nepal.

MATERIALS AND METHODS

This prospective study included 284 consecutive assault victims who attended casualty department of Sir Sunderlal Hospital, Institute of Medical Sciences, Banaras Hindu University, Varanasi, India between October 2012 to December 2012. All victims were interviewed and examined by on duty casualty medical officer, including details of demographic profile, time, place and cause of assault, alcohol consumption prior to incidence, details of assailants, types of weapons used, referral status and police information. Injuries were thoroughly examined by specialists where cases were referred and plain X-ray, CT Scan and MRI were done as per need. All injuries were noted according to classification as haematomas/contusion, abrasions/lacerations, fractures, sprain and visceral injuries and anatomical site informations were recorded on a standard proforma.

Data was entered and analysed using SPSS version 11, as frequency and percentage. Chi-square test of significance was applied, p value of less than 0.05 was considered as significant.

RESULTS

284 assault victims were included in this study of age group 16-70 years where a mean age was 30 years. There was a definite male predominance (n=216, 76.05%) as compared to female (n=68, 23.95%) with male to female ratio being 3:2.1, (Table 1). Majority of victims were unmarried (72.54%) and unemployed (57.04%). 170 (59.66%) victims were referred from primary/secondary health care facility while rest 114 (40.14%) came directly to the hospital. In 172 (60.16%) cases police was informed by victim or their relatives prior to visiting the casualty. 37.68% victims were intoxicated at the time of assault while 42.64% assailant had consumed alcohol prior to assault. Majority of the assailants were young adults. In 60.74% cases assailant were men while in 12.88% cases women. In 26.38% cases age and sex of the assailant could not be ascertained (Table 2). Although majority of the victims were attacked at day time, the peak time for assault was between 1800 and 2400 hours (Table 1).

Maximum patients attended the casualty on Sunday (22.18%) and Saturday (20.77%) and on week days maximum number of patients arrived between 12 AM to 18 PM (36.62%) and 18PM to 24PM (25.35%) while on Sunday maximum influx was between 6AM to 12PM.

Table 3 shows the place of incidents. Commonest place of assault was home (23.24%) followed by street (19.73%), school or college (17.25%), play ground or place of recreation (15.67%) and workplace (14.44%). As compared to the males the female victims were more likely to be assaulted at home (50% vs 14.81%, $p<0.002$) while men were more likely to be attacked on the street (23.15% vs 8.82%).

Most common causes of assault was old femelial/interpersonal conflict (n=78, 27.46%) followed by conflict for properity (n=60, 21.14%), political or election related conflict (n=48, 16.90%), violent/aggressive behavior or psychological disorders (n=42, 14.79%). However 30 (10.56% victims assaulted due to social or economic inequalities and in 26 (9.15%) cases cause was not known.

Blunt weapons like Lathi, Rod, Hockey and Cricket Bat etc. were responsible for most (34.57%) of the assault. Sharp weapons like Knives, Blade and Axe etc. were used in 20.77% of cases. 9.15% victims were wounded by gunshot; most of them were male victims except two women who were attacked by gunshot in robbery. In 10.92% cases assault was caused by body parts of assailants like fist, feet and teeth bite etc. Miscellaneous weapons like Brick, Stone, Clock and Kitchen object etc. were used by assailants in 19.72% (Table 3). In 65% cases more than one type of weapons were used.

36.27% victims sustained a single injury and rest 63.73% sustained two or more than two injuries. The most frequent site of injury was head and neck (52.95%) followed by upper limb (17.03%), thorax (12.82%) and lower limb (10.45%). Abdomen (6.75%) was the least injured body part. Commonest type of injury observed were bruise/haematoma or contusion (43.51%), abrasion/laceration (28.16%) and fracture (21.75%), while visceral injury (1.85%) were the least observed type of injury (Table 4). In majority of victims (70.42%) left side of body was injured, 18.31% victims had severe injuries while rest 81.69% had injuries of mild to moderate severity. 66 (23.24%) of the assault victims were admitted to the hospital, rest 218 (76.76%) were treated on OPD basis. Among the hospitalized patients 24 (8.45%) were shifted to another speciality like orthopedic and general surgery etc and rest 42 (14.79%) were admitted in Casualty Ward. 195 (68.66%) patients were managed by conservative/medical treatment, 53 (18.66%) were underwent for surgical intervention and 22 (7.75%)

were shifted in the intensive care unit while 14 (4.93%) patients refused treatment and left against medical advice. 231 (81.34%) of victim had complete cure and 19 (6.69%) were physically handicapped and 13 (4.58%) were expired during treatment while 21 (7.39%) were absent from follow up (Table 5).

Table 1: Characteristics of victims

Characteristics	No	%
Total	284	100
Gender		
- Male	216	76.05
- Female	68	23.95
Age group (in years)		
15-24	94	33.10
25-34	83	29.23
35-44	58	20.42
45-54	33	11.62
≥55	16	5.63
Habitat		
Rural	93	32.75
Urban	101	35.56
Semi urban	90	31.69
Marital status		
Married	78	27.46
Unmarried	206	72.54
Employment status		
- Unemployed	162	57.04
- Employed	70	24.65
- Retired	10	3.52
- Unknown	42	14.79
Alcohol consumption / Intoxication prior to incident		
- Yes	107	37.68
- No	58	20.42
- Unknown / indeterminate	119	41.90
Referral status		
- Self visited	114	40.14
- Referred	170	59.66
Police involvement		
- Yes	172	60.56
- No	112	39.44
Type of assault		
- Domestic	66	23.24
- Non Domestic	218	76.76
Time of assault		
- 06.00 – 11.59 hrs	62	21.83
- 12.00 – 17.59 hrs	79	27.82
- 18.00 – 23.59 hrs	90	31.69
- 00.00 – 05.59 hrs	53	18.66

Table 2: Profile of assailants

Variables	No	%
Total	326	100
Gender		
- Male	198	60.74
- Female	42	12.88
- Not identified	86	26.38
Age Group (in year)		
15 - 24	100	30.67
25 - 34	750	23.00
35 - 44	52	15.95
45 - 54	10	3.07
≥ 55	03	0.92
Unknown	86	26.38
Intoxication / Alcohol consumption		
- Yes	139	42.64
- No	77	23.62
- Unknown/Indeterminate	110	33.74

Table 3: Type of weapons used in assault

Weapon	No. of Vitamins	%
• Blunt (e.g. lathe, rod etc)	98	34.51
• Sharp (e.g. knife, axe etc)	59	20.77
• Fire arm/Gun	26	9.15
• Body part (e.g. fist, feet Bite etc)	31	10.92
• Other*/miscellaneous	56	19.72
• Unknown	14	4.93
*Brick, Stone, Clock and Kitchen object etc.		

Table 4: Distribution of cases according to type of injury and anatomical site

Anatomical site	No Victims*(n=593) Bruise/Hematoma/ Contusion	Abrasion/ Laceration	Sprain	fracture	Visceral injury	Total	
Head and Neck	103	53	4	46	0	206	34.74%
Face	46	28	0	34	0	108	18.21%
Thorax	42	22	0	9	3	76	12.82%
Abdomen	23	9	0	0	8	40	6.75%
Upper limb	21	38	11	31	0	101	17.03%
Lower limb	23	17	13	9	0	62	10.45%
Total	258	167	28	129	11	593	100.0
	43.51 %	28.16 %	4.72 %	21.75 %	1.85 %		

*Includes Victims with multiple injuries

Table 5: Treatment profile of victim

Disposal	No.	%
- Admitted in ward	66	23.24
- O.P.D. Basis	218	76.76
Treatment		
- Medical /Conservative	195	68.66
- Surgical intervention	53	18.66
- Intensive care treatment	22	7.75
- Refused treatment/Left against medical advice	14	4.93
Result of treatment		
- Complete cure	231	81.34
- Physically handicapped	19	6.69
- Expired	13	4.58
- Absent from follow up	21	7.39

DISCUSSION

In this study 2.96% cases of the total casualty attendance were assault, similar to the findings of Shepherd (2.9%) [8], Fothergill and Hashemi (3.3%) [9], Wright and Kariya (2.4%) [10] and contrary to the findings of Downing A *et al*. (1.9%) [11], Hocking MA (4.4%) [7] and Yates DW *et al*. (4.4%) [12]. In Cunningham R M *et al*. study 14% subject had non partner violent assault [13]. There was preponderance of male subjects in our study which is in accordance with some other studies [10, 11, 12, 14]. Alcohal consumption is a major contributor to assault. In our study only 37.68% victims and 42.64% assailants had consumed alcohol at the time of assault or prior to assault higher level (71.70%) of alcohol consumption related to assault have been reported earlier [14,15, 16]. Majority (57.04% of assault victims were unemployed similar to findings reported by Wright and Kariya [10], Shepherd [17] and Pearson [18], while Fathergill and Hashemi reported that three quarters victims were employed [9]. Unemployment may leads to the social deprivation lack of opportunity and poverty, frustration and aggressive behavior resulting in to violence. Most of the unemployed subjects were alcoholic in this study.

Uses of blunt objects are a common cause of assault in as study. Gayford reported soft tissue injury by blunt instrument as common in cases of wife battering [19]. 10.92% of study subject had injury by body part like fist, feet etc in contrast to reports of Shepherd Study (72%) [14]. 20.77% of victims were assaulted by sharp objects in this study similar to report of Wright and Kariya (23%) [10] and contrary to reports of Swann (3%) [20] and Shepherds (6%) [8]. Most frequent site of injury was head and neck including face as reported by Shepherd [8], Wright and Kariya [10] and Fothergill and Hashemi [9]. Assailants generally select most vital body parts which can be easily struked and result in grievous injury. Like Shepherds report in this study next most injured part of the body was upper limb. This may be due to victims defending themselves usually by using their upper limbs. In majority of cases left side of the body was injured, since right handed assailant can more easily strike the left side of victim's body. Majority of victims had multiple injuries. Commonest types of injury were soft tissue injury like bruise/haematoma/laceration. Wright found that women sustained more soft tissue injuries than men [10]. In this study 21.75% victims sustained fracture of craniofacial and upper limb. Shepherd reported fracture in 26% of assault victims [8], he also noted that fist and feet caused more fractures than any other weapon.

We treated majority of victims by conservative methods on OPD basis while 23.24% were admitted for surgical or intensive care treatment. In Shepherd's study 16% assault cases were admitted to hospital compared with study of Hocking (12%) [7] and Makower *et al*. (12%) [21]. The study of Downing A et al showed that 82% of males and 4.3% of females were admitted in hospital [11].

In this study maximum assault victims were young, unmarried and unemployed males. Socio-environmental factors like poverty, property related & political conflicts and behavioral disorders seen to be general causes of assault. Although prevention of assault related injuries are more difficult than other cause of injury. Prevention of assault might include modification of violent behavior, to resolve conflict as early as possible and legislation and codes of practice related to firearm and purchasing & consumption of alcohol should be implemented strictly.

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