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A Prospective Analysis of Assault Patients at a Tertiary Care Centre

Najeba Khan[1], MBBS, Sangamesh B.T[1], MS(General Surgery), Abhijith H.M[1], MBBS

[1]Department of General Surgery, Gulbarga Institute of Medical Sciences, Sedam Road, Kalaburagi, Karnataka, India

***Corresponding author:**
Dr. Najeba Khan,
Department of General Surgery, Gulbarga Institute of Medical Sciences, Kalaburagi, Karnataka, India

najebasalimbasithkhan@gmail.com

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ABSTRACT

Objectives: Assault is a leading cause of morbidity and mortality among young adults, resulting in the loss of productive lives. Violence affects the victim psychologically and financially. The economic cost includes not only missed wages and productivity but also expenses for medical care and legal counsel. The purpose of this study was to evaluate the assault cases critically.

Material and Methods: A prospective observational analytical study was conducted in a tertiary care medical college hospital between December 2022 and November 2023. All the eligible subjects of the data period were employed to recruit the study subject from the surgical department. A semi-structured questionnaire was used to collect the socio-demographic details and clinical details and a thorough medical examination was done for all study subjects.

Results: A total of 281 study subjects were recruited into the study. Which majority was females (65.1%), and agriculture (48%) was the major occupation among the study subjects. The mean age of the study subjects was 28 ± 5.6 years. Most of the injuries were simple types of injuries (81.8%), and the most common weapon used was a non-metallic substance (54.4%). The time when the assault happened, and the type of weapon used were significantly associated with the type of injuries caused.

Conclusion: It is recommended that educational initiatives and psycho-social counselling be used to reduce the incidence of violence, especially among young adults.

Keywords: Emergency, General surgery, Karnataka, Public health, Violence, Weapon

INTRODUCTION

The World Health Organization defines "violence" as the wilful use of physical force or power, whether actual or threatened, against oneself, another person, or a community or group of people, with the intent to cause or greatly increase the risk of causing harm, injury, death, psychological distress, maladjustment or deprivation.[1]

The relationship between the perpetrator and the victim determines the three types of violence. (1) Self-directed violence, which is further classified into self-abuse and suicide, is defined as violence in which the perpetrator and the victim are the same person. (2) Violence between people is referred to as interpersonal violence, which is further classified as community violence and violence against family and intimate partners. (3) Collective violence, which can be further classified into social, political and economic categories, is defined as violence perpetrated by larger groups of individuals.[1]

Tens of thousands of people seek emergency medical attention, medico-legal attention or other care from medical authorities every day as a result of violence. In 2019, there were about 475 000 homicides worldwide due to interpersonal violence (an overall rate of 6.7 per 100,000 people), making homicide the third most common cause of death for men in this age range.[2] Apart from causing medical issues, violence affects the victim psychologically and economically. Medical and legal costs are included in the economic loss due to assault.[3] Cases of physical violence, or in medical terms called assault cases, are frequently seen in emergency rooms and being referred to surgeons. In addition to providing medical care, the responsibility of a medical officer assigned to an emergency is to draft a medical-legal report and notify law enforcement of any such cases.[4]

Aims and objectives

1. To know the most common age group and gender facing assault.
2. To evaluate types of injuries sustained due to assault.
3. To know most common reason for assault.
4. Outcome of the patient with history of assault.
5. Association between the time of assault and the types of injuries caused by assault.

MATERIAL AND METHODS

Type of Study

A prospective observational analytical study was conducted in a tertiary medical college and hospital located in Kalaburagi district, Karnataka, South India.

Study Period

The study was conducted using the data of the period between December 2022 and November 2023.

Inclusion Criteria

Assault cases reported in the emergency department and also the cases directly reported in the surgical department and undergoing treatment on an in-patient basis and belonging to all age groups.

Exclusion Criteria

Patients who were third gender, treated on an OPD basis, brought dead and those who were not willing to participate in the study.

Methodology

Based on the previous study conducted by Subha S H et al.,[5] the most commonly used weapons to cause assault were wooden sticks and clubs, with 21% reported, the required sample size was 255 with 80% power, 5% of precision and 95% confidence interval. With this adding up to a non-response rate of 10%, a total of 281 cases were required.

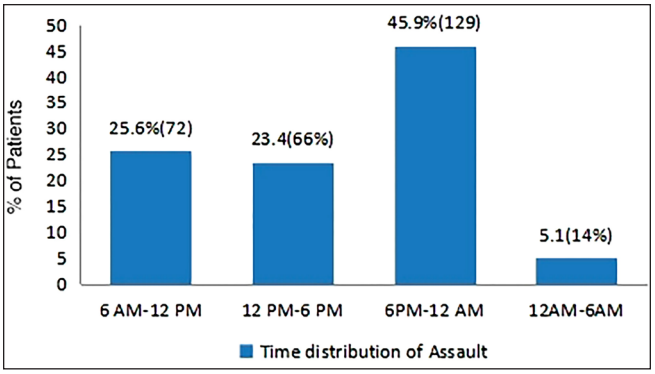

Figure 1: Time of the assault among the study subjects ($N = 281$).

A simple random sampling method was adopted to select the required participants. A semi-structured questionnaire was used to collect the demographic details, relevant clinical details and other co-morbid status. All patients of assault were made to undergone clinical examination of the injuries. For the inpatients, the necessary investigations were carried out, and the results were noted. The type of modality of treatment, whether it was medical or surgical and the details of post-operative care were meticulously followed up.[6]

Statistical Analysis

The data were collected in the MS Excel Sheet and SPSS software version 26 was used to interpret the results. Using the Kolmogorov–Smirnov test, the collected data were checked for normality, and it was found that the continuous variables were normally distributed. For every continuous variable, descriptive statistics were performed including frequency, percentages, means and standard deviations. A Chi-square test was used to determine the association between the various factors and the assault.

RESULTS

A total of 281 study subjects admitted to the surgical department with a history of assault were included in the current study. The mean age of the study participants was 28 ± 5.6 years. The majority of the study subjects were in the age group of 20–29 years. More than 3/5th (65.1%) of the study subjects were female by gender. With regard to occupation, almost half of the study subjects belonged to agricultural occupation [Table 1]. The majority of the assault cases (48%) in the present study happened in the late evening and midnight [Figure 1].

Land issues were the main reason for the incidents of assault among the study subjects, followed by other issues such as

Table 1: Socio-demographic details of the study participants ($N = 281$).

Sr. no	Characteristics	Frequency	Percent
1	Age (in years)		
	10–19	16	5.6%
	20–29	117	41.6%
	30–39	68	24.2%
	40–49	32	11.4%
	50–59	34	12.1%
	60–70	14	5.1%
2	Gender:		
	Male	98	34.9%
	Female	183	65.1%
3.	Occupation:		
	Agriculture	135	48%
	Business	16	5.7%
	Doctor	2	0.7%
	Housewife	76	27%
	Student	26	9.3%
	Others	26	9.3%

Table 2: Characteristics of the injuries due to assault among the study subjects ($N = 281$).

Sr.no	Characteristic	Frequency	Percent
1	Nature of injury		
	Grievous	51	18.2%
	Simple	230	81.8%
2	Site of injury:		
	Limbs	40	34.9%
	Head neck face	98	35.9%
	Torso left side	101	
	Combined	42	
3	Type of weapon:		
	Non-metallic	153	54.4%
	Metallic	25	8.9%
	Physical	73	25.9%
	Combined	30	10.8%
4	Prior treatment taken:		
	No	191	67.9%
	Yes (govt)	80	28.4%
	Yes (pvt)	10	3.7%

rowdyism, violence among students due to various reasons and violence between politicians, as shown in Figure 2. More than 3/5th of the study subjects were discharged as cured. While 25.6% of the assault cases were either absconded or discharged against medical advice [Figure 3]. About 6.7% of the cases were referred to other hospitals. Only 1 case died' [Table 2].

Fischer's exact test was done to find out the association between the time of the event and the type of weapon used with the type of injuries that occurred by assault, as shown in the table.

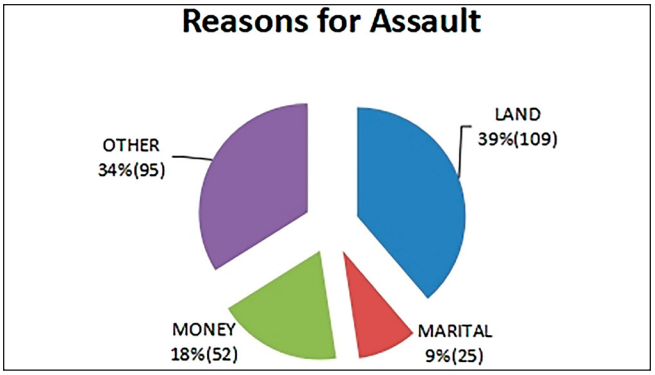

Figure 2: Reason for assault among the study subjects ($N = 281$).

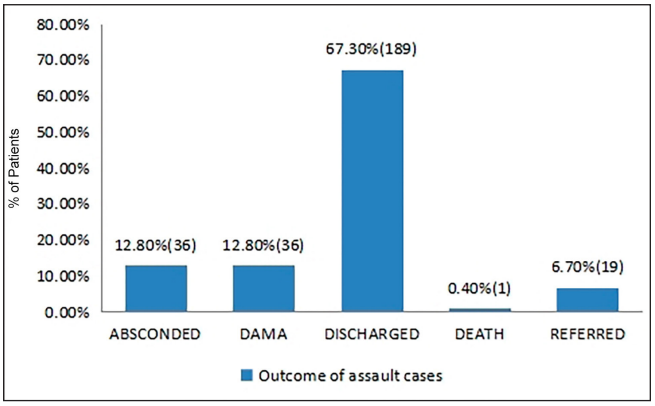

Figure 3: Outcome of the patient with the history of assault ($N = 281$).

Among the study subjects with simple injuries, the assault was caused majorly by physical violence, and also, the time when the incident happened was found to be mostly in the daytime (54.9% happened between 6 AM and 12 PM). Among the study subjects with grievous injuries, the majority were caused by metallic and non-metallic substances, and the time when the event happened was late evening and night. The above findings were statistically significant at p-value <0.05 [Table 3].

DISCUSSION

The current study was intended to critically analyse the cases with a history of assault and admission to the surgical department. The majority of the study subjects were in the age group of 21–29 years (41.6%). A similar study conducted by Singh R et al.[7] in Punjab also showed that the majority of study subjects (36%) were in the age group of 21–30 years. This clearly explains the most common age involved in physical violence to be middle-aged people. In addition, the female gender (65.1%) was the most affected victim of assault in the current study. Previous studies also proved that the female gender was highly affected by physical violence.[8–11] The reason behind this is due to the reason of domestic violence being most prevalent in

Table 3: Association between the time of assault and the type of injuries caused by assault ($N = 281$).

Sr.no	Time of assault	Simple (51)	Grievous injury (230)	Chi square	*P* value
1.	6 AM–12 PM (72) 12 PM–6 PM(66) 6 PM–12 AM (129) 12 AM–6AM (14)	28(54.9%) 21(41.1%) 1(2%) 1(2%)	44(19.1%) 45(19.5%) 128(55.7%) 13(5.7%)	56.51	0.01
2.	Type of weapon: Physical(73) Metallic & non-metallic substance(178) Combined(30)	48(94.2%) 2(2.9%) 1(2.9%)	25(10.7%) 176(76.5%) 29(12.8%)	150.52	0.02

India.[12] The most common occupation affected by assault in the present study was agriculture (48%). The reason behind this is the study area is the area of more farmers involved in farming.[13]

The most common areas of the body damaged among the victims of assault in the current study were the torso – left side (35.9%) and head, neck and face (34.9%). The above finding is comparable to a similar cross-sectional study conducted by Shrestha S et al.[14] in Nepal, which showed 57.7% and 17% of injuries on the head, neck and face regions and trunk regions, respectively. In general, the head, neck, face and the torso left side were the most common areas damaged during the violence since these areas were the first contact point area while attacking a person. In the present study, most of the injuries caused by assault (81.8%) among the study victims were simple types of injuries. This finding is consistent with an observational study conducted by Shrestha S et al.[14] which also showed nearly 84% of the injuries to be simple type. In terms of the time when the assault happened in the current study, most cases were reported in the late evening and midnight (45.9%). This finding is comparable to a similar study conducted by Thube H et al.[13] in Mumbai and Singh R et al.,[7] which showed 41.7% and 45.8%, respectively, of the injuries that happened during the midnight period. This proves the reason behind the fact that most of the assault cases are without evidence to prove. Land issues were the main reason for the incident of assault, and almost more than 3/5th were discharged as cured in the present study. These findings were consistent with a similar study conducted by Van Deventer J M et al.[15] also showed a similar result of land issues being the most common reason for the assault.

In the present study, there was a significant association between the time of assault and the type of injuries due to assault, in which most grievous injuries happened at night/midnight and the most simple injuries happened in that time. With regard to the type of weapon, there was a significant association between the occurrence of grievous injury and the hard substance, such as metallic and non-metallic things used to cause the injuries. Though there were no similar studies that demonstrated the association between the type of injuries and its possible factors, the above significant findings were consistent with the fact that the degree of injuries depends on the time of the assault happening and the type of weapon used by the person causing the assault to the victim. Conflicts over agricultural land among the farmers were a big issue in rural areas, and the study area being more with these rural areas, these assault cases are common. This study has shown that there are multiple causes of physical assaults, an association of type of injuries with the time of assault and the type of weapon used for assault.[2]

Violence is a multifaceted phenomenon that can be discussed in a social, psychological or legal context.[16] It is a serious public health issue that annually claims the lives of billions of people due to fatalities, serious injuries and negative effects on the immune, neurological, cardiovascular and other biological systems.[17] Assault is one of the predominant causes of morbidity and mortality in young adults, leading to the loss of productive lives. High-risk behaviours that increase the risk of premature death and lifelong illness, such as smoking, drug and alcohol use, and unsafe sexual behaviour, are more common among victims.[18] Very less number of studies are available exploring the assault cases in Karnataka state, and too were done among women. In addition, it is necessary to critically evaluate and characterise the demographic profile, the assault's features, and the injuries received in order to give accurate data to the relevant authorities. This could help in effective policy making of assault prevention, thereby reducing the burden due to the violence in the society. Hence, this study was conducted with the aim of identifying the prevalence of assault cases reported in the surgical department and critically analysing it.

Limitations

Our study is a hospital-based study, and hence, the findings observed in the study cannot be generalised. Only the type of the injuries was assessed, and the depth of the injuries in terms of internal organs damage was not recorded.

CONCLUSION

Individuals between the ages of 21 and 30 years were discovered to have a higher propensity for violence. It is imperative that the social and emotional needs of teenagers and young adults be attended to. Modifying violent behaviour, controlling domestic violence against women, resolving conflicts as soon as possible, and strictly enforcing laws and codes of conduct pertaining to the purchase and use of various weapons, as well as alcohol consumption, are some strategies for preventing assaults. It is recommended that educational initiatives and psycho-social counselling be used to reduce the incidence of violence.

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