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Research Paper: Epidemiological and Demographic Status of Violence and Strife in the Emergency Department of Sabzevar Emdad Hospital

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ABSTRACT

Background: Violence and strife are among the most important causes of health threats and account for more than half a million deaths per year, especially at young ages. Considering the young population of Iran and the occurrence of identity crisis in the young age group and the fact that this phenomenon is costly for our country's health care system, this study was conducted to investigate the factors related to violence and strife and the related mortality in patients admitted to the Sabzevar Emdad Emergency department.

Methods: In this descriptive cross-sectional study, 207 patients who were admitted to Sabzevar Emdad Hospital in 2017 following strife were included. The inclusion criterion was hospitalized patients who were referred to the Emergency department following the strife and the exclusion criterion was incomplete registration of patients' information. The data collection tool was a researcher-made checklist. Data analysis was performed using SPSS software version 18.

Results: The Mean±SD age of patients was 34.81±14.75 years. Most patients were from urban living places, while the mortality rate, gender, and the cause of trauma were not statistically associated with patients' place of residence. The most common type of lesions following strife was bruising, tearing, and scratching accounting for nearly 70% of cases. The most common site of injury was bruising and scratching in the head and neck, followed by tears and fractures in the limbs. In general, the most common site of injury was the upper extremity followed by the head and neck. The majority of patients (52%) underwent medical treatment, including receiving medication, dressing, and splinting, while 37% of patients were referred to the operation room for surgery. A significant relationship was observed between mortality rate and the site of injury (P=0.001).

Conclusion: The results showed that in Sabzevar city, the prevalence of strife is higher among men. Also, the most common effects following these types of trauma are bruising, scratching, and tearing. It seems that by providing appropriate solutions and creating a culture and increasing people's awareness of injuries caused by strife, it would be possible to pave the way for reducing such injuries in the future.

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1. Introduction

The phenomenon of violence and strife in society refers to any kind of social harm disrupting social relations, leading to a hatred atmosphere, resentment, and enmity among individuals, which paves the way for the beginning of strife [1]. The strife phenomenon as one of the most important health threats is the cause of more than half a million deaths per year and one of the most important causes of death at a young age [2]. Sociologists and social pathologists have listed the main social ills in today's Iranian society as addiction, prostitution, strife, theft, murder, suicide, begging, and financial crimes [3]. According to the statistics of the Forensic Medicine Organization of Iran, in 2016, more than half a million people (547 thousand people) were injured due to the strife had referred to the forensic medicine centers. In other words, on average, daily 1500 people refer to forensic medicine centers in the country due to the strife [4]. This social phenomenon not only imposes heavy costs on the country's health care system but also is not accepted in terms of Islamic norms and values and cultural standards of society [4]. The financial costs of damages caused by strife and violence are estimated to be about $ 10 million per year, excluding the decreased quality of life due to morbidities, and psychological consequences [5, 6]. Drug and alcohol use, male gender, low economic status, lower literacy, and mental illness are among the risk factors for strife [7]. According to the statistics provided by Iran's Forensic Medicine Organization regarding street violence, it varies in different parts of the country, however, it shows an increasing trend in the whole country. The actual statistics may be much higher than the recorded cases because many victims of the strife do not go to forensic medicine and do not report them [8].

In a study conducted by Beigi et al. , the epidemiological and demographic status of strife cases referred to forensic medicine offices in North Khorasan province was evaluated, and the results showed that 77.89% of strife cases were related to people with low financial income. Also, 38% of the strife cases took place at home and 67.41% of them occurred between kindred people. The most common weapon used was the knife (16.48%). The frequency of strife was lower in the days of Ramadan than in other days [4]. Investigations on strife can increase awareness of related injuries and serve as a basis for the crime monitoring process. It may be possible to plan intervention approaches based on the findings of such studies to establish more security in the community and reduce healthcare costs and save manpower. Therefore, the purpose of this study was to investigate the factors related to strife and its mortality in patients admitted to Sabzevar Emdad hospital in 2017.

2. Materials and Methods

In this descriptive cross-sectional study, 207 patients who were admitted to the Sabzevar Emdad Hospital in 2017 following strife were included. After obtaining the approval of the research ethics committee of the Sabzevar University of Medical Sciences (IR.MEDSAB.REC.1396.161) and observing ethical standards, the records of all the strife cases admitted to Sabzevar Emdad Hospital were collected in 2017. The inclusion criterion was hospitalized patients who were referred to Sabzevar Emdad Hospital following the strife and the exclusion criterion was incomplete registration of patients' information.

The data collection tool in this study was a researcher-made checklist. This checklist included questions assessing age, sex, types of trauma devices, such as sharp penetrating weapons, hard objects, guns, and vehicles, where the person lives in urban or rural areas, type of lesions, such as scratches, cuts, bruises, fractures, cerebral hemorrhage, hemothorax, and pneumothorax. The final outcome was mortality and type of patient treatment, including medical treatment, using analgesics, splints, and casts, dressing or emergency monitoring, surgery interventions, and fixation of dislocations. Utilization of treatment methods, such as using the screws, plates, pins, external fixators, and dynamic hip screw, tendon repair, nerves, arteries, and muscles, craniotomy, sutures, and chest tube implantation was recorded. Data analysis was performed using SPSS software version 18 and descriptive statistics (mean, standard deviation, frequency, and percentage) and inferential tests (Chi-square and t-test). A $P<0.05$ was considered as a significant level in all tests.

3. Results

In this study, 166 patients (80.2%) were male and 41 patients (19.8%) were female and were referred to Sabzevar Emdad Hospital due to strife. The Mean±SD age was 35.01±15.63 years for Mean±SD and 34.01±10.59 years for women and the t-test did not show a statistically significant difference between the mean age of the two groups (P=0.62). Regarding patients' place of residence, 107 cases (52%) were living in the city and 100 cases (48%) were living in the village. Concerning mechanism and tools of the strife, it was found that hard body was used in 77 cases (42.5%), penetrating body in 43 cases (23.7%), and punches and kicks happened in a total of

Table 1. Frequency of the mechanism and tools of strife

The Strife Mechanism and Tools	No. (%)
Hardbody	77(42.0)
Penetrating body	43(23.7)
Fist	26(14.3)
Kick	16(8.8)
Firearms	14(7.7)
Fall	3(1.6)
Vehicle	2(1.1)

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32 cases (23.2%) and firearms in 14 cases (7.7%) were other important causes of the strife (Table 1).

Regarding the type of treatment received by patients, 78 patients underwent medical treatment, including medications, most of which included analgesics, splints, casts, and dressings, or under emergency supervision, and 78 underwent surgery and most of them included fractures, injuries affecting tendons, muscles, nerves, and arteries, as well as craniotomies. Also, 39 patients were treated by suturing in the emergency room and 11 patients underwent chest tube implantation (Table 2).

Concerning the type of lesion, it was found that 112 cases of bruising, 83 cases of rupture, and 70 cases of scratches were the most common among patients. In contrast, the fewest cases were related to heart, lung, and intestinal lesions (one case each). About 18% of the injuries were scratched, but scratches were seen in 33.8% of these patients, and in 40% of patients, there was a rupture and in 54% of patients there was bruising (due to the presence of multiple lesions in each person, the percentages are different). Also, 26% of patients had fractures, in 5% of patients hemothorax, and also in 2.5% of patients, pneumothorax and cerebral hemorrhage were seen (Table 3).

Among the 70 people who had scratches on their bodies, 33% (28 people) were in the limbs, 41% (35 people) in the head and neck, and 26% (22 people) in the trunk. Of the 83 people who had a ruptured body, 51% (48) were in the limbs, 31% (29) in the neck, and 18% (16) in the trunk. Among 56 fractures, 54% (n=31) were in the upper limb, 22% (n=13) in the lower limb, 16% (n=9) in the neck and neck, and (5) 8% in the trunk. Of the 112 cases of bruising, 34% (n=44) were in the limbs, 37% (n=48) in the neck, and 29% (n=37) in the trunk. There were one tooth fracture and eight cases of head and sinuses fracture. For 6 of them, medical treatment was provided and for the other three cases that injuries were caused by firearms, a craniotomy was performed, but in the end, all three cases died. All five cases of rib fractures were treated. The chest tube was implanted for all hemothorax and pneumothoraxes (except one). All three cases of liver and kidney damage were penetrating and the treatment was done for all three cases. Most fractures were caused by a hard body. There were 31 fractures in the upper limb, of which 29 were operated so that in 13 patients, the pin was used, in seven cases, screws and plaque were used, in one case, an external fixator was seen due to open fracture, and for eight cases closed reduction in the operating room with casting and

Table 2. Frequency of the type of treatment received by patients

Type of Treatment Received	No. (%)
Medical treatment	78(37.8)
Surgery	78(37.8)
Suture	39(19.0)
Chest tube	11(5.4)

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Table 3. Frequency of lesion type

Type of Lesion	No. (%)
Scratch	70(18.1)
Rupture	83(21.5)
Bruising	112(29.0)
Fracture	56(14.5)
Eye injury	5(1.2)
Spinal cord injury	7(1.8)
Cerebral hemorrhage	5(1.2)
Ear injury	3(0.7)
Hemothorax	10(2.5)
Pneumothorax	5(1.2)
Lung injury	1(0.2)
Heart injury	1(0.2)
Liver and kidney injury	3(0.7)
Intestinal injury	1(0.2)
Hemoperitoneum	5(1.2)
Dislocation	9(2.3)

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for two cases, treatment with splinting in the emergency room was done. Thirteen cases of lower limb fractures were seen, of whom six cases were treated by screws and plaque, one case was treated by Dynamic Hip Screw (DHS) (a type of platinum used in the treatment of proximal hip fractures), three cases were treated by closed implantation, and three cases were treated in the emergency room. Of the 32 strife cases that involved punches and kicks, 43% were injuries to the head and neck, 24% to the abdomen, 20% to the upper limbs, 10% to the lower limbs, and 3% to the trunk. Most injuries were scratches and bruises. One case resulted in a kick injury leading to hemothorax and chest tube implantation, two cases resulted in forearm fractures and plaque utilization, and one case resulted in hemoperitoneum and abdominal surgery. Four cases were sutured and for the rest of the subjects, medical treatment was considered. Out of 43 cases of penetrating and sharp body strife cases, 53% had injuries to the upper limbs, 18% to the lower limbs, 11% to the head and neck, as well as 9% to the chest and abdomen. Also, 79% of patients had tears in their bodies, bruising and scratching were seen in 16% of patients, and 9.5% of people were found with pneumothorax, 7% of people with hemothorax, and 4.5% of people with fractures. Thirteen of these subjects were discharged by suturing in the emergency room. There were four cases of chest tube implantation, 11 cases of tendon damage, four cases of muscle rupture, three cases of nerve damage, four cases

Table 4. Frequency of mortality of hospitalized patients due to strife by gender

Gender	Mortality, No. (%)	P
Male	5(100)	0.46
Female	0(0)	

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Table 5. Frequency of mortality of hospitalized patients due to strife by the site of the injury

Location of Injury	Mortality, No. (%)	P-Value
Neck	3(60.0)	
Chest	1(20.0)	0.001
Lower limbs	1(20.0)	

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of suspected tendon rupture that were taken to the operating room for examination. Two cases resulted in death, of whom one case had an arterial injury in the lower extremities and one case of heart injury. Of the 14 fights that caused the firearms to fight, all were men and 11 were villagers. Three of them were head and neck injuries, and all of them resulted in Subarachnoid Hemorrhage (SAH) and Subdural Hematoma (SDH), and all three died. One strife case caused damage to the intestine and hemoptysis of the lower bridge of a kidney, which was taken to the operating room to remove the bullet. There were two cases of injuries in the upper limb and five cases in the lower limb, one of them were discharged with medical treatment, two cases were treated in the emergency room and discharged with sutures and the rest of the patients were taken to the operating room to undergo bullet and debridement and underwent surgery.

Regarding the relationship between age and mortality, the results showed that the mean age of the deceased cases was 31.9±19.7 years, while cases 34.7±14.69 years old were survived patients, with no statistically significantly different (P=0.46). All patients who died were male and no relationship was found between gender and male mortality (P=0.46) (Table 4).

Regarding the relationship between mortality and place of residence, it was found that among the five patients who died, two cases were living in the urban and three cases were living in the rural areas, and the Chi-square test did not show a statistically significant relationship between mortality and place of residence (P=0.51). No significant relationship was found in the relationship between mortality due to strife and trauma (P=0.75). Concerning the relationship between mortality and injury site, out of five deaths due to trauma, three cases died due to head and neck injuries, one due to chest injury, and one due to lower limb injury. The results of the Chi-square test showed that the site of injury plays an important role in the rate of death following strife (P=0.001) (Table 5).

Regarding the relationship between mortality rate and the type of lesion, it was found that among five deaths, one case was due to rupture, three cases were due to brain injury and bleeding, and one case was due to heart damage (Table 6).

4. Discussion

In the present study, 207 patients were referred to the emergency department of Sabzevar EmdadHospital due to a dispute, of whom80.2% were male and the rest of them were female. Kiani et al. investigated the frequency of beatings and injuries caused by strife in patients referring to the men's outpatient examination unit of the Central Headquarters of the Forensic Medicine Organization and the results showed that 95.3% were men and the rest were women [8]. Beigi et al. conducted a study to investigate the epidemiological and demographic status of disputed cases referring to the forensic medicine departments of North Khorasan Province. In their study, 1551 cases were male and 705 cases were female [4]. Mobaleghi et al. investigated the pattern of trauma in Sanandaj Positive Hospital and it was found that 4016 (68.6%) of the subjects were male and 31.4% were female [9]. Also, in the study of Zandi et al., who

Table 6. Frequency of mortality of hospitalized patients due to strife by type of lesion

Type of Injury	Mortality, No. (%)	P
Cerebral hemorrhage	3(60.0)	
Rupture	1(20.0)	0.001
Heart damage	1(20.0)	

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examined maxillofacial injuries in the west of Iran, 77% of cases were male and 23% were female [10]. Zohour et al. investigated the epidemiology of strife in patients referring to the Jiroft emergency department in Kerman and found that 95% of patients were male and only 5% were female [11]. In other studies, such as those performed by Afzali and Ghale and Tofighi and Naji, the prevalence of trauma was higher among men [12, 13], which is consistent with the results of the present study and confirms that due to the greater activity of men in society, this issue seems plausible.

In this study, the Mean±SD age of the patients was 34.81±14.75 years. In the study by Beigi et al., the Mean±SD age of patients was 34.21±13.79 years [4]. In the study by Mobaleghi et al., the Mean±SD age of trauma patients was 31.7±19.6 years [9]. This finding is consistent with the results of the study by Soroush et al. who studied the pattern of injury in Shiraz and the mean age of the subjects was 33 years [14]. Regarding the frequency of strife s in different age groups, it is observed that most of the strife cases were found in adolescents to young people, and by an increase in age, the frequency of strife cases decreased. It seems that increasing age causes people to be more socially matured, and acquire social skills to provide for the family, therefore; people at this age are less prone to violence and strife.

In the present study, the majority of patients referring due to the strife were living in urban areas, and no difference was observed between the place of residence and the mortality rate in patients. Zamani et al. examined 1363 trauma patients who were referred to the emergency department of three hospitals in Isfahan and found that 70% of accidents occurred in urban areas and 30% in rural areas [15]. Zohour et al. reported that 58% of those who were referred to the emergency department after the strife were residents of the city, and the rest were residents of the village [11].

In Iran, rural areas still play an important role in the overall status of the society, and social harms, including strife in these areas, are a threat to society as a whole. Therefore, the attention and efforts of officials and planners for the development of villages should not be limited to the physical sector, because the lack of attention and neglect of social harms or the software sector of these areas, leads to a waste of effort. In this study, regarding the type of lesion, it was found that bruising, tearing, and scratching with a total prevalence of nearly 70% were the most types of lesions following the strife. In the study by Kiani, in terms of the type of injury, the highest rate of scratches was 44% and the lowest was bone fractures with 5%, and injuries, such as deep tears, bruises, redness, swelling, and blackening were on both sides of the spectrum [8]. In the study conducted by Afzali et al., bruising and bone lesions were the most and the least common types of lesions [12], which is in line with the present study.

In the present study, the most common site of injury was bruising and scratching in the head and neck area, followed by rupture and fracture in the limbs. In general, the most common site of injury was the upper extremity and then, the head and neck area. In the study by Kiani et al. [8] in terms of the frequency of injury, the most common site of injury was an injury to the head and face, and the least was in the back and sides. In another study, the highest rate of injury was reported in the head and neck area [12]. Wong and Petchell reported the trunk as the most commonly injured limb, followed by the head, neck, and limbs [16]. Ghodsi reported that the most common site of trauma was the limbs with a prevalence of 47.9%, followed by abdomen and chest with 20.2% and 16.7%, respectively [17]. In the study by Bahebeck et al., the limbs were the most common organ affected by the injury, accounting for 46.5% of all cases [18]. In the present study, the majority (45.7%) of patients underwent medical treatment, and 33 and 16.5% underwent surgery and outpatient procedures, such as dressing and suturing, respectively. In the study by Zohour et al., about 10% of the dispatchers received washing and dressing services, 70% underwent superficial surgery, and 30% underwent major surgery. Also, 97% of the injured cases were discharged with full recovery after receiving services [11]. In the present study, a significant relationship was observed between mortality and the site of injury following trauma so that out of five fatalities, three cases died due to injury to the head and neck areas. In the study by Ghodsi et al. [17], the most common cause of death was due to head injury (50%), which is consistent with the present study. In the study by Zamani et al., the most common cause of death was chest trauma followed by head and face trauma [15]. In the present study, regarding the relationship between mortality rate and type of injury, it was found that out of five deaths, three cases had happened due to cerebral hemorrhage and one case was due to heart injuries. In other words, the rate of death following trauma had the highest frequency of cardiovascular and cerebral damage. In a study by Bijani et al. on patients with chest trauma who were referred to a hospital in Fasa, 32 cases (10.6%) of the injured died, with 19 deaths due to brain damage, two cases due to cardiac tamponade, and four cases due to a bilateral contusion and severe pulmonary hypertension, which is consistent with

the present study [19]. In another study, chest bleeding was identified as the most common cause of death [20].

5. Conclusion

Our study revealed that the incidence of strife is greater among men in Sabzevar city. Bruising, scratching, and tearing were the most frequent types of trauma. There was no link between gender, trauma component, or geography and strife-related mortality in this research. In contrast, strife -related mortality was significantly associated with the site of injury, especially the neck and cerebral hemorrhage. It seems that providing appropriate solutions and creating a culture and increasing people's awareness of the injuries caused by narcissism, can be the basis for reducing such injuries in the future. It is suggested that future studies with a larger sample size as well as a review of forensic physician files in addition to hospital records be done due to more accurate records of information.

Ethical Considerations

Compliance with ethical guidelines

This study was approved by the Sabzevar University of Medical Sciences (Code: IR.MEDSAB.REC.1396.161).

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Author's contributions

All the authors met the criteria of authorship based on the recommendations of the International Committee of Medical Journal Editors.

Conflict of interest

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