Indian Journal of Forensic and Community Medicine 2021;8(3):157–160

Content available at: https://www.ipinnovative.com/open-access-journals

Indian Journal of Forensic and Community Medicine

Journal homepage: https://www.ijfcm.org/

Original Research Article

An autopsy study on injuries in homicidal deaths due to weapons

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ARTICLE INFO

Article history:
Received 21-08-2021
Accepted 01-09-2021
Available online 18-09-2021

Keywords:
Homicidal cases
Type of injuries
Anatomical region
Weapon of choice

ABSTRACT

Background: Homicide is defined as the intentional act of taking another person's life.
Materials and Methods: This study was conducted in a tertiary care hospital and Medical College at Pondicherry between 2004 to 2019. It included all homicide deaths with weapon autopsied in the department of Forensic Medicine. A total of 74 cases of homicide was identified and studied. The male : female ratio was 4:1. Commonest age group was 21- 30 years of age. 78% of cases had fatal injuries in more than one anatomical region and head was the most targeted region. More than one type of injuries was present in 65% of cases.
Results: In this study male victim had mostly sharp force weapon induced injuries and female victims had blunt force weapon induced injuries. It was also found that in age groups less than 10 years and more than 60 years blunt force weapon induced injuries predominated, whereas in other young adult age groups sharp force weapon induced injuries were predominately seen.

1. Introduction

According to United Nations's global study on 'homicide', it is defined as the intentional act of taking another person's life, not including killings that occur within warfare and other such conflicts.[1] One of the earliest study conducted on the psychology of homicide has defined criminal homicide as a collective transaction, in which an offender, victim and possibly an audience engage in an interchange which leaves the victim dead,[2] but how these transactions were at times organized and not so in other cases remains a puzzle. Studying the characteristics of these transactions, which varies from region to region always helps to throw light on the pattern of homicides. India, a land of union with diverse culture has recorded 28, 918 cases of murder in the year 2019 with disputes as the main motive of most of the homicide cases followed by personal vendetta or enmity as second most cause of homicides as per the National Crime Record Bureau.[3] With ever growing rate of homicidal cases in a developing country like India, studies on various characteristic features of homicide helps the forensic experts as well as the law investigating officers to interpret the injuries and the pattern of homicide with confidence. Thus the present study was conducted to explore the types of injuries, type of weapon and anatomical region of the victim affected and to compare them with the demographic profile of the victims.

2. Materials and Methods

This is a retrospective cross-sectional study conducted at a tertiary care center in Pondicherry. The study included all homicide cases autopsied in the hospital where a definite weapon was used. Autopsied cases between 2004 to 2019 were taken. It excluded suspected burn cases of dowry death, suspected homicidal poisonings and cases with

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https://doi.org/10.18231/j.ijfcm.2021.032

advanced decomposition changes, obliterating the injuries. The data was obtained from police inquest and post-mortem reports. In each case, the injuries were studied and categorized according to its type; thereby the type of weapon used in each case was documented. The anatomical distribution of the injuries was also studied and analyzed. Various attributes like fatal injuries, type of weapon used, and anatomical distribution of fatal injuries were analyzed and correlated with age and gender of the victim. The study was conducted after approval of Institutional research and ethics committees.

3. Results

Out of 2556 cases autopsied in the study period, 74 (2.89%) cases were homicide cases with weapon. Male victims outnumbered female victims with a ratio of 4:1 (Figure 1). The commonest age group is 21 years to 30 years (37.84%). (Figure 2). On analyzing the region affected, 88% of victims had injuries in their head, followed by 53% on neck and various other regions as shown in Table 1. It was also observed that 78% of victims had injuries in more than one region and only 22% of victims had injuries involving only one anatomical region.

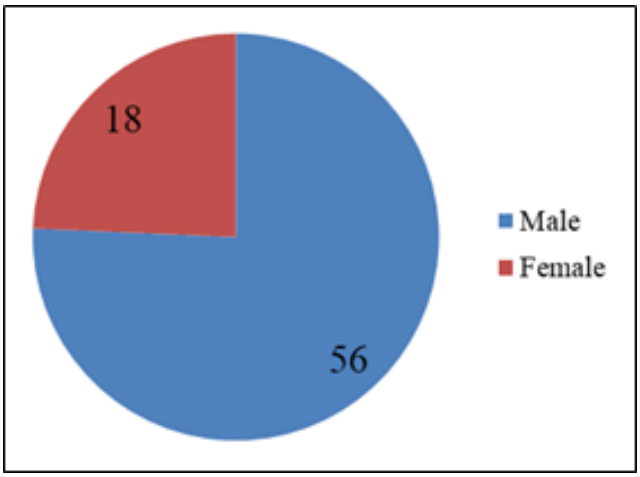

Fig. 1: Gender wise distribution of homicide cases in the present study

On analyzing the type of injuries, majority of victims had chop injuries (48%) among the sharp force weapon induced injuries followed by abrasions (40%) among blunt force weapon induced injuries as tabulated in Table 2. On analyzing the type of weapon, it was found that in 59.45% of cases more than one type of weapon was used and in 40.54% cases single type of weapon was used. Among the type of weapons, sharp weapon and pointed weapon were used in most of the cases (64.86% & 27.03% respectively) as shown in Table 3. On analyzing the gender with choice of weapon, it was found that majority of male victims had sharp force weapon induced injuries and most of the female victims had

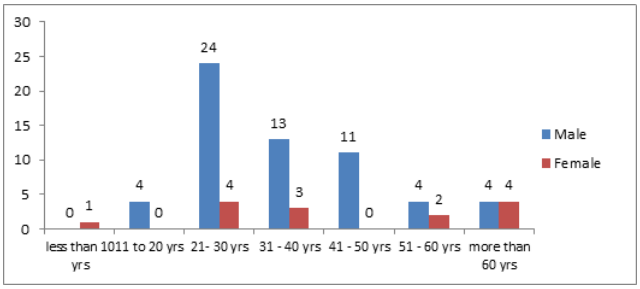

Fig. 2: Age group wise distribution of the homicide cases in the present study

blunt force weapon induced injuries as shown in Figure 3. Age group wise choice of weapon was also analyzed and tabulated as shown in Figure 4.

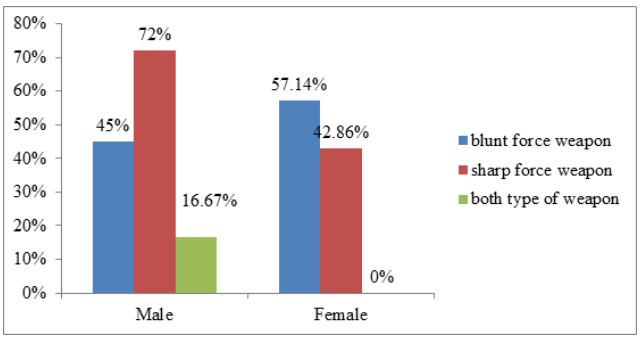

Fig. 3: Gender wise choice of weapon of the homicide cases in the present study

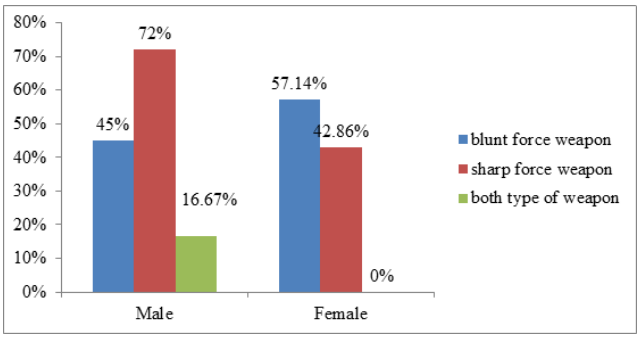

Fig. 4: Age group wise choice of weapon of the homicide cases in the present study

4. Discussion

During the present study period, a total of 2556 cases of unnatural deaths were autopsied. Out of which 74 were homicide deaths by weapon accounting for 2.89%. The frequency of homicide cases in other studies conducted at various other parts of India showed the homicide rate to vary from 4% to 7%.[4–7] Low incidence of homicides rate

Table 1: Region wise distribution of injuries among the homicide cases

Region	Number of cases	Percentage
Head	65	87.84%
Neck	39	52.70%
Chest	27	36.49%
Abdomen	20	27.03%
Upper limb	43	58.11%
Lower limb	23	31.08%

Table 2: Various modes of injury among the homicide cases

Type of Injuries	Number of cases	Percentage
Abrasion	30	40.54%
Contusion	26	35.14%
Laceration	28	37.84%
Incision	12	16.22%
Stab	20	27.03%
Chop	36	48.65%

Table 3: Type of weapon among the homicide cases

Type of Weapons	Number of cases	Percentage
Sharp	48	64.86%
Pointed	20	27.03%
Blunt	49	66.22%

was documented in studies conducted at Nigeria- 3.1%,[8] South Carolina, USA - 5.9%.[9] High incidence of homicide cases (23%) were reported by studies conducted by Rajeev Kumar in Varanasi, India[10] and in a study conducted on Turkish population (21%).[11] In our study a rate of homicide of 2.89% was recorded, which is lower than in other studies as we have included only homicide cases where weapon was used.

In the present study male victims accounted for 81% and female victims accounted for 19% with a ratio of 4:1. This observation is similar to most of the studies where male victims outnumbered females in a ratio of 3:1[4,5,7,8,10–13] to 5:1.[14] Highest male preponderance of 95% was also reported in a Brazilian study.[15] The reason for less preponderance in female victims are mainly due to the socio cultural restriction prevailing in various parts of India and in other parts of the world which rarely involves females in violent behavior and on the other hand males are mostly involved in law breaking activities.

In the present study the commonest age group of victims is 21-30 years (37.84%) followed by 31-40 years (21.62%). This is similar to various other studies conducted in India[4,5,7] and in studies conducted at adjoining Asian countries like Pakistan,[16,17] Malaysia[18,19] Sri Lanka[20] and in studies conducted from Nigeria,[8] Turkey,[11] South Africa,[21] Ireland.[22] This homogeny in young individuals being victims of homicide all over the world could be due to vivacious mind-set of risk taking and aggressive behavior of them as they are at the prime of their physical health.

In our present study on analyzing the region of victim affected, it was found that 78% of cases have fatal injuries in more than one region and 22% of cases have fatal injuries in only one region. This observation was similar to studies conducted by Behera et al.[4] Shivkumar et al,[5] Mohanty et al,[7] Gupta, S. and Prajapati[13] and in Study conducted at Nigeria[8] and South Africa.[21] Most of the victims having fatal injuries at more than one region show the firm intention of the assailant to kill the victim. Among the various regions, fatal injuries were present in head and neck in 88% and 52% respectively. This finding is similar to studies conducted by Vij et al,[14] Buchade and Mohite.[23] Chest region was commonly involved in studies conducted at Delhi and Pakistan[17] where firearm injuries on chest were observed. These observations show that head, neck, and chest are considered as vital areas by the assailants and striking at these regions make certain of victim being killed with maximum assurance.

On analyzing the injuries in our study, 65% of victims had more than one type of injuries and 35% of victims had only one type of injuries. Injuries produced by sharp and pointed weapons (chop wound 36%, incised wound 12% and stab wound 20%) were present in 68% of victims, whereas injuries produced by blunt weapon (Abrasions 30%, Laceration 28% and contusion 26%) were seen in 49% of victims. In 44% of cases injuries with both types of weapons were found. These findings are similar to studies conducted by Shivkumar et al,[5] Mohanty et al,[6] Padmaraj et al,[24] Gupta et al,[12] Vij et al.[14] and in studies conducted at Malaysia,[18] Ireland[22] and in Canada.[25] Firearm induced injuries were the commonest type in studies published from certain parts of India[4,6,10,13] and in studies conducted in other countries like Pakistan,[16,17] Nigeria[8] and in Turkey.[11] The choice of weapon in most cases being sharp cutting weapon shows the easy availability of weapons in the study region and also the culture of non-availability of firearms.

On analyzing the type of weapon, it was found that, majority of injuries in male victims (72%) were produced by sharp weapons, whereas majority of injuries in female victims (57%) were produced by blunt weapons. These findings were similar to a study conducted by Behera et al.[4] where the sharp weapon induced injuries were common among males, followed by injuries with firearms and blunt weapon injuries being common among female victims. On further analyzing the choice of weapon with age groups, in extremes of ages (i.e.) below 10 years (100%) and above 60 years (62.5%), majority of injuries were found to be blunt weapon induced, whereas in middle age groups the majority of injuries were sharp weapons induced. Very few studies have compared the age group with the choice of weapon.[4,26,27] The study conducted by Behera et al. also found similar findings with sharp weapons and firearm induced injuries in adult age groups and blunt weapon

induced injuries and asphyxial injuries in extremes of ages. In a study conducted at Bangkok, Thailand,[26] firearm injuries was commonly noted in all age groups. Also, a study conducted among child homicide cases in Leeds[27] revealed that blunt force injuries were most commonly present followed by asphyxial injuries.

5. Conclusion

On analyzing the homicidal transaction happened in this region of the country, it was found that the male victims outnumbered female victims with young adult age group of 21 to 30 years being the most victimized age group. The type of injuries and thereby the type of weapons used also varied with each age group. Though multiple anatomical regions were involved in most of the cases, the anatomical region head was most targeted region in majority of the victims. It was also observed that the type of injuries and choice of weapon also varied in accordance with the gender and age of the victims. This study has its own limitations as it was confined to very small area, and it has not included homicidal cases with suspected history.

6. Source of Funding

None.

7. Conflict of Interest

The authors declare that there is no conflict of interest.

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Cite this article: Slater S, Subramanyam S. An autopsy study on injuries in homicidal deaths due to weapons. *Indian J Forensic Community Med* 2021;8(3):157-160.