AFGHAN MEDICAL JOURNAL
KABUL UNIVERISITY OF MEDICAL SCIENCES ABU ALI IBN SINA
Volume 2, Issue 1 | May 2025 AMJ e-ISSN: 3007-0805

PREVALENCE OF DEATHS DUE TO PENETRATING TRAUMA IN FORENSIC CASES IN KABUL – AFGHANISTAN

Mohammad Sadeq Ahmadi[1*], Hasibullah Baha Nijrabi[2], Leeda Nazari[3], Mohammad Yusof Yadgari[4]
[1,2,3,4] Department of Forensic Medicine, Kabul University of Medical Science, Kabul, Afghanistan

Abstract

Background: Trauma is damage to vital tissues that can affect a person's physical and mental health. There are various types of trauma, including mechanical trauma, traffic trauma, burn trauma, and electrical trauma. Sharp trauma is a kind of mechanical trauma created by objects with sharp edges or sharp apex, thus, the apex of the sharp object penetrates the skin, produces an injury, and the edge of the sharp object lacerates tissues and causes the expansion of the injury. This study aims to investigate the Prevalence of deaths due to sharp trauma in forensic cases at Kabul City referred to the Kabul Forensic Medicine Center from 2017 to 2019.

Methods and Material: This descriptive (cross-sectional) study was conducted on the death cases from 2017 to 2019 referred to the Kabul Forensic Medicine Center. Data were collected from the post-mortem
Service as secondary data and analyzed using IBM Statistical SPSS Version 26.

Results: This study revealed that during the years 2017 - 2019, a total of 4201 deaths were referred to the Kabul Forensic Medicine Center, 280 deaths (6.66 %) were caused by sharp trauma. Among 280 deaths, 248 cases (88.57 %) were males and 32 cases (11.42 %) were females. According to age, the majority of cases (79.64%) involved the young age group, specifically people aged 18 to 30. According to the location of the injured organ, most cases (150 cases, 53.57 %) occurred at the thorax.

Conclusion: Based on this study, the maximum number of death cases caused by sharp trauma were men and young individuals. In the majority of cases, the injured organ was the thorax.

Keywords: Sharp weapons, Sharp trauma, Death cases, Sharp objects

Introduction

Trauma is truculence or hurt to living tissues that can affect both the physical and mental state [1]. There are different types of trauma (mechanical trauma, traffic trauma, burn trauma, and electrical trauma). Currently, the most common trauma that causes mortality is mechanical trauma [2]. Mechanical trauma is classified into: a) sharp trauma, b) blunt trauma, and c) firearm trauma. Sharp trauma is a type of Mechanical trauma, Sharp Trauma is injuries produced with weapons or objects with sharp cutting edges or sharp tips. There are three types of Sharp Trauma: a) Incised wound, b) Stab wound, and c) Chop wound. The incised wound is a clean cut of tissues by an object with a sharp cutting edge; the scar of the incised wound will be permanent, and it is dangerous or fatal when deep and involves the viscera or major blood vessels. Stab wounds are wounds produced by sharp pointed objects (like a knife, dagger, nail, screwdriver, needle, spear, arrow, or sword) penetrating the skin and underlying structures. Chop wounds are injuries produced by a blow with the sharp cutting edge of a fairly heavy weapon like an axe, hatchet, or saber [3].

Generally, sharp trauma is created by the simultaneous effect of the tip and edge of sharp objects, as the tip of the sharp object penetrates the skin, producing a wound (injury), and the edge of the sharp object lacerates tissues and causes expansion of the wound [3]. According to research, sharp injuries are the main cause of death. In Peshawar, Pakistan, in 2016, sharp injuries were the second cause of death after burns, as observed in 377 autopsied death bodies, (6.1%) of deaths caused by them were sharp injuries [4]. One of the reasons for the increased occurrence of sharp trauma is sharp objects are easily accessible for everybody and cause humans to use these sharp objects when they are angry during fights or when do other crimes (homicide, robbery, suicide, levy, kidnapping, threats), these agents cause sharp trauma increased [5]. Also, the widespread display of violence (by sharp objects or sharp weapons) in media (TV, internet, movies) caused this violence to remain in the minds of the people of the community, and they intentionally or unintentionally implement it in their daily lives [5]. Reports of Kabul Forensic Medicine Services indicate these facts also, so it is necessary to conduct research and investigate the prevalence of deaths due to sharp trauma considering age, gender, anatomical location of

sharp injuries in the victim body, most incidence in various districts of Kabul city in years of (2017, 2018, and 2019) and reporting the results of this study to responsible organs, till based on these results, implement the necessary measures for reduce of these incidence and crimes (due to sharp trauma).

According to a study conducted at Khyber Medical College in Peshawar, Pakistan, about 3% of suicide cases are caused by sharp objects [6]. Also, this study revealed that most suicides occur by using sharp instruments (especially razors and blades), and suicide by the use of sharp weapons to cut the large blood vessels of their members (especially the carotid artery) and die due to blood loss [6].

A retrospective study conducted by Humera Parveen, Muhammad Naeem, Mobin Inam Pal, Javed Iqbal, and Ijaz Hussain in 2018 in Faisalabad, Pakistan in a period of one year (from 2016.1.1 to 2016.12.31), approximately 288 cases were autopsied and studied, revealed death cause of 11 cases (3.82 percent), mortality of 226 cases (78.47%) in men and 62 cases (21.53%) in women and the highest incidence of deaths in both men and women between the ages of 20 to 29 years old were caused by sharp trauma, Also proved among of 288 cases, 142 death cases (49.3 %) the motive and cause of death was homicide [7].

Another study was conducted by Afzal Memon, Mohammad Akbar Kazi, and Shaikh Waqar from January 2008 to December 2010 as a retrospective study at Ghulam Mohammad Mehar Hospital, Sukkur Medical College, Pakistan. In this study, a total of 100 cases of autopsy due to sharp

[*]**Corresponding author: Mohammad Sadeq Ahmadi**
email address:

Received 08 Apr 2025; Received in revised form 11 May 2025; Accepted 22 May 2025; published Online 27 May 2025.

trauma were identified during the period (January 2008 to December 2010). The result of this study indicates that the majority of deaths were male (65%), with a male-to-female ratio of 2:1. In most of the cases, the victims were aged between 20-29 years (30%). The most common anatomical area of the body affected by these injuries is the neck (30 %), followed by the abdomen (25 %) and chest (20 %). Also, these individuals proved that 82 % of sharp injuries were multiple, and 54 % of these injuries affected vital organs and caused severe damage to these organs [8].

A study published in a valid journal (The Pharma Innovation) was conducted by Rajeev Ranjan, Ramkrishna Mishra, and Surendra Kumar Pandey in the city of Uttar Pradesh, India in 2019. In this study, in three years (from the onset of 2016 to the end of 2018), approximately 2,976 autopsied cases were investigated, and 200 cases (6.72%) were homicides in these 200 homicide cases, the cause of 44 cases (22%) was sharp force trauma. It was also found that in most cases (19.5%), the anatomical location of the sharp injury was the brain, and it was seen in the neck and lungs. 41% of homicides occurred between 6:00 – noon and in 56% of homicides, the victim received brain trauma and then died [9].

According to a descriptive cross-sectional study published by Asadullah, Alvina Raja, et al. in the Forensic Medicine Department of Abbottabad, Pakistan, revealed that between January 2010 to March 2014, about 2025 death cases were autopsied. These persons proved in 2,025 autopsied bodies, the cause of death in 40 bodies (1.96%) was sharp trauma, the majority of the cases, namely 67.24%, were males and 32.76% were females. In most cases, the victim was aged between 31-40 years [10].

Methods and Materials

This is a descriptive (cross-sectional) study that has been conducted on the death cases from January 2017 to December 2019 that were referred to the Kabul Forensic Medicine Center. Data was collected from the post-mortem service, as secondary data, and analyzed by using SPSS version 26. This study was conducted at the Kabul Forensic Medicine Center in 2025 after approval by the review board for the ethical issues of Kabul Medical Science University. Among all recorded death cases referred to the Kabul Forensic Medicine Center during 2017-2019) just total death cases due to sharp injury were included in this study; other death cases (like deaths due to firearm trauma, blunt trauma, hanging, poisoning, etc.) were excluded from this study.

The major variables of this study are Age, Gender, Location of sharp injury in the victim's body, various districts of Kabul city where deaths occurred due to sharp trauma, and Type of fatal weapon used in mortality cases. The data collection sources and study tools were the Registry book, Databases of the post-mortem service, Facilities in the autopsy room, Documents related to fatal cases, Forensic medicine reports, and Data collection forms. This manuscript had access to the total facilities of the Kabul Forensic Medicine Center with an approval letter from the Kabul Medical Science University Research Center. This study is not based on information that causes ethical and privacy transgression, so there are no limitations.

Results

This study revealed that during the years 2017 - 2019, a total of 4201 deaths were referred to the Kabul Forensic Medicine Center. Among them, 280 deaths (6.66 %) were caused by sharp trauma, and 3921 deaths (93.94 %) were caused by other trauma (firearm trauma, blunt trauma, hanging, poisoning, etc.) [Chart 1].

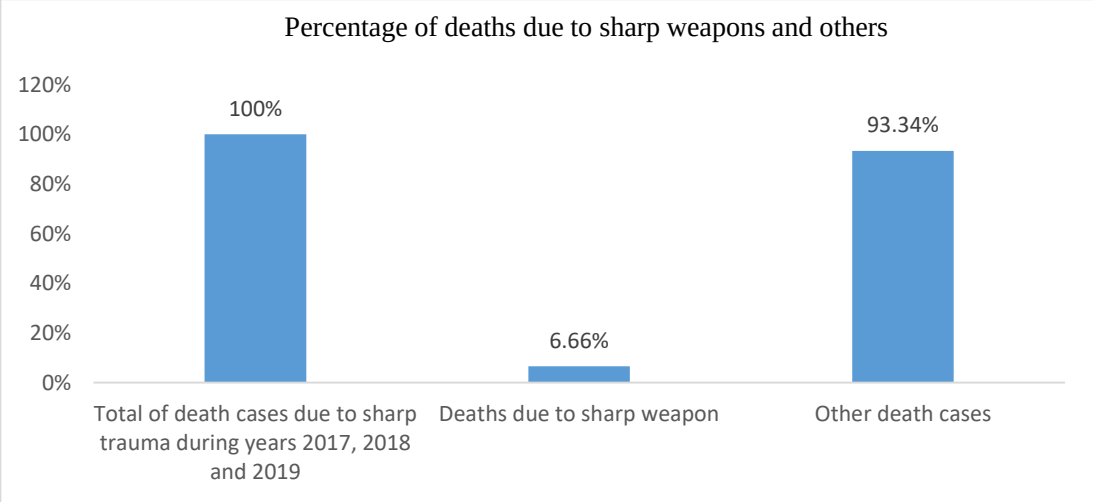

Chart [1]. Showing, the percentage of deaths due to sharp trauma and other death cases

Regarding gender, 248 cases (88.57 %) of deaths due to sharp trauma were males, and 32 cases (11.42 %) were females [Chart 2].

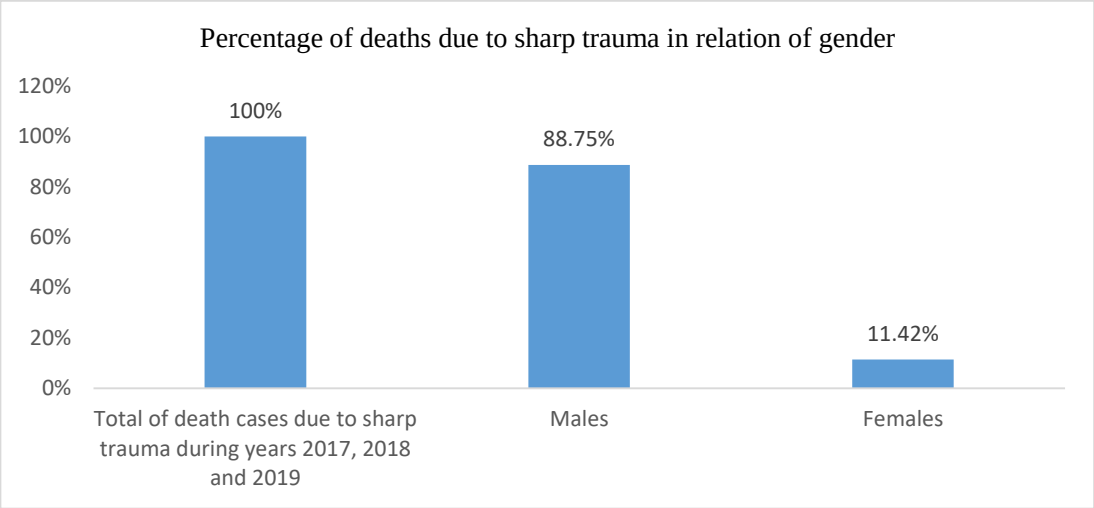

Chart [2]. Showing, the percentage of deaths due to sharp trauma about gender.

Regarding age, the total occurrences have been categorized into five age groups: childhood (ages the first day of life -12), juvenile (ages 13-17), young (ages 18-30), old (ages 31-55), and elderly (over 55 years). There were one case (0.35%) in the childhood age group, 8 cases (2.85 %) in the juvenile age group, 223 cases (79.64 %) young age group, 32 cases (11.42 %) old age group, 16 cases (5.71 %) elderly age group [Chart 3].

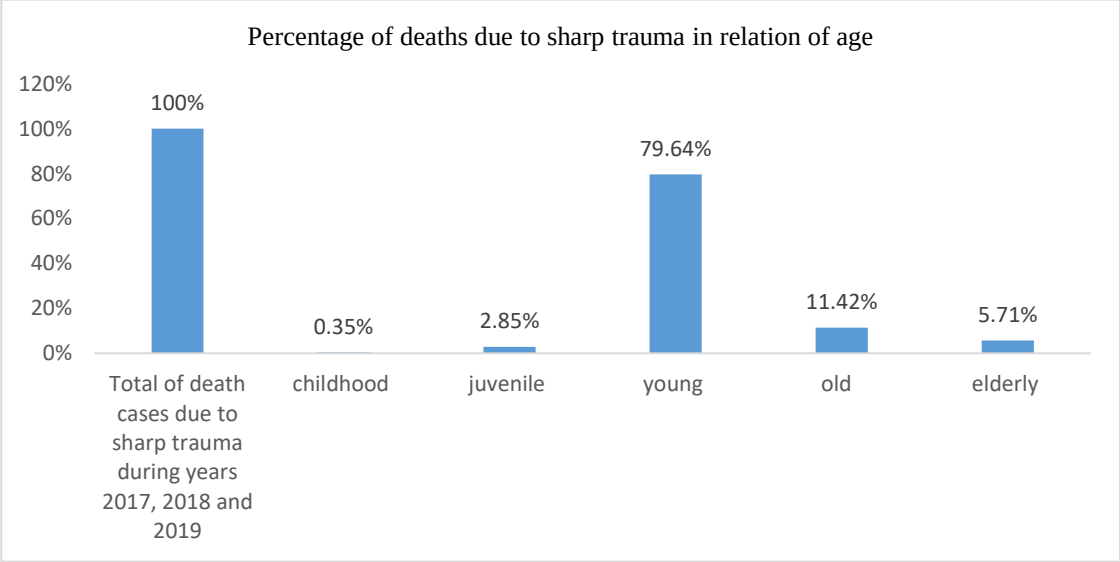

Chart [3]. Showing, the percentage of deaths due to sharp trauma about age.

According to the injured organ, 150 cases (53.57 %) occurred in the thorax, 66 cases (23.57 %) in the abdomen, 17 cases (6.07 %) in the head, 38 cases (13.57 %) in the neck, and 9 cases (3.21 %) in the hands and feet [Chart 4].

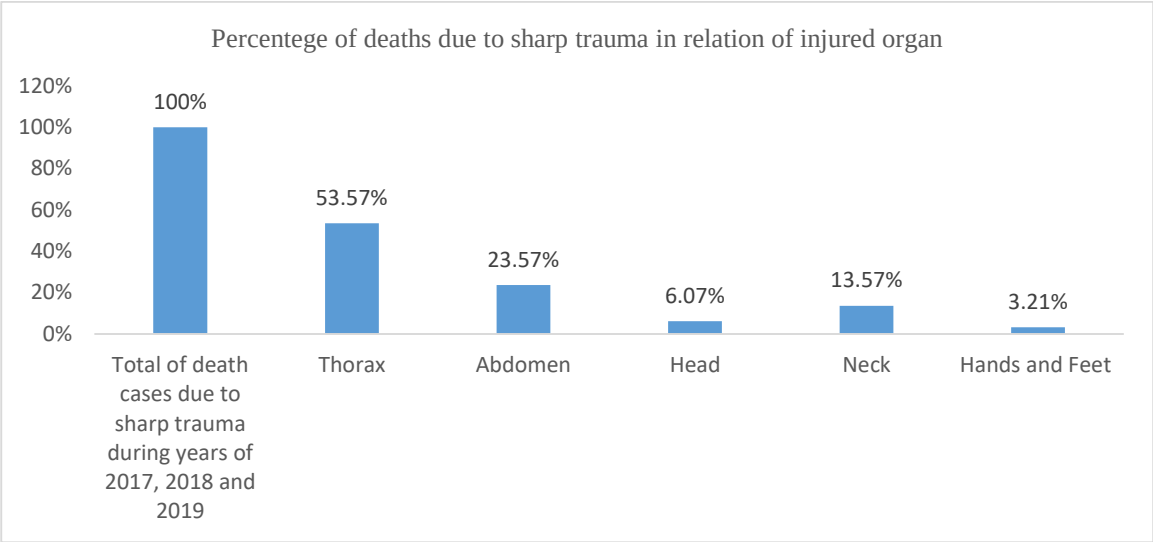

Chart [4]. Showing, the percentage of deaths due to sharp trauma by injured organs.

This study observed the highest number of deaths due to sharp injuries was in the seventh district (27

cases, 9.64 %), followed by the third district (25 cases, 8.92 %), fifth (24 cases, 8.57 %), and 11 and 17 districts (21 cases, 7.5 %)[Chart 5].

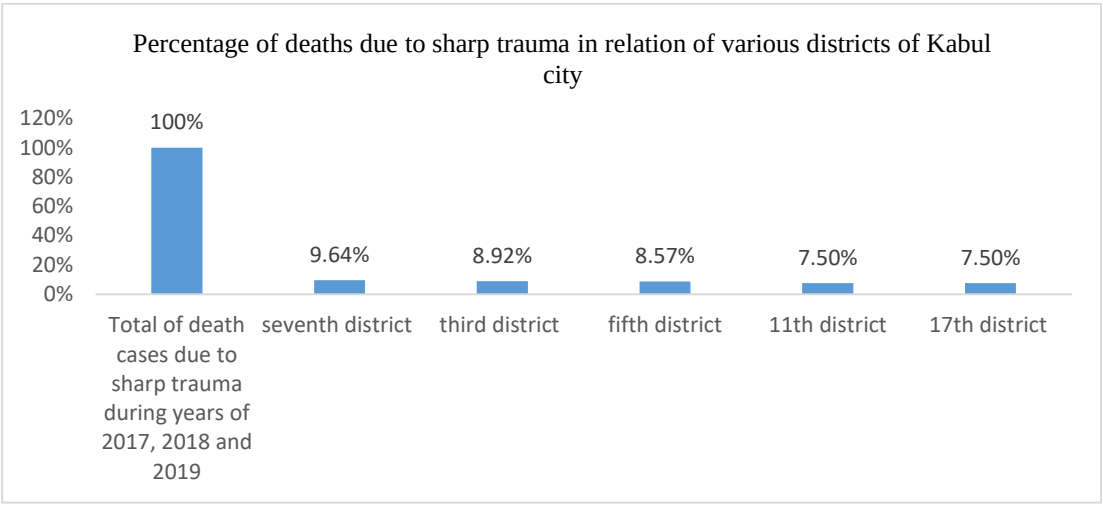

Chart [5]. Showing, the percentage of deaths due to sharp trauma in relation to various districts of Kabul city.

Likewise, According to the type of fatal weapon used in homicidal cases, observed deaths due to sharp weapons were in 5th degree (280 cases,6.66%), so (In first degree) firearms were the most common weapons of homicide (1438 cases,34.22%), Then in second degree were blunt weapons (1198 cases,28.52%) [Table 1 and chart 6].

Table 1. Showing, percentage of sharp weapons us in mortality cases and other cause

Degree	Type of fatal weapon	Total No.	Percentage
1	Firearm	1438 cases	34.22%
2	Blunt weapon	1198 cases	28.52%
3	Strangulation	850 cases	20.24%
4	Poisoning	305 cases	7.26%
5	Sharp weapon	280 cases	6.66%
6	Burn	130 cases	3.09%
	Total death cases from Jan 2017 to Dec 2019	4201 cases	100%

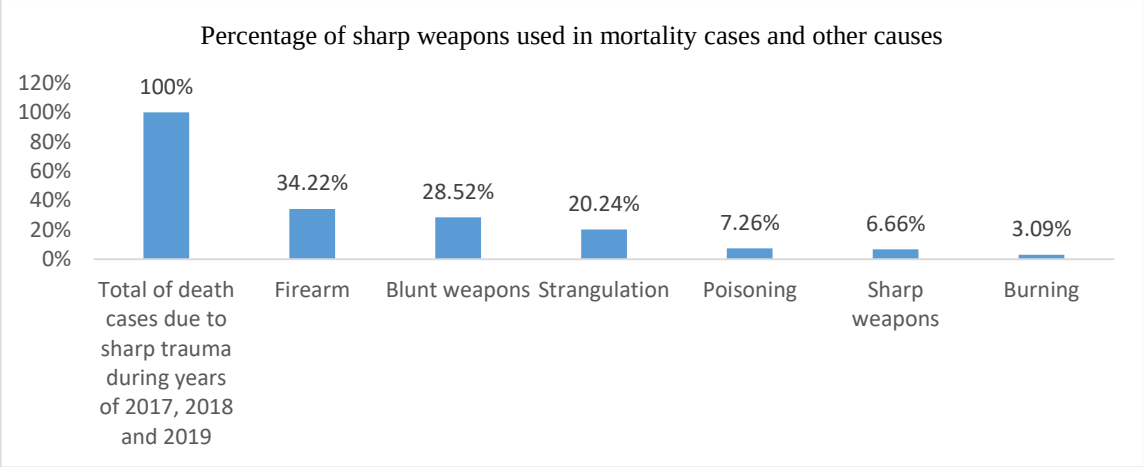

Chart [6]. Showing, the percentage of sharp weapons used in mortality cases and other causes.

Discussion

Sharp Trauma is injuries produced by sharp edges or sharp tips of objects [3]. Generally, the tip of the sharp object penetrates the skin, producing an injury, and the edge of the sharp object lacerates tissue and causes expansion of the injury [3]. One of the reasons for the increased occurrence of sharp trauma is sharp objects are easily accessible for everybody and cause humans to use these sharp objects when they are angry during fights or when do other crimes (homicide, robbery, suicide, levy, kidnapping, threats), these agents cause sharp trauma increased [5]. Reports of Kabul Forensic Medicine services indicate these facts also, so it is necessary to conduct research and investigate the prevalence of deaths due to sharp trauma considering age, gender, anatomical location of sharp injuries in the victim's body, most incidence in various districts of Kabul city in years of (2017, 2018, and 2019). The

results of this study show that among 4201 deaths, 280 cases (6.66 %) were caused by sharp trauma.

According to gender, out of the 280 death cases due to sharp trauma, 248 cases (88.57 %) happened among males and 32 cases (11.42 %) happened among females. This shows a higher incidence among males, which is completely consistent with the literature [6, 9, and 12]. Various agents may contribute to this, like busier men outside at home and in the community, because they have been in more contact with accidents, threats, daily fighting, thefts, and other dangers through the use of sharp weapons.

Regarding age, 223 cases (79.64 %) show that the highest cases were in young individuals, which is consistent with the literature [6, 9, and 12]. That's the reason that the young period is the work and activity era, and young individuals are in contact with people and society outside the home and are more exposed to daily fights and conflicts. Also, young individuals have more power than the other age groups; sometimes they misuse their young power and use sharp weapons such as knives, daggers, spears, etc., to commit crimes and illegal acts like homicide, robbery, threats, theft, etc.)

Similarly, in the majority of cases, especially 150 cases (53.57 %), the position of sharp injury was found at the thorax, which is similar to the literature [9]. The reason may be that the thorax is a vital organ and when injured, often dies as soon as after trauma, but in trauma to other organs (like arms and legs), the human may be hurt and, by transportation to the hospital, possibly survive.

According to the various districts of Kabul City, the majority of deaths due to sharp trauma were primarily in the 7th district, followed by the 3rd, 5th, 11th, and 17th districts. This requires the police and security officers to take special security measures to reduce the crimes of sharp weapons in these districts so people of the community can live in peace.

The strength of this study is that this study was prepared at one of the great centers for examining forensic cases, namely the Kabul Forensic Medicine Center, and the data was collected through the study of the register book of death cases. Also, it should be remembered that this is the first time a manuscript has been prepared about mortality due to sharp trauma in the Kabul Forensic Medicine Center.

The weakness of this study is that this manuscript was done only at one center to examine forensic death cases, especially the Kabul Forensic Medicine Center.

Conclusion

According to the above finding, the maximum number of death cases caused by sharp trauma were men and young individuals, thus, security officers must implement serious security measures, such as establishing more checkpoints to collect sharp weapons from criminals. Parents attend to their teenage or young children and are not allowed to carry sharp instruments, and should keep sharp instruments (such as kitchen knives, scissors, needles,

etc.) out of the reach of small children. In the majority of cases injured organ was the thorax.

Ethical approval

The study was approved by the review board committee for ethical issues of research by the Research Board Center of Kabul University of Medical Science.

Author contribution

Concept-MSA; Corresponding Author - MSA; Design - HBN ; Resources and data collection; Literature search - LN ; Writing manuscript - MYY ; Critical Review- AWA ; Everyone has read and approved the final manuscript.

References

1. Suwandono, A., & Atmoko, W. D. (2024). TYPES OF FATAL TRAUMA EXAMINED IN THE FORENSIC DEPARTMENT OF DR. MOEWARDI HOSPITAL. Sebatik, 28(1), 257-261.
2. Hasan's, Bashir. M.Z, Mujahid Shah.M (2010) PHYSICAL TRAUMA –A LEADING CAUSE OF MEDICO LEGAL CASES AT DHQ HOSPITAL ABBOTTABAD. J Ayub Med Coll Abbottabad 2010. P: (156-159)
3. G Rao, Nageshkumar, (2010). Text Book of Forensic Medicine & Toxicology, 2nd edition, New Delhi, ND: Jaypee Brothers Medical Publishers. P (221- 233)
4. Naveed S, Alam N, Ahmed MS.et.all. (2019) Weaponry pattern of homicidal deaths in district Peshawar. J Med Sci 2019; p :(194-197)
5. Federal bureau of investigation. Uniform crime reports for the United States; crime in the United States 2000: uniform crime reports. Washington, D.C.U.S department of justice, 2001.
6. Faqirullah, Murad. T, Shabbir. S, et. all. (2018) Patterns and Trends of Suicide Among Females in Peshawar. Northwest J Med Sci. 2018; 3(2). P :(100-103)
7. Parveen, H., Naeem, M., Pal, M. I., Iqbal, J., & Hussain, I. (2018). UNNATURAL DEATHS. The Professional Medical Journal 2018, 25(02), P (321-324) NF9
8. Memon, A, Kazi, M. A, & Shaikh.W. (2015). Prevalence of Homicidal Injuries by Sharp Force Trauma at Sukkur. J Liaquat Uni Med Health Sci. 2015, P: 03-5
9 R. Ranjan, R. Mishra & S.K. Pandey. (2019). A medico Legal study of homicidal death in Varanasi District (Uttar Pradesh).The Pharma Innovation Journal 2019, P: 8(5)350-354.
10. Asadullah, Raja, A, Aamir, Yasmin, et all, (2014). Pattern of causes of death in homicidal cases on autopsy in Pakistan. Gomal Journal of Medical Sciences, p: 218-221.