

Profile of sharp weapon trauma cases in Jharkhand, India: An autopsy-based report

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ABSTRACT

Introduction: Medical injury is a break of the natural continuity of any of the tissue of the living body. Sharp weapons are one of most violent means of death. This study documents the nature of injury among sharp weapon trauma cases and the cause of death among them. Studies also include the prevalence of the most frequently injured part of the body. It has always been a crucial and condemnable method of fatalities, either suicidal or homicidal. **Methods:** It is an autopsy-based study conducted in the department of forensic medicine and toxicology at Rajendra Institute of Medical Sciences (RIMS), Ranchi, for the period of one year from July 1, 2012 to June 30, 2013. The variables considered were gender, age, injury pattern, cause of death, etc. **Results:** This study reports that the frequency of death due to sharp weapons in Ranchi is like some other studies conducted in different states of India. Our study reported that out of 2540 medico-legal deaths, 120 (4.72%) deaths were due to sharp weapons, including 91 (75.83%) males and 29 (24.17%) females. **Conclusion:** The study showed that most of the sharp weapon trauma cases were homicidal in nature which is common in 20-39 years. It is observed that sharp weapon cases were common in urban areas. Sharp weapon injuries may be ante-mortem or post-mortem and may be homicidal, accidental (rare), or fabricated in nature.

Keywords: Autopsy, homicide, sharp weapon and death

Introduction

Injuries caused by a sharp weapon constitute a significant proportion of all the unnatural and criminal deaths. Most of homicide cases in Jharkhand involve the weapons such as knives, blades, and swords. This study makes an assessment on points like nature of the injury, age and sex distribution of homicidal and suicidal cases, and cause of death in fatal victims. Some studies within India have reported that sharp weapons are the second most important mean of homicidal death.^[1] These weapons are used in robberies, street crimes and snatching. Homicides are of great concern all over the world as they affect life and safety of the people. The pattern of homicides varies from country to

country and is influenced by many factors which include method of killing depending on the availability of weapons, cultural influences which include family relationship, religious attitudes, criminal activity, drug culture, alcoholism, and social, moral and political factors.^[1] This study was conducted with the aim to highlight the nature of injury, their age and sex distribution, community distribution, etc. The study also highlighted the weapons examined and their association with the fatal injury inflicted on the body in fatal cases of assault.^[1] Here external injuries look smaller but majority of them prove fatal due to damage of vital organ and major blood vessels.^[2,3]

Materials and Methods

The material for the present study were sharp weapon injury death brought to the mortuary of the department of forensic medicine and toxicology at Rajendra Institute of Medical Sciences (RIMS) for postpartum examination in a period of one year from July 1, 2012 to June 30, 2023. The study was approved

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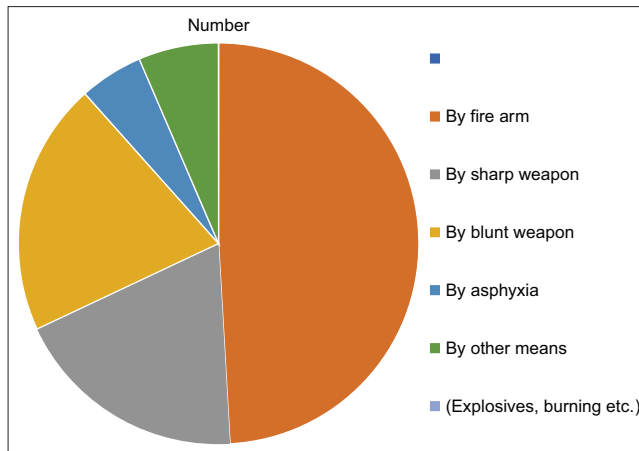
Table 1: A study of weapon injury in medicolegal autopsies Nature of death in fatal sharp weapon injuries in relation to the total number of autopsies during July 2012 to June 2013

Total No. of Autopsy	Homicidal death					Suicidal death			Accidental death						
	From Sharp Weapon		Other than Sharp Weapon		Grand Total PC	From Sharp Weapon		Other than Sharp Weapon		Grand total PC	From sharp weapon		Other than sharp weapon		Grand total P.C.
	No.	PC	No.	PC		No.	PC	No.	PC		No.	P.C.	No.	P.C.	
2540	114	4.48%	489	19.25%	603 (23.74%)	3	0.12%	62	2.44%	65 (2.56%)	3	0.12%	1869	73.58%	1872 (73.7%)

Table 2: A study of sharp weapon in medicolegal autopsies method employed in homicide during July 2012 to June 2013

Methods	Number	P.C. of the total Autopsies*	P.C. of the total Homicides**
By fire arm	296	11.65%	49.08%
By sharp weapon	114	4.48%	18.90%
By blunt weapon	123	4.84%	20.39%
By asphyxia	31	1.22%	5.14%
By other means (Explosives, burning etc.)	39	1.53%	6.46%

*Total no. of autopsies=2540



** Total no. of homicides = 603

in April 2012 by the institutional ethical committee and part of the official thesis work.

The variables considered were gender, age, injury pattern, cause of death, etc.; badly decomposed or skeletonized bodies was not included in the study. All the information related to medicolegal aspects of the cases was collected from interrogation of relatives, friends, and the police officer accompanying the dead bodies and also from the inquest reports. All the data are thus collected, compiled, and presented in the table.

Results

Our study reported that out of 2540 medico-legal deaths, 120 were due to sharp weapons consisting of 91 males and 29 females. In this study, out of 2540 autopsy cases 603 were homicidal of which 114 were of sharp weapon injuries. Death in 65 cases were suicidal in nature, out of which 3 cases

were due to sharp weapons. The remaining 1872 cases were accidental in nature, of which 3 cases were from sharp weapon injuries.

Firearm was involved in maximum number (49.08%) of the homicide cases that constituted 11.65% of total autopsies. Next to follow was sharp weapon (18.90%), blunt weapon (23.39%), asphyxia (5.14%), and other means which included explosive death and burns, mixed weapon (6.46%) each comprising 4.48%, 4.84%, 1.22%, and 1.53%, respectively, of total autopsy cases [Tables 1 and 2].

Out of 120 cases of sharp weapon death, as much as 114 (95%) cases were homicidal in nature while suicidal and accidental deaths were 3 each (2.5%) in number due sharp weapon [Table 3].

Males were dominant over female, the ratio being 7:1. The study showed that homicidal male victims were greater in number than female percentage being 81.66% and 13.37%, respectively. Male victims of 21–30 age group were most frequently involved (35%) followed by 31–40 (17.5%). The female homicidal victims were more from age group 31–40 (5%) closely followed by age group 41–50 (4.16%). The study showed that males were more involved than females, the percentage being 86.63% and 13.37%, respectively. Males victims of 21–30 years age group were most frequently involved (37.49%), followed by the age group 31–40 (24.16%) [Tables 4 and 5].

The majority of cases (81.66%) were homicidal male victims, out of which 89 cases were from rural areas and 6 from urban areas. These were 6 (5%) urban and in 9 (7.5%) in rural area respectively.

Discussion

The total number of 2540 medico legal autopsies conducted during the study period from July 1, 2012 to June 30, 2013—out of which 124 were sharp weapon deaths—these are mainly caused by sharp pointed objects such as knife, dagger, swords, scissors, ragger, etc. Our study findings were similar to observations by Shivakumar *et al.*,^[4] Vij *et al.*,^[5] Mohanty *et al.*,^[6] Hugar *et al.*,^[7] that sharp weapons were commonly used followed by blunt weapons in fatal assault injuries (45.9%). In total 120 cases of fatal assault, single weapon was commonly used in 35% of cases which were similar to a study by Subba *et al.*^[8] among sharp weapons, light sharp weapons commonly used. On the other hand, blunt weapons were more commonly used than sharp weapons in studies conducted by Oberoi *et al.*^[9] This observation could be

Table 3: Nature of death of the victims of fatal sharp weapon injuries during 2012 to June 2013

No. of deaths due to sharp weapon	Homicide		Suicide		Accident	
	No.	PC	No.	PC	No.	PC
120	114	95%	3	2.5%	3	2.5%

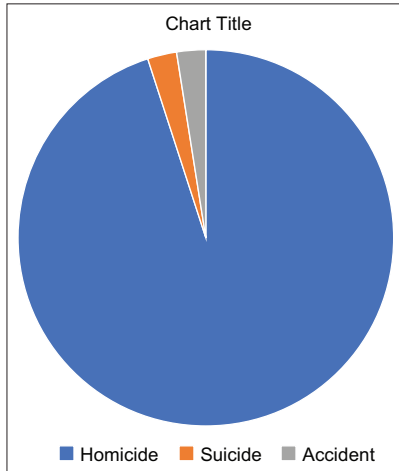


Table 4: Age and sex distribution of the victims of sharp weapon injuries

Age Group	Male		Female		Total (Male + Female)	
	No.	PC	No.	PC	No.	PC
0-10	4	3.33%	1	0.83%	5	4.16%
11-20	5	4.16%	1	0.83%	6	4.99%
21-30	44	36.66%	1	0.83%	45	37.49%
31-40	23	19.16%	6	5.0%	29	24.16%
41-50	15	12.5%	5	4.16%	20	16.66%
51-60	8	6.66%	2	1.66%	10	8.32%
61 and above	5	4.16%	—	—	5	4.16%
Total	104	86.63%	16	13.37%	120	100%

Male-to-female ratio=7:1 (approx.)

Table 5: Age and sex distribution of homicidal victims of sharp weapon injuries during the period July 2012 to June 2013

Age Group	Male		Female		Total (Male+Female)	
	No.	PC	No.	PC	No.	PC
0-10	4	3.33%	1	0.83%	5	4.16%
11-20	5	4.16%	1	0.83%	6	4.99%
21-30	42	35%	1	0.83%	43	35.83%
31-40	21	17.5%	6	5.0%	27	22.50%
41-50	15	12.5%	5	4.16%	20	16.66%
51-60	6	5%	2	1.66%	8	6.66%
61 and above	5	4.16%	—	—	5	4.16%
Total	98	81.66%	16	13.37%	114	95.03%

Total cases in the study was 120

due to a variation in the availability of weapons, motive, and circumstances of assault. Sharp weapons (90%) were commonly used in assault cases followed by blunt weapons (9.16%). Out of 120 weapons examined, knife (41%) were the most commonly used weapon by assailants in inflicting injuries followed by

choppers (28%), whereas wooden sticks were commonly used in study by Subba *et al.*^[8]

This observation was consistent with the common use of chopper followed by knife by assailants to inflict injuries. Among sharp weapons, when light cutting weapons were used the front of the chest was commonly injured, but when heavy sharp cutting weapon was used, the head was commonly injured. This could be due to a number of factors; for example, the type of weapon used, position of the victim as well as the assailants, target site on the body, number of blows, defense by the victim, etc. Most deaths from a stab wound were homicidal, especially if found in inaccessible areas. In case of sudden surprise attack, a single wound is found at a vital spot. If there is a struggle, there may be a number of wounds, sometimes associated with defense cut on the hands. Incised and stab wounds were usually common in suicidal injuries. It is present in accessible areas like the front and sides of the body, neck, left side of the chest, groin, etc. In cases of suicide, typical defensive type wounds to the hands and arms do not occur. Self-inflicted incised wounds may be present on approachable parts of the bodies in suicidal injuries.

Accidental injuries may occur when the person falls on a pointed weapon. In this study, the most common cause of death was shock and hemorrhage (35.89%) followed by injuries to the vital organs (27.06%), Injury to the brain (19.11%), and intracranial hemorrhage (17.94%).^[10] This study is similar to the observation mentioned in standard text books^[11,12]

Conclusion

From the analysis and study of the epidemiology and medicolegal aspects of the fatal sharp weapon injuries, it may be concluded that sharp weapon injuries were responsible for a fair percentage of violent deaths occurring at Ranchi and the adjoining area exceeded only by the deaths caused by firearms. Homicidal death outnumbered suicidal and accidental deaths in the cases of sharp weapon injuries and the cause behind the act of homicidd was mostly the disputes over landed property, family feuds, and decoities.

Adult males had the major share among victims of fatal sharp weapon injuries. Most of the fatal incidents caused by sharp weapons occurred in rural areas. A single weapon was commonly used in fatal cases of assault. Sharp, heavy weapons like choppers were commonly used in assault cases which prove fatal due to hemorrhage and shock involving the vital organs. Defensive wounds to the hands and arms are common. Most stabbing deaths are homicidal.

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Conflicts of interest

There are no conflicts of interest.

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