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# Profile of Suicidal Deaths in Females Brought to a Tertiary Care Centre in North Bangalore

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## Abstract

**Introduction:** Suicide is an important health hazard across the world. The SDR (Suicidal Death Rate) observed in Indian females is over three times higher than the rate expected globally for regions with similar socio-demographic profile.

**Objectives:** This study is aimed at analysing the pattern, probable motives, and socio-demographic factors of female suicidal deaths across all age groups subjected for autopsy to the Forensic Medicine department, M.S Ramaiah Medical College.

**Materials and Methods:** Detailed information regarding the deceased and the circumstances of death were collected from the police and relatives by a standard proforma questionnaire. Data was analysed using computer software, Statistical Package for Social Sciences (SPSS) version 20.0.

**Results:** Total of 93 cases of female suicides were autopsied in the study period, and the most common age group observed was 21-30 years (30%), commonly educated up to high school (32.2%), majority of cases falling within class IV socio-economic status with 38.7% cases (Modified Kuppaswamy's classification). Married women comprised 41.9% cases. Hanging (76.3%) was the most often used method, commonly occurring at the time periods of 6AM-12PM and 6PM-12AM with 29 cases (31.18%) each. Frequently motivated by monetary reasons with 18.27% and mental illnesses accounting for 16.12%.

**Conclusion:** The increasing suicide rate creates a challenging obstacle for public health personnel. This study is a step toward a larger multi-centre study where deeper analysis and necessary interventions can be postulated.

**Keywords:** Suicide; Female; Hanging; Bangalore; Autopsy

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## Introduction

The deliberate act of taking one's own life is called "Suicide". Suicide affects the individual, their families, friends, and communities. Every year more than 2,00,000 individuals commit suicide in India, with various causes such as mental illness, discrimination, debt and financial loss, chronic pain, etc.

According to the National Crime Record Bureau, India reports have shown gradual increase in unnatural female deaths in India from 1967 to 2019. Among the various causes for unnatural deaths, it should be noted that according to the 2019 statistics put forth by the World Health Organisation, India ranks 41<sup>st</sup> in the world for total number of suicides per 100,000 population, with women forming 11.1 cases out of every one lakh persons, which is the 7<sup>th</sup> highest in the world.<sup>(1)</sup> Globally, suicides are more common in men, although the sex ratio is closer to 1 to 1 in developing countries, such as China wherein a higher suicide rate has been reported in rural Chinese women (30.4 per 100,000) than in Chinese men (23.8 per 100,000).<sup>(2)</sup> This is similar to the scenario in India, where it is noted that the SDR (Suicidal Death Rate) observed in Indian females is over three times higher than the rate expected globally for regions with similar socio-demographic profile. However, various rates of suicide have been reported in India and in most of these reports the investigators rely on data from police records, which typically under-report cases of suicide.<sup>(3,4,5)</sup> The access to means directly affects the method of suicide that is chosen in India. As India is a largely agricultural nation- pesticide poisoning and hanging are seen to be the common methods, along with jumping from a height and railway injuries.<sup>(6)</sup>

With the rising trend of suicidal deaths in females, a prospective study to understand the pattern of such deaths in females is vital as there is a need to improve the protective systems and to curb these potentially preventable deaths.

## Material and Methods

All cases of unnatural deaths amongst females subjected for autopsy to the Department of Forensic Medicine M.S Ramaiah Medical College and Hospital, Bangalore between October 2017 to March 2019.

This prospective study was undertaken in which all cases received as brought dead to the mortuary of M.S Ramaiah Medical College and Hospital, Bangalore were included in the study, including cases with survival periods and treatments given in our hospital or referred to our hospital. All unknown and/or unclaimed female cases and other female deaths due to any manner apart from suicide or unconfirmed cases of suicide were excluded.

Detailed information regarding the deceased, relevant histories, and the circumstances of death were collected from the police, kith, and kin of deceased by a standard proforma questionnaire used to collect information regarding the demographic pattern after obtaining informed consent. Photographs of the case and any additional articles such as suicide notes, crime scene photos, and hospital records were perused as and when available. Data were analysed using Statistical Package for Social Sciences (SPSS) v.20.0 software.

## Results

During the study period from October 2017 to March 2019, a total of 1,235 cases were brought for autopsy to our centre. Out of 142 unnatural female deaths, 93 cases were confirmed to be suicides, constituting 65%. Age wise distribution showed that the most common age group involved was 21-30 years (30.1%). A minimum age of 11 years old and a maximum age of 84 years was noted. (Figure No. 1)

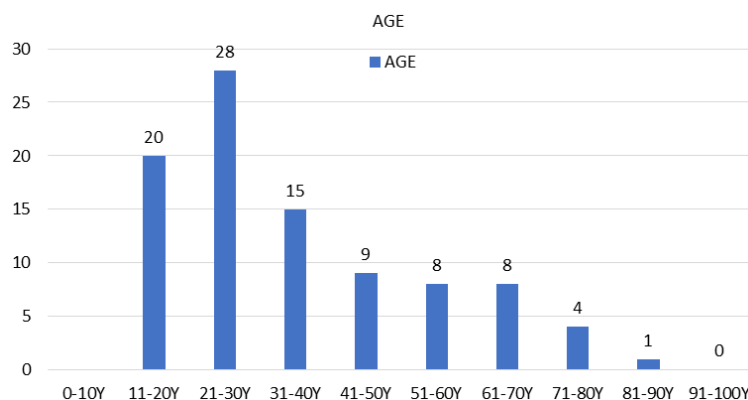


Figure No. 1: Age-wise distribution of cases

In terms of marital status, it was observed that single women, and married women constituted 37 cases (39.7%) and 39 cases (41.9%) respectively. While divorced women and widowed women formed 10 cases (9.3%), and 7 cases (7.5%) respectively.

With regards to education levels, a majority of females were educated up to high School amounting to 30 cases (32.2%). While illiterate females accounted for 6 cases (6.4%). (Table no. 1)

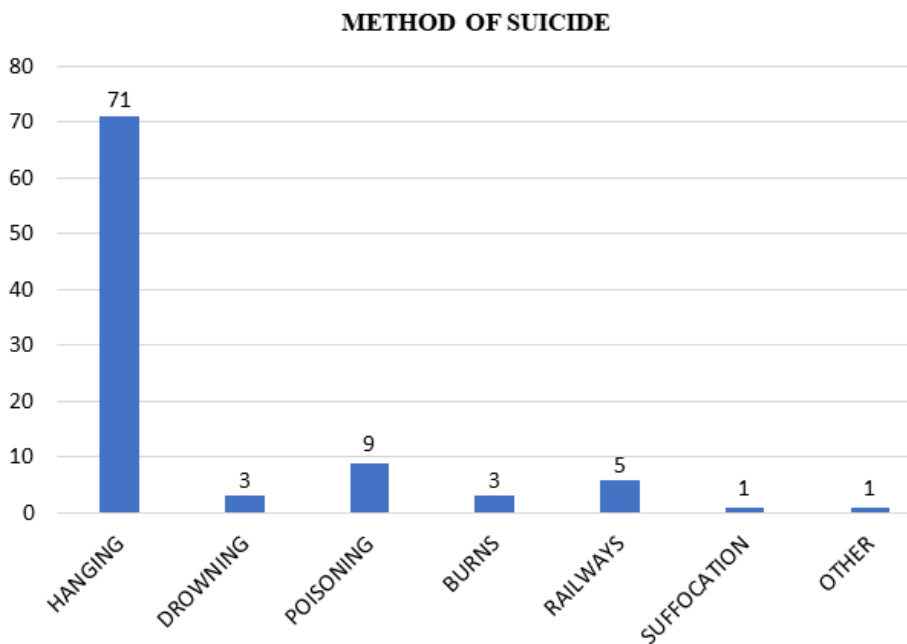
**Table No. 1: Education level of cases.**

EDUCATION	Frequency	Percent
Illiterate	6	6.4
Primary School	12	12.9
Middle School	12	12.9
High School	30	32.2

Intermediate	18	19.3
Graduate	12	12.9
Post-Graduate	3	3.2
Total	93	100

The socio-economic status of the sample group (Modified Kuppaswamy's classification) shows majority of cases fall within class IV with 36 cases (38.7%) and class V with 30 cases (32.2%). Class III and class II follow with 19 cases (20.4%) and 8 cases (8.6%) respectively. The study had no cases of class I.

With regards to the method of suicides, the most commonly method was Hanging with 71 cases (76.3%). 'Other' includes a case of complex suicide involving both poisoning and hanging, resulting in a delayed death. (Figure No. 2)



**Figure No. 2: Distribution according to the method of suicide**

The reasons for suicide was gleaned from the suicide notes and the history from the loved ones. The most common motive was monetary with 17 cases (18.27%). Second was mental illness accounting for 15 cases (16.12%), mental illness included: 12 cases of diagnosed depression, with 7 being treated. 2 women with history of depression, and 1 case of bipolar disorder on treatment. Loneliness was also a significant cause for suicide with 5 cases (5.37%), seen in women who were elderly and widowed. (Table no. 2)

**Table No. 2: Distribution according to reasons for suicide**

REASONS FOR SUICIDE	FREQUENCY
UNKNOWN	8
MONETARY	17
MENTAL ILLNESS	15
PHYSICAL ILLNESS	2
DOWRY	6
HARASSMENT BY INLAWS	1

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BULLYING	2
ACADEMIC FAILURE	11
LOVE FAILURE	11
BEING UNMARRIED	4
PRESSURE TO MARRY	4
INABILITY TO CONCEIVE	2
SUSPICION OF EXTRAMARITAL AFFAIR OF WIFE	3

SUSPICION OF EXTRAMARITAL AFFAIR OF HUSBAND	1
ARGUMENT/ DISAGREEMENT	1
LONELINESS	5
Total	93

The most common time period was observed to be 6AM-12PM and 6PM-12AM with 29 cases (31.18%) each. (Table no. 3)

**Table no. 3: Crosstabulation of the method of suicide and the time of incident**

Suicide method	Time of incident				Total
	12AM-6AM	6AM-12PM	12PM-6PM	6PM-12AM	
HANGING	21	19	10	21	71
DROWNING	0	2	0	1	3
POISONING	1	3	2	3	9
BURNS	0	1	1	1	3
RAILWAYS	0	4	0	1	5
SUFFOCATION	0	0	0	1	1
OTHER	0	0	0	1	1
Total	22	29	13	29	93

## Discussion

### Demographic details:

In our study, the most common age group of the deceased was 21-30 years (30.1%) & 11-20 years (21.5%), factors such as marital disharmony, relationship issues, dowry deaths, academic, etc. most often affect these age groups. Similar findings were seen in a study conducted by Manoj Bhausahab Parchake et al in the Marathwada region, where it was observed that out of 392 cases, 44.39% were in the age group of 21-30 years.<sup>(7)</sup>

**Marital status:** A majority of the deceased women in our study were married with 41.9%, and the second most noted was single/unmarried with 39.7%. Widows comprised 7.5% of cases, and divorced women comprised 9.3%. Of the 39 married women, 25 cases (64.1%) were below 7 years of marriage; 6 cases were of Dowry Death, with 3 cases occurring within 3 years of marriage. These findings were also consistent with the results of the study done by Rajesh C. Dere & Col. K.M. Rajoo in Loni, with married women forming 83.22% and unmarried

women forming 16.78%.<sup>(8)</sup> Similar findings were also observed in studies by Kulshrestha.<sup>(9)</sup>

**Educational Status** Maximum deaths were observed in females who were educated upto high school level 30 cases (32.2%), least common were those educated up to postgraduate level.

This is seen to concur with the study done by S. Kumar and Anoop Kumar V. which showed that the most common educational level was up to high school with 42.32% and 4.83% of the victims were illiterate.<sup>(10)</sup>

These findings are also similar to the study done by Manoj Bhausahab Parchake & R. V. Kachare, where maximum number of deaths were observed in females educated up to high school with 38.52%.<sup>(7)</sup>

**Socio-Economic-Status** In the study it is seen that the majority of cases fall within class IV with 36 cases (38.7%) and class V with 30 cases (32.2%). Class III and class II follow with 19 cases (20.4%) and 8 cases (8.6%) respectively. The study had no cases belonging to class I. A decrease in the number of suicides is seen

with females from lower socio-economic statuses (classes I to III). Similar findings were seen in study by Kulshresta in Delhi.<sup>(9)</sup>

### Method of suicide

Out of the 93 cases, 71 cases (76.3%) were of hanging, 9 cases of poisoning, 5 cases were of railway injuries. Drowning cases and burns cases (3.2% each). Suffocation and other methods comprised 1 case each. 'Other' includes a case of complex suicide involving poisoning and hanging, resulting in delayed death.

Similar findings were seen in the study done by Mandar Ramchandra Sane, Ananda K in South Bangalore, in which the commonest method of suicide was hanging (71.8%) and poisoning (11.8%).<sup>(11)</sup>

This contrasts the study done by Manoj Bhausaheb Parchake & R. V. Kachare, where burns (61.9%) and poisoning (17.09%) were common, the reason cited- "Maximum number of females in this study are young, married and housewife. Most of the time they were in kitchen and more in contact with fire and cooking materials being easily available in house are usually preferred by Indian women to commit suicide."<sup>7</sup> This variance is likely due to the fact that there is an exclusive government burns centre in the city. Also, the increase in liquified-petroleum-gas cylinders by government schemes, the reduction in open fire cooking and kerosene stoves, and increased safety standards in most buildings.

### Reasons for suicide

The most common reason was monetary with 17 cases (18.27%). The second most common was mental illness accounting for 15 cases (16.12%). As our centre is located in a rapidly developing urban area that is composed majorly by students and young women, it is hence within reason to assume that that is why monetary problems and mental illnesses (depression mainly), academic failure, and relationship related issues are the leading motivations for suicide.

In the study population it was observed that in the age group of 11-20 years, the most common reasons for suicide was seen to be academic failure (39.28%) and monetary (10.71%).

In the age group of 21-30 years, the most common reasons for suicide happened to be

marriage/relationship related including reasons such as dowry, harassment by in-laws, love failure, inability to marry, pressure to marry, inability to conceive, and extramarital affairs. This is similar to Sahu & Mohanty where marital disharmony (55.5%) constituted the chief cause of suicide in this age group.<sup>(12)</sup> Monetary issues and mental illness seem to be a factor in almost all age groups. This could be due to the rapid urbanisation and expensive cost of living in the city, reduced downtimes, and even lack of mental health awareness. Loneliness seems to be a common motivating factor for women above the age of 40 years. This concurs with the study done by Mohindra KS & Haddad S.<sup>(13)</sup>

**Time of incident** It was noted that in the 71 cases of hanging, the most common time periods were 12AM-6AM & 6PM-12AM with 21 cases (29.5%) each. Poisoning was more common during 6AM-12PM & 6PM-12AM with 3 cases each (33.33%). Railway cases were noted to be most common during the time period of 6AM-12PM with 4 cases (80%). This is similar to the findings of the study done by Sachil Kumar & Anoop Kumar Verma. Wherein it was noted that out of the 456 cases studied, most of the incidents took place at the night time with 163 cases (35.75%), evening 149 cases (32.67%), and morning 85 cases (18.64%).<sup>(9)</sup> This could be because most people attempting suicide would like to do so in a situation where they can be alone and not be disturbed, or even may occur as a result of the loneliness during these time periods. As most of these cases occurred in nuclear families, and at home; it is likely that the times when other members are asleep or occupied would be considered.

### Conclusion

A total of 93 cases of female suicidal deaths were autopsied in the study period, in which the two most common age groups observed were 21-30 years (30%) & 11-20 years (21%). Females in the study were most commonly educated up to high school in 30 cases (32.2%) with majority of cases falling within class IV with 36 cases (38.7%) and class V with 30 cases (32.2%). (Modified Kuppaswamy's classification) It was also observed that married women constituted 39 cases (41.9%), and single/unmarried females comprised 37 cases (39.7%).

Of the 93 cases of suicidal deaths, 71 cases (76.3%) were of Hanging, the most common time period was observed to be 6AM-12PM and 6PM-12AM with 29 cases (31.18%) each. The most common motives for suicide being monetary reasons with 17 cases (18.27%) and mental illnesses accounting for 15 cases (16.12%).

The limitations of the study mainly include the history furnished by the police or family being inadequate or inaccurate or concealed due to various obligations, this produces a difficulty in accessing the history and the motivations behind the death.

Suicide or attempted suicide is one of the major indicators of mental health of a population. Which may be caused by a multitude of factors such as unemployment, dowry disputes, failed ideals of love, illegitimate pregnancy, extra-marital affairs, monetary need or debts, and loneliness. Women's self-expression and life-choices have been curtailed by a lack of financial and societal freedom. The increasing suicide rates creates a challenging obstacle for public health personnel and medical health professionals alike in setting out to assess the complex relationships between gender and suicidal behaviour to facilitate women-specific suicide prevention strategies. This study is a step toward a larger multi-centre study where a deeper analysis including the precipitating factors of suicide can be analysed and necessary sociological interventions can be made to prevent the same.

**Conflict of Interest:** NIL

**Funding:** No funding was associated with this study.

**Ethical clearance:** SS-1/EC/020/2017 (Institutional Research Ethics committee, MS Ramaiah Medical College, Bangalore)

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