



Original Research Article

Psychiatric And Psychosocial Profile Of Suicidal Deaths: A Twelve-Year Retrospective Medico-Legal Study With A Psychological Autopsy Perspective.

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Abstract: *Background:* *Aim:* To study the demographic and medico-legal profile of suicidal deaths over a twelve-year period and to interpret the observed pattern from a psychiatric and psychological-autopsy perspective. *Materials and Methods:* A retrospective observational study was conducted at a tertiary care centre in western Maharashtra, India, over twelve calendar years from 1 January 2009 to 31 December 2021. During the study period, 3144 medico-legal autopsies were performed, of which 397 suicidal deaths were identified. Cases with incomplete relevant history, unidentified bodies, skeletonised bodies, exhumed bodies and homicidal hanging were excluded. Information was obtained from autopsy reports, inquest papers, available history and forensic science laboratory reports. Demographic variables and methods of suicide were analysed using descriptive statistics. Available information was interpreted from a psychiatric and psychosocial perspective. No standardized psychological-autopsy interview was performed. *Results:* Of the 3144 medico-legal autopsies, 397 (12.62%) were suicidal deaths. The highest annual number was observed in 2016, with 62 (15.61%) cases. Hanging was the predominant method, accounting for 313 (78.84%) cases, followed by poisoning in 67 (16.87%) cases. Males constituted 248 (62.46%) cases and females 149 (37.53%), with a male-to-female ratio of 1.66:1. The 20–39-year age group accounted for the largest proportion of deaths, with 233 (58.69%) cases. Urban residents constituted 301 (75.81%) cases, while 91 (22.92%) were rural. The available dataset did not permit systematic quantification of previous psychiatric illness, previous suicidal behaviour, substance use or specific psychosocial stressors. *Conclusion:* Suicidal deaths constituted 12.62% of medico-legal autopsies during the study period, with a predominance among males and young adults and a marked predominance of hanging. The findings highlight important demographic groups for suicide-prevention interventions. Incorporation of standardized psychological-autopsy methodology and psychiatric assessment in future studies may help identify psychiatric morbidity, psychosocial stressors, previous suicidal behaviour and missed opportunities for intervention..

Keywords: Suicide; psychological autopsy; psychiatry; suicidal deaths; medico-legal autopsy; psychosocial factors; suicide prevention.

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INTRODUCTION

Suicide is a major public-health problem and represents the final outcome of a complex interaction between biological, psychological, psychiatric, social, cultural and environmental factors. It cannot generally be attributed to a single cause or event. Psychiatric disorders, psychological distress, interpersonal difficulties, financial problems, social isolation, substance use and acute stressful life events may interact to increase vulnerability to suicidal behaviour.¹ From a forensic perspective, suicide is important because the determination of the manner and cause of death does not necessarily explain the circumstances that preceded the fatal act. Conventional medico-legal autopsy establishes the anatomical and pathological basis of death and assists in determining the manner of death.

However, reconstruction of the deceased's psychological state and psychosocial circumstances requires additional information obtained from available records and, where possible, from persons who knew the deceased. Psychological autopsy is a retrospective methodology developed to reconstruct the circumstances preceding death, particularly in cases of suspected suicide. It generally involves systematic examination of medical and psychiatric records, police and forensic documents and interviews with relatives, friends or other key informants.^{2,3} The approach may provide information regarding psychiatric history, previous suicidal behaviour, substance use, stressful life events, interpersonal relationships, behavioural changes and help-seeking behaviour.

Psychological-autopsy research has demonstrated an important association between suicide and psychiatric morbidity. Mood disorders, substance-use disorders and other psychiatric conditions have frequently been identified among suicide decedents.⁴ However, retrospective psychiatric assessment has methodological limitations, including recall bias, informant bias, difficulties in retrospective diagnosis and differences in interview methodology.⁵ Therefore, findings from psychological autopsy should be interpreted carefully.

The Indian context is particularly relevant because suicide patterns vary according to age, sex, geographical location, sociocultural environment and availability of lethal means. Indian studies have described associations between suicidal deaths and psychiatric illness, family conflict, marital difficulties, substance use, financial problems and other psychosocial stressors.⁶⁻⁸

The original medico-legal literature on suicidal deaths has largely focused on demographic distribution and methods of suicide. Although these parameters are essential for understanding epidemiological patterns, incorporation of a psychiatric and psychosocial perspective may provide additional insight into potential risk factors and prevention opportunities. The

present study was therefore undertaken to examine the demographic and medico-legal profile of suicidal deaths over a twelve-year period and to interpret the findings from a psychiatric and psychological-autopsy perspective. The objectives of the study are as below:

1. To determine the proportion of suicidal deaths among medico-legal autopsies performed during the study period.
2. To study the distribution of suicidal deaths according to sex.
3. To analyse the age distribution of suicidal deaths.
4. To study the distribution of suicidal deaths according to urban and rural residence.
5. To determine the common methods of suicide.
6. To discuss the psychiatric and psychosocial domains relevant to psychological-autopsy assessment.
7. To highlight implications of the findings for suicide prevention and psychiatric intervention.

MATERIALS AND METHODS

Study design and setting: The present study was a retrospective observational study conducted at a tertiary care centre in western Maharashtra, India. The study covered twelve calendar years from 1 January 2009 to 31 December 2021.

Sample size: During the study period, 3144 medico-legal autopsies were conducted. Of these, 397 cases were identified as suicidal deaths.

Study population: All cases identified as suicidal deaths and subjected to medico-legal autopsy during the study period were considered for the study.

Inclusion criteria

- Cases identified as suicidal deaths.
- Cases subjected to medico-legal autopsy during the study period.
- Cases for which relevant medico-legal documentation was available.

Exclusion criteria

- Cases with incomplete relevant history.
- Unidentified bodies.
- Skeletonised bodies.
- Exhumed bodies.
- Cases of homicidal hanging.

Data collection: The details of eligible cases were obtained from:

- Medico-legal autopsy reports.
- Inquest papers.
- Available history.
- Forensic Science Laboratory reports.

The cases were evaluated according to the method of suicide, sex, age group and demographic profile, particularly urban or rural residence.

Psychiatric and psychological-autopsy perspective:

The available records were additionally considered for information potentially relevant to psychiatric and psychosocial interpretation.

Relevant psychological-autopsy domains include:

- Previous psychiatric illness.
- Previous suicidal ideation or suicide attempts.
- Substance and alcohol use.
- Recent stressful life events.
- Family or interpersonal conflict.
- Marital or relationship difficulties.
- Financial and occupational stress.
- Previous psychiatric or medical treatment.
- Changes in mood or behaviour.
- Social isolation.
- Communication of suicidal thoughts or intent.

However, these variables were not systematically recorded or quantified for all 397 cases in the original dataset. Therefore, they were not reported as numerical

psychiatric outcomes. Importantly, the present study did not involve standardized psychological-autopsy interviews with relatives, friends or other key informants. Accordingly, the psychiatric interpretation represents a psychological-autopsy perspective rather than a formal retrospective psychiatric diagnosis. This distinction is essential because formal psychological autopsy generally incorporates interviews with multiple informants together with review of medical, psychiatric, forensic and other documentary sources.

Statistical analysis: The collected data were tabulated and analysed using descriptive statistical methods. Categorical variables were expressed as frequencies and percentages.

Ethical considerations

Confidentiality and anonymity of the deceased were maintained.

RESULTS

During the twelve-year study period, 3144 medico-legal autopsies were performed. Of these, 397 (12.62%) were identified as suicidal deaths. The highest annual number of suicidal deaths was observed in 2016, with 62 cases (15.61%).

Method of suicide (table 1): Hanging was the most common method of suicide, accounting for 313 (78.84%) cases. Poisoning was the second most common method, accounting for 67 (16.87%) cases. Burn injury was reported in 8 (2.01%) cases, railway-track accidents in 3 (0.75%), drowning in 2 (0.50%), jumping from height in 2 (0.50%), gunshot injury in 1 (0.25%) and self-inflicted injury in 1 (0.25%).

Table 1. Methods of suicide

Method	Number	Percentage
Hanging	313	78.84%
Poisoning	67	16.87%
Burn injury	8	2.01%
Railway-track accident	3	0.75%
Drowning	2	0.50%
Jumping from height	2	0.50%
Gunshot injury	1	0.25%
Self-inflicted injury	1	0.25%
Total	397	100%

Sex distribution: Among the 397 suicidal deaths, 248 (62.46%) were males and 149 (37.53%) were females, resulting in a male-to-female ratio of 1.66:1 (table 2).

Table 2. Sex distribution of suicidal deaths

Sex	Number	Percentage
Male	248	62.46%
Female	149	37.53%
Total	397	100%

Age distribution (table 3): The highest number of suicidal deaths occurred in the 20–39-year age group, comprising 233 (58.69%) cases. This was followed by the 40–59-year group with 79 (19.89%) cases. The 1–19-year group accounted for 44 (11.08%), the 60–79-year group for 33 (8.31%) and the 80–100-year group for 3 (0.75%). Age was unknown in 5 (1.25%) cases.

Table 3. Age distribution of suicidal deaths

Age group	Number	Percentage
1–19 years	44	11.08%
20–39 years	233	58.69%
40–59 years	79	19.89%
60–79 years	33	8.31%
80–100 years	3	0.75%
Unknown	5	1.25%
Total	397	100%

Regional distribution: Urban residents constituted 301 (75.81%) cases, whereas 91 (22.92%) cases were from rural areas. Residential information was unavailable in 5 (1.25%) cases (table 4).

Table 4. Regional distribution of suicidal deaths

Residence	Number	Percentage
Urban	301	75.81%
Rural	91	22.92%
Unknown	5	1.25%
Total	397	100%

Psychiatric and psychosocial domains relevant to psychological autopsy is shown in table 5.

Table 5. Demographic and medico-legal findings with psychiatric relevance

Variable	Finding	Potential psychiatric/psychosocial relevance
Suicidal deaths	397 (12.62%)	Indicates substantial medico-legal burden
Male sex	248 (62.46%)	Supports need for gender-sensitive suicide-prevention research
Female sex	149 (37.53%)	Requires assessment of gender-specific psychosocial stressors
Age 20–39 years	233 (58.69%)	Important target population for early identification and intervention
Urban residence	301 (75.81%)	Indicates local urban predominance. Relevant for comparison of access to mental-health services and psychosocial factors
Rural residence	91 (22.92%)	Relevant for comparison of access to mental-health services and psychosocial factors
Hanging	313 (78.84%)	Predominant method; method alone does not establish psychiatric diagnosis
Poisoning	67 (16.87%)	Relevant to means-access and contextual assessment

DISCUSSION

The present study provides a twelve-year medico-legal profile of suicidal deaths and additionally examines the findings from a psychiatric and psychological-autopsy perspective. Among 3144 medico-legal autopsies, 397 (12.62%) were suicidal deaths. The original study reported male predominance, concentration of deaths among young adults and urban population and a marked predominance of hanging.

Overall suicidal pattern: The proportion of suicidal deaths was 12.62% of all medico-legal autopsies. The original study noted that this finding was comparable to some previous reports while differing from others. Differences between studies may arise from geographical variation, referral patterns, population characteristics, study periods and differences in medico-legal case selection. From a psychiatric perspective, the overall burden emphasizes the importance of integrating mental-health considerations into medico-legal suicide surveillance¹⁻¹².

Sex distribution and psychiatric perspective: Males constituted 62.46% of suicidal deaths, compared with 37.53% females, producing a male-to-female ratio of 1.66:1. This male predominance was also noted in the original discussion and was consistent with several cited medico-legal studies. The psychiatric interpretation of sex differences should extend beyond social responsibility or economic role. Differences in help-seeking behaviour, expression of emotional distress, substance use, social expectations, access to mental-health services and choice of highly lethal methods may influence completed suicide.^{13,14} However, these mechanisms were not directly measured in the present study. Therefore, they should be considered possible explanatory domains rather than established findings. A future psychological-autopsy study should specifically examine whether male and female suicide decedents differ in psychiatric morbidity, previous self-harm, substance use, interpersonal stress, treatment contact and help-seeking behaviour.

Age distribution: The 20–39-year age group constituted 58.69% of suicidal deaths and represented the most affected age category. The original study also compared this finding with previous reports in which younger adults accounted for the largest proportion of suicidal deaths. Young adulthood is an important period from a psychiatric and psychosocial perspective because it involves major transitions related to education, employment, marriage, relationships, financial independence and family responsibilities. Psychological distress during these transitions may become particularly important when combined with pre-existing vulnerability.¹⁵ Thus, the present finding should be interpreted as identifying young adults as an important target population for further psychological-autopsy investigation, rather than as evidence of a specific psychiatric disorder.

Method of suicide: Hanging was the predominant method, accounting for 313 (78.84%) cases, followed by poisoning in 67 (16.87%). The predominance of hanging is important for forensic practice but should not be interpreted as a marker of a specific psychiatric disorder. Method selection may depend on availability, accessibility, perceived lethality, opportunity, planning and circumstances surrounding the suicidal act.⁹⁻¹⁶ A psychological-autopsy approach should therefore examine the events preceding the act rather than relying solely on the method of death. Important areas include previous suicidal thoughts, previous attempts, communication of intent, access to means, recent life events, substance use and changes in behaviour.

Urban predominance: The study identified 301 (75.81%) suicidal deaths among urban residents compared with 91 (22.92%) among rural residents. Urban residence may be associated with occupational pressures, social isolation, relationship difficulties, financial problems and changing family structures, but these factors were not systematically measured. Conversely, rural populations may experience agricultural and economic difficulties, social stigma and reduced access to mental-health services. The observed urban predominance therefore represents an epidemiological finding that warrants further investigation rather than a demonstrated independent psychiatric risk factor.^{17,18}

Psychosocial stressors: The original discussion identified several psychosocial circumstances described in the literature, including unhappy marriage, harassment by in-laws or husbands, alcohol or drug addiction, family violence, debt burden and poverty. These factors are relevant to psychological autopsy because suicide usually occurs through an interaction of vulnerabilities and precipitating circumstances.^{19,20}

A formal psychological-autopsy protocol in future research should systematically document:

1. Psychiatric history.

2. Previous suicidal ideation.
3. Previous suicide attempts or self-harm.
4. Alcohol and substance use.
5. Recent interpersonal conflict.
6. Marital and family difficulties.
7. Financial or occupational stress.
8. Recent bereavement or loss.
9. Chronic physical illness or pain.
10. Previous mental-health treatment.
11. Changes in mood, sleep or behaviour.
12. Communication of suicidal thoughts.
13. Social isolation.
14. Access to lethal means.

Relevance to suicide prevention: The predominance of young adults in the present cohort has important preventive implications. Young adults represent an important population for early identification of psychological distress and suicidal behaviour. Mental-health awareness among families, teachers, employers and healthcare professionals may facilitate earlier recognition of behavioural changes and suicidal warning signs. Primary-care physicians and other healthcare workers should be encouraged to recognize depression, substance misuse, previous self-harm and suicidal ideation and to refer individuals for appropriate psychiatric assessment when required. Suicide prevention should also extend beyond treatment of psychiatric disorders. Interpersonal conflict, social isolation, financial difficulties, substance misuse and access to lethal means may require simultaneous intervention.¹⁷⁻¹⁹

Importance of interdisciplinary collaboration: The present study highlights the potential value of collaboration between forensic medicine and psychiatry.

Forensic examination provides information regarding:

- Cause of death.
- Manner of death.
- Method of suicide.
- Demographic characteristics.
- Circumstances documented in medico-legal records.

Psychiatric and psychological-autopsy assessment can potentially add information regarding:

- Mental-health history.
- Psychological state.
- Previous suicidal behaviour.
- Substance use.
- Psychosocial stressors.
- Help-seeking behaviour.
- Missed opportunities for intervention.

Combining these approaches may provide a more comprehensive understanding of suicide and help develop locally relevant prevention strategies.

Limitations

1. First, it was a retrospective record-based study and depended on the completeness and accuracy of

medico-legal documentation.

2. Second, the study was conducted at a single tertiary care centre, and therefore the findings may not be generalizable to all regions.

3. Third, psychiatric diagnoses such as depression, substance-use disorder, bipolar disorder, psychotic disorder or personality disorder cannot be reliably assigned from the available data.

CONCLUSION

The present twelve-year retrospective medico-legal study demonstrates that suicidal deaths constituted 12.62% of all medico-legal autopsies during the study period. There was a clear male predominance, with males accounting for 62.46% of cases. The 20–39-year age group represented the largest proportion of suicidal deaths, and hanging was the predominant method. Urban residents constituted the majority of cases in the present dataset. From a psychiatric and psychological-autopsy perspective, these findings emphasize the importance of moving beyond determination of the cause and manner of death and investigating the psychological and psychosocial circumstances preceding suicide. However, the present study does not permit retrospective psychiatric diagnosis because standardized psychological-autopsy interviews and systematic psychiatric assessments were not performed.

Future studies should incorporate structured psychological-autopsy methodology involving multiple informants, medical and psychiatric records and systematic assessment of psychiatric morbidity, previous suicidal behaviour, substance use, interpersonal conflict, stressful life events and treatment contact. Such interdisciplinary collaboration between forensic medicine and psychiatry may help identify modifiable risk factors, missed opportunities for intervention and population-specific strategies for suicide prevention.

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