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IP International Journal of Forensic Medicine and Toxicological Sciences

Journal homepage: <http://www.ijfmts.com/>

## Original Research Article

## Suicidal deaths: A three years autopsy based study

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## ARTICLE INFO

## Article history:

Received 12-03-2021

Accepted 25-03-2021

Available online 28-04-2021

## Keywords:

Suicidal deaths

Family problems

Black mailing

## ABSTRACT

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. The study was carried out in Dept. of Forensic Medicine Toxicology of Government medical college, Kota over a period of three years between Jan. 2015 to Dec. 2017. There were 1033 suicidal deaths out of 3217 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.

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## 1. 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.<sup>1-3</sup> 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)<sup>4</sup> than is estimated by WHO. 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.<sup>5</sup> The age-specific and sex-specific death totals, rates, and risks, as well as the mode of suicide in India's diverse socio-demographic populations, are not well understood. Reliable quantification of the suicide deaths is timely because the Government of India's 12<sup>th</sup> year Plan for 2012–17 includes strategies to tackle chronic disease and mental health.<sup>6</sup> 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.<sup>7-9</sup>

## 2. Objective

The objective of this study is to analyze the socio-demographic profile of victims who committed suicide.

## 3. Materials and Methods

This study was carried out at a tertiary care center in GMC, Kota. It is a prospective study. The data required for the study were collected and analyzed from all the cases autopsied at a tertiary care center from 2015 to 2017.

## 4. Observation &amp; Results

During the study period from January 1, 2015, to December 31, 2017, a total of 3217 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.

During 2015 total autopsies was conducted were 1075 out of which 347 were suicidal death, in which death due to

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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)

## 5. 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.<sup>10</sup> 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.<sup>11</sup> Suicidal attempts were higher in females but the rate of complete suicide was comparatively higher in males.<sup>12</sup> Conversely, suicide was more common among males but suicidal behavior was more common among females.<sup>13</sup> 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.<sup>14</sup> 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.<sup>10</sup> Nunez-Samudio V et al. found 20- 29 years as the most affected age group.<sup>11</sup> 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.<sup>15</sup> 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.<sup>16</sup> 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.<sup>17</sup> India is ranked 19<sup>th</sup> among the world in the context of suicides.<sup>18</sup> 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.<sup>18</sup>

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.<sup>17</sup> A strong association was observed between suicide, comorbid physical or psychiatric ailments and substance abuse, especially alcohol.<sup>18</sup> Suicides are mostly related to psychiatric problems like depression, as demonstrated in another study.<sup>10</sup> Among the low socio-economic states of the country, mental illness, alcohol abuse and interpersonal difficulties were the major problems.<sup>15</sup> 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.<sup>17</sup> 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.<sup>15</sup> Hanging requires any household material which can be used as a ligature, mostly committed when alone.

## 6. 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

**Table 1:**

Years	Total autopsy	Total suicidal deaths	Poisoning	Burn	Hanging	Drowning
2015	1075	347	165	47	98	37
2016	1172	366	183	56	106	21
2017	970	320	160	50	94	16
Total	3217	1033	508	153	298	74

**Table 2:**

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

**Table 3:**

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

**Table 4:**

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:**

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

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.

## 7. Conflicts of Interest

All contributing authors declare no conflicts of interest.

## 8. Source of Funding

None.

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**Cite this article:** Sharma D, Meena SK, Verma LC. Suicidal deaths: A three years autopsy based study. *IP Int J Forensic Med Toxicol Sci* 2021;6(1):13-16.