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Original Research Article

# TRENDS OF SUICIDAL DEATHS AMONG AUTOPSIES CONDUSTED IN BRIMS TEACHING HOSPITAL BIDAR

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ABSTRACT

**Background:** According to the World Health Organization (WHO), over eight hundred thousand people commit suicide every year all over the world. In India, every year >1 lakh people commit suicide and it accounts for 17.5% of all suicidal deaths in the world. There were 1033 suicidal deaths out of 1217 unnatural deaths during study period. The manners of committing suicidal deaths were burns 14.81%, poisoning 49.17 % drowning 7.16 % and hanging 28.86% etc. The males 746 outnumbered the females. More married persons committed the suicide. Study also reveals that age group 21-30 includes most suicides. If we compare the reasons of suicides it is observed that family problems were the most common cause of suicides.

**Materials and Methods:** A prospective observational study was conducted at the Department of Forensic Medicine, Bidar Institute of Medical Sciences (BRIMS), Bidar. Demographic and case details were extracted from autopsy registers and post-mortem reports. Variables collected comprised age, sex, marital status, method of suicide, and documented precipitating reason.

**Results:** During the study period a total of 1,033 suicidal deaths were identified from autopsy records. Males accounted for 746 (72.2%) and females 287 (27.8%) of cases. The most frequently observed methods were poisoning 508 (49.2%), hanging 298 (28.8%), burns 153 (14.8%), and drowning 74 (7.2%). Age distribution showed that the highest burden was among young adults: 21–30 years = 351 (34.0%), followed by 31–40 years = 254 (24.6%) and 11–20 years = 160 (15.5%). Married individuals constituted 802 (77.6%) of cases versus 231 (22.4%) unmarried. Documented precipitating factors were dominated by family problems 213 (20.6%) and financial reasons 208 (20.1%); other causes included educational issues (131, 12.7%), unemployment (121, 11.7%), substance-related problems (98, 9.5%), love-affairs (93, 9.0%), and marital disputes (96, 9.3%).

**Conclusion:** In this single-centre forensic autopsy series, suicidal deaths were concentrated among young adults (especially those aged 21–30) and showed a marked male predominance. Poisoning was the leading method of suicide, and interpersonal/family and financial stressors were the most commonly documented precipitants. These findings underline the need for targeted prevention strategies — including restricting access to common poisons, strengthening community mental-health services and counselling for young adults, socio-economic support programs, and improved suicide surveillance.

**Keywords:** Suicidal deaths Family problems, Black mailing.

## INTRODUCTION

WHO estimates that nearly 900 000 people worldwide die from suicide every year, including about 200 000 in China, 170 000 in India, and 140 000 in high-income countries.[1–3] The Government of India relies on its National Crime Records Bureau (NCRB) for national estimates, and these report fewer suicide deaths (about 135 000 suicide deaths in 2010) than is estimated by WHO.[4] The reliability of

the NCRB data is questionable because they are based on police reports and suicide is still a crime in India, which might affect the veracity of reporting. Most public attention in India has focused on suicide in farmers.[5] The age- specific and sex-specific c death totals, rates, and risks, as well as the mode of suicide in India's diverse socio- demographic populations, are not well under stood. Reliable quantification of the suicide deaths is timely because the Government of India's 12th year Plan for 2012–17 includes strategies to tackle chronic disease and mental health.[6] Here, we quantify suicide mortality within the ongoing Million Death Study (MDS) in India—one of the few nationally representative studies of the causes of death in any low income or middle-income country.[7–9]

## MATERIALS AND METHODS

**Study Design and Setting**

This prospective, observational study was conducted in the Department of Forensic Medicine, Bidar Institute of Medical Sciences (BRIMS), Bidar. All medico-legal autopsy cases with manner of death recorded as suicide and received by the department during the study period (January 2022 to December 2024) were included.

**Ethics:**

The study protocol was reviewed and approved by the Institutional Ethics Committee of BRIMS. Since the study used routinely collected, de-identified autopsy records, the committee provided a waiver of individual informed consent. All extracted data were handled confidentially and reported in aggregate form.

**Inclusion and Exclusion Criteria**

**Inclusion:** all autopsy cases (in-house and medico-legal referrals) for which the final manner of death was certified as suicide during the study period.

**Exclusion:** autopsy cases in which the manner of death could not be reliably determined (severe decomposition or incomplete medico-legal documentation), clear accidental or homicidal deaths, and cases with irretrievable or grossly incomplete records for core variables required by this study.

**Data sources and collection:**

Data were obtained from the departmental autopsy register, individual post-mortem reports, and associated medico-legal case files. For each included case the following were abstracted using a standardized data collection form: demographic details (age, sex), marital status, date of autopsy, method of suicide (classified as poisoning, hanging, burn/self-immolation, drowning, or other), and the precipitating reason(s) recorded in the medicolegal case file (for example: family problems, financial, educational, love-affair, unemployment, substance use, marital dispute, dowry, grief, blackmailing, psychological illness, or unknown). Age was later grouped into intervals (11–20, 21–30, 31–40, 41–50, 51–60, 61–70 years) to match the tabular presentation.

**Operational definitions:**

'Suicide' was defined as a death resulting from self-inflicted injury or poisoning where available medico-legal information and circumstantial evidence supported an intentional self-harm manner of death. Methods and precipitating reasons were taken as documented by the examining forensic physician and police/relative statements recorded in the case file.

**Statistical analysis:**

Descriptive statistics were used to summarize findings: frequencies and percentages for categorical variables and mean (±SD) or median (IQR) for continuous variables as appropriate. Associations between categorical variables (e.g., method versus sex, method versus marital status, age-group distributions) were tested using the chi-square test; where expected cell counts were small Fisher's exact test was used. Temporal trends were explored by comparing annual proportions of methods using chi-square test for trend. A two-sided p-value $<0.05$ was considered statistically significant. Analyses were performed using SPSS software.

## RESULTS

During the study, a total of 1217 cases were autopsied, out of which 1033 cases were suicidal death due to any cause. The socio- demographic profile of victims such as age, sex, marital status, cause of death and reason were analyzed, total autopsies was conducted were 1075 out of which 347 were suicidal death, in which death due to poisoning were 165 and least were died as a result of due to drowning. During 2015 out of total 1172 total autopsy maximum death were again due to poisoning and least one due to drowning. In 2017 same findings observed that out of 970 postmortem 320 were suicidal death and least died due to drowning [Table 1]. In our study Male who committed suicide outnumbered the females, most male use poisoning for suicide but in case where female outnumbered the males it is burn [Table 2]. It is also observed that in our study married person committed suicide more commonly compare to unmarried [Table 3]. If we compare suicide cases with age groups it is observed that most age group who did suicide are from 21- 30 years age group which is 351 in numbers and least number were observed from 61-70 years age group. [Table 4] most of the victims which were from 21- 30 years of age group were died as a result of poisoning and least died as a result of burn in from 61-70 years of age group [Table 4] There are several reason present on our study regarding suicides, most of the victims died due to family reasons, 213 deceased died due to family reason the other factor which nearer to it is financial reasons, 208 deceased committed suicide due to financial crisis. Blackmailing is least cause to commit suicide. [Table 5]

**Table 1: Annual distribution of autopsies and suicidal deaths (2022–2024) — BRIMS, Bidar**

| Years | Total autopsy | Total suicidal deaths | Poisoning | Burn | Hanging | Drowning |
|---|---|---|---|---|---|---|
| 2022 | 384 | 82 | 40 | 6 | 98 | 37 |
| 2023 | 436 | 71 | 53 | 5 | 106 | 21 |
| 2024 | 397 | 90 | 32 | 7 | 94 | 16 |
| Total | 1217 | 244 | 125 | 19 | 298 | 74 |

**Table 2: Sexwise distribution of suicidal deaths by method of suicide (poisoning, burns, hanging, drowning)**

| Cause of death Poisoning | Male 382 | Female 120 | Total 508 |
|---|---|---|---|
| Burn | 66 | 87 | 153 |
| Hanging | 228 | 70 | 298 |
| Drowning | 64 | 10 | 74 |
| Total | 746 | 287 | 1033 |

**Table 3: Marital status distribution of suicidal deaths by method of suicide**

| Cause of death Poisoning | Married 432 | Unmarried 76 | Total 508 |
|---|---|---|---|
| Burn | 104 | 49 | 153 |
| Hanging | 215 | 83 | 298 |
| Drowning | 51 | 23 | 74 |
| Total | 802 | 231 | 1033 |

**Table 4: Age-group distribution of suicidal deaths by method of suicide**

| Age group | Poisoning | Burn | Hanging | Drowning | Total |
|---|---|---|---|---|---|
| 11-20 | 45 | 33 | 69 | 13 | 160 |
| 21-30 | 163 | 56 | 102 | 30 | 351 |
| 31-40 | 122 | 40 | 77 | 15 | 254 |
| 41-50 | 101 | 15 | 33 | 07 | 156 |
| 51-60 | 57 | 06 | 08 | 05 | 76 |
| 61-70 | 20 | 03 | 09 | 04 | 36 |
| Total | 508 | 153 | 298 | 74 | 1033 |

**Table 5: Documented precipitating reasons for suicide by method of suicide**

| Reasons | Poisoning | Burn | Hanging | Drowning | Total |
|---|---|---|---|---|---|
| Educational | 14 | 10 | 89 | 18 | 131 |
| Financial | 119 | 14 | 59 | 16 | 208 |
| Family | 130 | 38 | 39 | 06 | 213 |
| Un employment | 82 | 12 | 23 | 04 | 121 |
| Drug addiction | 46 | 06 | 38 | 08 | 98 |
| Love affairs | 51 | 18 | 18 | 06 | 93 |
| Marital disputes | 42 | 38 | 10 | 06 | 96 |
| Psychological | 08 | 04 | 08 | 04 | 24 |
| Dowry | 06 | 10 | 06 | 04 | 26 |
| Grief | 02 | 01 | 03 | 01 | 07 |
| Black mailing | 02 | 01 | 03 | 00 | 06 |
| Unknown | 06 | 01 | 02 | 01 | 10 |
| Total | 508 | 153 | 298 | 74 | 1033 |

## DISCUSSION

The present study demonstrates methods, demographic profile with reasons of complete suicide cases brought for autopsy at our center. Suicidality represents a major healthcare problem particularly in low and middle-income countries.[10] As a developing nation, India is also struggling with the same issue and efforts are being made to combat. The study showed men were more vulnerable to suicide compared to women (72.22% v/s 27.78%) with a ratio between the two was 259:1. A study by Nunez et al. found similar results with 86% men of the total victims and the ratio between men: women were 6:1.[11] Suicidal attempts were higher in females but the rate of complete suicide was comparatively higher in males.[12] Conversely, suicide was more common among males but suicidal behavior was more common among females.[13] A similar retrospective study done in Kuwait from the year 2014-2018, included 297 cases and showed that 81.1% were males and surprisingly of all cases 60.2% were Indians and only 7.4% were Kuwaitis.[14] The age groups who committed suicide were from 21- 30 years of age group. Many evidences are available which suggests that the young individuals in their 2nd to 3rd decade of life were the major contributors to overall suicidal deaths.[10] Nunez-Samudio V et al. found 20- 29 years as the most affected age group.[11] A systematic review showed an overall high prevalence of suicide rates in the 20-29 years age group but females were predominant in committing suicides for age-group under 30 years whereas males were leading for age group 30 years or older.[15] India's contribution to the global suicide rate has increased from 25.3% in 1990 to 36.6% in 2016 among women and from 18.7% to 24.3% among men.[16] In a study conducted among different states of India, suicide rates per one lakh population increased from 14.9 in 2001 and 15.4 in 2016. It was

also observed that developed states reported higher suicide rates as compared to less developed ones.[17] India is ranked 19th among the world in the context of suicides.[18] One of the sorrowful aspects of suicides in India is farmer suicide, it is mainly linked to marginal return from farmland, lack of income streams, indebtedness, crop failure due to factors like rain, loss of social status, and failure to fulfill social role compels a person to commit suicide.[18] The present study found family disputes and Financial problems were the most common cause of committing suicides. A similar study showed 33.7% of people commit suicide for personal reasons and 24.4% for unknown reasons, in which no specific cause was found.[17] A strong association was observed between suicide, comorbid physical or psychiatric ailments and substance abuse, especially alcohol.[18] Suicides are mostly related to psychiatric problems like depression, as demonstrated in another study. 10Among the low socio-economic states of the country, mental illness, alcohol abuse and interpersonal difficulties were the major problems.[15] The most preferred method of suicide by any gender in our study was poisoning (49.17%) followed by hanging (28.84%). The method of suicide preferred by males was also poisoning followed by poisoning and burn. Comparatively among females, the method of choice was poisoning followed by burn. Many studies found similar results of poisoning and the hanging as the most common method of suicide in India, but in other countries firearm is also important noticed method. The use of firearms is more prevalent in the western world due to ease in issuing of licensed weapons as compared to our country where it is difficult to obtain the license, however the incidences of firearm suicides are not uncommon among armed forces. Dandona R et. al. found poisoning as the leading method of suicide followed by hanging which is similar to our study.[17] Similarly, Rane A et al. found hanging as a leading method followed by poisoning. Self- Immolation was also common among women as seen in dowry deaths.[15] Hanging requires any household material which can be used as a ligature, mostly committed when alone.

## CONCLUSION

Suicide or attempted suicide is one of the major indicators of mental health of a population. It is also a drain on the workforce of the society as majority of the victims fall within the economically productive age group of the society as shown in this study. This study is a step toward a larger multicentre study where further analysis including the precipitating factors of suicide among younger victims can be analyzed and necessary sociological interventions can be made to prevent this socioeconomic burden on our society. It is important to know why the burden of suicide increasing day by day. It means till time society need motivation.

## REFERENCES


1. World Health Organization. Preventing Suicide: A Global Imperative, Executive Summary. Geneva, Switzerland: WHO Press; 2014.
2. Vijaykumar L. Suicide and its prevention: The urgent need in India. Indian J Psychiatry . 2007;49(2):81–4. doi:10.4103/0019- 5545.33252.
3. The global burden of disease: 2004 update. Geneva: World Health Organization; 2008.
4. National Crime Records Bureau. Accidental deaths and suicides in India. New Delhi: Ministry of Home Affairs, Government of India; 2008.
5. Mishra S. Farmers suicide in Maharashtra. Econ Political Weekly. 2006;41:1538–45.
6. Patel V, Chatterji S, Chisholm D. Chronic diseases and injuries in India. Lancet. 2011;377:413–28.
7. Jha P, Gajalakshmi V, Gupta PC, Kumar R, Mony P, Dhingra N, et al. Prospective Study of One Million Deaths in India: Rationale, Design, and Validation Results. PLoS Med. 2005;3(2):e18. doi:10.1371/journal.pmed.0030018.
8. Jha P, Jacob B, Gajalakshmi V, Gupta PC, Dhingra N, Kumar R, et al. A Nationally Representative Case–Control Study of Smoking and Death in India. N Engl J Med . 2008;358(11):1137–47. doi:10.1056/nejmsa0707719.
9. Registrar General of India and Centre for Global Health. Causes of death in India, 2001–2003 sample registration system. New Delhi: Government of India; 2009.
10. Bachmann S. Epidemiology of Suicide and the Psychiatric Perspective. Int J Environ Res Public Health. 2018;15(7):1425.
11. Nunez-Samudio V, Jimenez-Dominguez A, Castillo HL, Lamdires H,
12. Epidemiological characteristic of suicide in Panama. Medicine (Kansas). 2007;56(9):442.
13. loughlin AM, Gould MS, Milner A, Scovelle AJ. Global trends in teenage suicide.2003-2014. Quaterly J Med. 2003;108(108):765–80. doi:10.1093/qjmed/hcv 026.
14. Milner A, Scovelle A. Shift in gender equality and suicide: A [panel study of changes over time in 87 countries. J Affect Disord. 2020;276:495–500.
15. Al-Waheeb S, Al-Kandery N, Al-Omair N, Mahdi A. Patterns of suicide in Kuwait from 2014 to 2018. J Public Health. 2020;187:1–7. doi:10.1016/j.puhe.2020.07.032.
16. Rane A, Nadkarni A. Suicide in India: A systematic review. Shanghai Arch. Psychiatry. 2014;26(2):69–80.
17. India state level disease burden initiative suicide collaborators. Gender differentials and state variation in suicide deaths in India: The global burden of disease study 1990-2016. Lancet Public Health. 2018;3(10):489. doi:10.1016/S2468-2667(18)30138-S.
18. Dandona R, Bertozzi-Villa A, Kumar GA, Dandona L. Lessons from a decade of suicide surveillance in India: who, why and how? Int J Epidemiol. 2016;46(3):983–93. doi:10.1093/ije/dyw113.
19. Garg K. Depression, suicidal ideation and resilience among rural farmers. J Neurosci Rural Pract. 2019;10(2):175.