



SOCIO-DEMOGRAPHIC PROFILE AMONG THE VICTIMS OF FIREARM INJURY CASES AT SMS HOSPITAL, JAIPUR

Forensic Medicine

Siddharth Vijay Vergia

3rd Year P.G Resident Doctor, Department of Forensic Medicine, SMS Medical College, Jaipur

Rajesh Kumar Verma

HOD & Professor, Department of Forensic Medicine, SMS Medical College, Jaipur

Neha Sharma

Nursing Officer, AIIMS Bhopal

Priyank Gupta*

Senior Demonstrator, Department of Forensic Medicine, RUHS College of Medical Sciences, Jaipur *Corresponding Author

ABSTRACT

A firearm is any instrument or device designed to propel a projectile by means of an explosion of gases generated by the combustion of an explosive substance. Monitoring and detailing of the Socio-demographic profile among the victims of firearm injury can help in documentation of changing trends and designing strategies to curb them. The Aim & objective of the study was Assessment of socio-demographic profile among the victims of firearm injury cases at SMS Hospital, Jaipur. A cross-sectional descriptive observational prospective study that used inclusion and exclusion criteria was conducted. 80 cases of firearm injury were taken in the study. The present study was conducted over cases of firearm admitted or autopsied at SMS Medical College and Attached Group of Hospitals, Jaipur from June 2021 to August 2022. In the current study, the majority of subjects (78.75%) were between the ages of 20 and 29 years, 30 to 39 years, and 40 to 49 years, which is society's productive age group. Males accounted for 88.75% of cases, while females accounted for only 11.25%. Rural accounted for 87.5% of cases, while urban accounted for only 12.5%. In the current study, the majority of subjects (36.25%) were illiterate. The majority of subjects in this study (50%) were Clerical/Shop/Farm workers. Most affected group was the Upper Lower Class Family, which accounted for 60% (48 subjects) of the total subjects. As majority of cases were seen in young adults we concluded that Justice, Compassion, Educational Initiatives and Individual, Communal and Societal approaches are required to reduce these cases.

KEYWORDS

Firearm, Explosive, Socio-demographic Profile, SMS, Jaipur, Young Adults.

INTRODUCTION

A firearm is any instrument or device designed to propel a projectile by means of AN explosion of gases generated by the combustion of an explosive substance¹. Firearm (FA) injuries pose a great health burden and present enormous challenges for health and the national economics². India officially reported 45424 firearm cases with a crime rate of 3.4 / lakh population in the year 2019, 44789 firearm cases with a crime rate of 3.3 / lakh population in the year 2020 and 45847 cases with a crime rate of 3.4 / lakh population in the year 2021 which shares 1.9 % of total Special & Local Laws Crimes³. In 2021, Rajasthan officially reported a total of 2657 firearm cases with a crime rate of 3.3 out of which only 24 cases were from legal/licensed firearms and 2633 cases were from illegal/unlicensed firearms³. As a result of the invention of more advanced firearms and availability at the global level, death rates due to firearm injuries have increase dramatically⁴. Monitoring and detailing of the Socio-demographic profile among the victims of firearm injury can help in documentation of changing trends and designing strategies to curb them.

AIM & OBJECTIVES

Study was conducted to evaluate the victims of firearm injury in terms of socio-demographics profiles and to paint a picture therefor.

MATERIAL & METHODS

All medico-legal firearm injuries cases admitted or autopsied at SMS Medical College and Attached Group of Hospitals, Jaipur, who gave written informed consent for participation in the study were included in the cross – sectional descriptive observational study. We excluded cases of explosion/blast injuries & air gun injuries and cases with fabricated firearm wounds in preview of Forensic context. Sample size was calculated at 95% confidence level assuming an absolute error of 10 % for which sample of 77 cases of medico – legal firearm cases were to be required which was further rounded off to minimum 80 cases for the present study.

OBSERVATIONS & RESULTS

During the study period, 39273 medico – legal cases presented in SMS Medical College and Attached Group of Hospitals, Jaipur out of which 80 cases were of firearm. Thus the load of firearm injuries during the study period was 0.203 % of all. All details were recorded and analysed.

In the current study, the majority of subjects (78.75%) were between

the ages of 20 and 29 years, 30 to 39 years, and 40 to 49 years, which is society's productive age group. The majority of these subjects (33.75%) were between the ages of 20 and 29. The other age groups affected, in ascending order, were the sixth, second, fifth, and fourth decades. The age group of >60 years old was the least affected, with only two cases, and there were no cases under the age of ten. Male victims peaked in the third decade, while female victims peaked in the fifth.

Table 1: Distribution Of Subjects According To Age Group.

Age Group	Number Of Cases	Percentage (%)
0-9	00	00.00%
10-19	09	11.25%
20-29	27	33.75%
30-39	20	25.00%
40-49	16	20.00%
50-59	06	07.50%
>60	02	02.50%
Total	80	100.00%

Male subjects outnumbered females in the current study. Males accounted for 88.75% of cases, while females accounted for only 11.25%, resulting in a Male: Female ratio of 7.88: 1. During the study period, there were no cases of transgender people.

Table 2: Distribution Of Subjects According To Gender.

Gender	No. Of Subjects	Percentage(%)
Male	71	88.75%
Female	9	11.25%
Transgender	0	00.00%
Total	80	100%

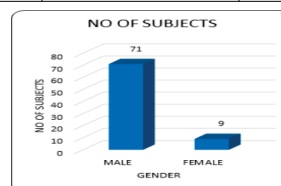


Figure 1 : Distribution Of Subjects According To Gender.

Rural subjects outnumbered urban subjects in the current study. Rural accounted for 87.5% of cases, while urban accounted for only 12.5%, resulting in a Rural: Urban ratio of 7: 1.

Table 3: Distribution Of Subjects According To Domicile

Domicile	No. Of Subjects	Percentage(%)
Rural	70	87.50%
Urban	10	12.50%
Total	80	100.00%

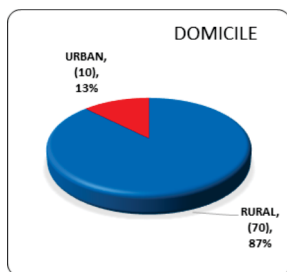


Figure 2 : Distribution Of Subjects According To Domicile

In the current study, the majority of subjects (36.25%) were illiterate. In descending order, the other group affected had education up to Primary School (18.75%), followed by High School (17.5%), Graduation (16.25%), Middle School (6.25%), and Intermediate / Diploma (3.75%). The least affected group (1.25%) had education with professional degree with only one subject.

Table 4: Distribution Of Subjects According To Educational Status

Education Status	No. Of Subjects	Percentage (%)
Illiterate	29	36.25%
Primary School	15	18.75%
Middle School	05	06.25%
High School	14	17.50%
Intermediate / Diploma	03	03.75%
Graduate	13	16.25%
Professional Degree	01	01.25%
Total	80	100%

The majority of subjects in this study (50%) were Clerical/Shop/Farm workers. In the ascending order, the other groups affected were Unemployed (20%), Unskilled Worker (12.5%), Skilled Worker (8.75%), Semi-Skilled Worker (7.5%), and Professional Degree Holder (1.25%). With 0 subjects, the Semi Profession group was not affected.

Table 5: Distribution Of Subjects According To Occupation

Occupational Status	No. Of Subjects	Percentage
Unemployed	16	20%
Unskilled Worker	10	12.5%
Semiskilled Worker	06	7.5%
Skilled Worker	07	8.75%
Clerical/Shop/Farm	40	50%
Semi Profession	00	0%
Professional Degree	01	1.25%
Total	80	100%

The socio – economic status of subjects in this study were classified using the Modified Kuppuswamy's Scale, and the most affected group was the Upper Lower Class Family, which accounted for 60% (48 subjects) of the total subjects. Lower Middle Class 11 subjects (13.75%), Lower Class 9 subjects (11.25%), and Upper Middle Class (10%) were the other affected groups in descending order. With 4 subjects (5%), the Upper Class was the least affected group.

Table 6: Distribution Of Subjects According To Socio – Economic Status

Socio-Economic Status	No. Of Subjects	Percentage
Lower	09	11.25%
Upper lower	48	60.00%
Lower middle	11	13.75%
Upper middle	08	10.00%
Upper	04	05.00%
Total	80	100.00%

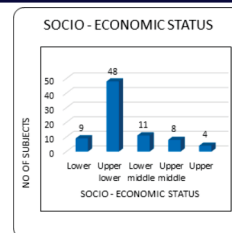


Figure 3 : Distribution Of Subjects According To Socio-economic Status

DISCUSSION

In current study almost all age groups were represented ranging from 14 years to 76 years , with majority being young adults and middle aged persons (20-39 years). Maximum number of cases were from 20-29 years (33.75 %) which are the productive & active members of the society. The mean age in this study was 33 years. The observations of the present study were similar to those of Patowary AJ, et al., Guwahati, (2005)⁵; Pradipkumar KH, et al., Imphal, (2005)⁶; Shah MM, et al., Peshawar, Pakistan, (2008)⁷; Khetran AK, et al., Pakistan, (2012)⁸; Khan I, et al., Aligarh, U.P, (2016)⁹; Sachan R, et al., Kanpur, (2013)¹⁰; Patnaik KK, et al., Berhampur, (2014)¹¹; Chaurasia N, Varanasi, (2014)¹²; Shashikant VK, et al., Varanasi, (2014)¹³; Rao D, Bangalore, (2015)¹⁴; Pargi S, et al., Jaipur, (2016)¹⁵; Ullah F, et al., Peshawar, Pakistan, (2020)¹⁶; Gismalla MDA, et al., Sudan , Africa, (2021)¹⁷; Kumar R, et al., (2021)¹⁸ and Nijrabi HB, et al., Kabul, Afghanistan, (2022)¹⁹ (peak incidence between 21-40 years of age in all). However, the results of the present study are variable from those of Kumari S, et al, Agra, (2014)²⁰ who reported maximum number of cases in 11-20 years followed by 21-30 years. Since the majority of other studies from the same state also show that these incidents tend to occur more frequently among people between the ages of 21 and 40, it is most likely that minor cultural and periodic variations are to account for this variation. This difference is not particularly substantial because the age range of 11 to 20 is quite young for the use of such lethal weapons. The least affected age group in the present study were > 60 years of age and no subject from < 10 years age group as also reported by Kumar K, et al, Berhampur, (2014)¹¹; Pargi S, et al., Jaipur, (2016)¹⁵ and Nijrabi HB, et al., Kabul, Afghanistan, (2022)¹⁹.

Males (88.75%) outnumbered the females (11.25%) in the present study with a male: female ratio of about 8:1 . Similar results have been reported by Patowary AJ, et al., Guwahati, (2005)⁵ (88.9% males); Shah MM, et al., Peshawar, Pakistan, (2008)⁷ (90 % males); Memon AA, et al., Larkana, Pakistan, (2009)²¹ (91.45 % males); Kumari S, et al., Agra, (2014)²⁰ (90% males) and Mohammed E M M, et al., Egypt , (2019)²² (89 % males). Meral O, et al., (2020)²³ (85.4 % males); Ullah F, et al., Peshawar, Pakistan, (2020)¹⁶ (83 % males); Gismalla MDA, et al., Sudan, Africa, (2021)¹⁷ (83 % males); Nijrabi H B, et al., Kabul, Afghanistan, (2022)¹⁹ (84 % males) shows male dominance which was quite less in comparison to this study. Hagras AM, Kharoshah MAA, Egypt, (2012)²⁴ (96.6 % males); Khetran A K, et al., Pakistan, (2012)⁸ (98.51 % males); Mohammed Z T, et al., Egypt, (2013)²⁵ (95.5 % males); Kumar K. et al., Berhampur, (2014)¹¹ (96 % males); and Rao D, Bangalore, (2015)¹⁴ (93.10 % males); Morgan A, et al., South Africa, (2019)²⁶ (95.9 % males); Backman, P.B., et al., Sweden, Europe, (2020)²⁷ (93.6 % males); Kumar R, et al., (2021)¹⁸ (96.92 % males) shows male dominance which was quite high in comparison to this study. Males are the active participants of the society and more commonly engaged in outdoor activities. Moreover, they are more prone to episodes of rage and revenge. This explains the male preponderance in all studies.

The victims of firearm injuries in this study showed a rural preponderance (87.50%) with only 12.50% victims from urban population. Similar result have been reported by Patnaik KK, et al., Orissa, (2014)¹¹ (82 % rural); Pargi S, et al., Jaipur, (2016)¹⁵ (88.70 % rural). Chaurasia N, Varanasi, (2014)¹² (72.9% rural & 27.1% urban victims); Mohammed EMM, et al., Egypt, (2019)²² (60 % rural); Ullah F, et al., Peshawar, Pakistan, (2020)¹⁶ (74.4% rural & 25.6% urban victims) also showed a preponderance of rural victims with slight variations in proportions of the two. Rural preponderance (46.3%) was also reported by Shashikant VK, et al., Varanasi, (2014)¹³. This is probably because it's simpler to break the law in rural areas, where illegal weaponry is easily accessible. A number of factors make it challenging to enact strong regulations in rural areas, including the size

of the territory, low literacy rates, cultural influences, socio-political limitations, etc. In contrast to modern cities, villages experience greater outrage and conflict due to disagreements over land and property, honour and prestige issues, caste conflicts, societal restrictions, etc. In most cases, the gram panchayat movement encourages locals to resolve disputes through meetings and other non-legal means. Thus, they are more in habit of settling issues on their own terms. Stricter enforcement of law and order, particularly in a major city like Jaipur, reduces the frequency of such incidents.

63.75 % victims in the present study were literate and 36.25% were illiterate. The study of Pargi S, et al., Jaipur, (2016)¹⁵ (literate 79.13 % and illiterate 20.87 %) shows similar result with slight variations in proportions of two in both studies. Despite having a preponderance of rural residents, the studied group had a high level of literacy. It is expected of intelligent people to wield such lethal weapons with caution. The level of education, however, is not reflected in the literacy rates. In the majority of studies, educational attainment has not been mentioned as a variable.

Considering the occupational status of the victims, it was observed that clerical / shop / farm was the most common occupation among victims (50 %), Which is quite obvious owing to the preponderance of rural population in this study. 20 % victims were unskilled or semiskilled workers. In all, 90 % victims were from non-service sector. Occupation of clerical / shop / farm is also attributable to the fact that land is an important cause of disputes leading to such heinous crimes either in impulse or with planning. The business sector also included property dealers who comprised 1.25% of the total population. Our results are quite similar with slight variations to those of Chaurasia N, Varanasi, (2014)¹² (90.6% victims from non-service sector); Pargi S, et al., Jaipur, (2016)¹⁵ (87.74 % from non-service sector). The concerns have not been well described by other authors. Our results are also in accordance with those of Shashikant VK, et al., Varanasi, (2014)¹³ (most common occupation was clerical / shop / farm - 40.74%).

CONCLUSIONS

As majority of cases were seen in young adults we concluded that Justice, compassion, educational initiatives, and individual, communal, and societal approaches are required to reduce the firearm cases.

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Conflict of Interest – Nil

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