

## A demographical study of cases of hanging with respect to age, sex and occupational status of the victims in a rural region of central India

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### Abstract

Hanging is a simple and an effective method to commit suicide in society. Hanging is the second or third most popular method of suicide. Hanging has been employed as the method of suicide since time immemorial. The present study is a cross sectional study conducted on the dead bodies of either sex brought for medico legal autopsy with the history of death due to hanging in the Department of Forensic Medicine and Toxicology at a medical college in Central India from 1<sup>st</sup> August 2011 to 31<sup>st</sup> July 2017. The total numbers of hanging cases during the study period are 101. It was analyzed that hanging is more common in males (78.21%) than females (21.78%) with a male: female ratio of 3.59:1. According to occupational status, the most commonly involved victims were farmers (30.69%) followed by students (21.78%).

**Keywords:** Asphyxia, Hanging, Occupation, Farmer's suicide, Unemployment.

### Introduction

An increasing death rate a result of violence constitutes a large group of medico legal autopsies. Specially, death due to asphyxia is one of the most important causes of violent deaths amongst which hanging is commonly seen in day to day practice. The violent asphyxial deaths could be of the following types depending upon the respiratory block.<sup>1</sup>

1. Compression/ Constriction of the neck e.g. hanging and strangulation.
2. Blocking external orifices of respiration e.g. smothering, suffocation, gagging.
3. Impaction of foreign bodies in respiratory tract e.g. choking.
4. Compression/ mechanical fixation of the chest and abdomen preventing respiratory movements. e.g. traumatic asphyxia.
5. Submersion of mouth and nostrils under fluid/ inhalation of fluid into respiratory tract e.g. drowning,

Among these asphyxial deaths, in hanging and ligature strangulation ligature mark is commonly found.

Hanging is a form of mechanical asphyxia where the body is suspended by means of ligature around the neck, the weight of the body acting as the constricting force.<sup>2</sup> Hanging is simple but yet effective method of suicide in society. The history of hanging can be traced back to 5<sup>th</sup> century when it was adopted as a method of execution in Anglo Saxon Britain. Mr. William Fitz Osbert became the first person in Great Britain to be hanged for the charges of treason. It is one of the most commonly used suicide methods and has a high mortality rate. At times the semiconscious person may be killed by other means and suspended by ligature around neck to mimic hanging. In such cases where the person is found to be hanging, the question arises whether it is a suicide or homicide? The post mortem

examination and crime scene visit is crucial in answering the above questions. A 2008 review of 56 countries based on World Health Organization mortality data reveals that hanging was most common method of suicide in most of the countries, accounting for 53 % of male suicides and 39 % female suicides.<sup>3</sup> In England and Wales, hanging is the most commonly used suicide method prevalent in group of males of age group 15-44 years, comprising of half of suicides in that group. The highest proportions were around 90% in men and 80% in women, as observed in Eastern Europe (i.e. Estonia, Latvia, Lithuania, Poland and Romania). It is the second most common method among women, behind poisoning.<sup>4</sup> In India, hanging is the most common method of suicide in cities and towns as it is considered as a painless form of committing self-destruction. In India hanging is being referred as a capital punishment and is being given in the rarest of rare cases. Mr. Nathuram Ghodse was the first person to have been executed by hanging in independent India by the state authorities. According to national crimes record bureau, the national scenario of total number of suicidal deaths in India for the year 2013 is 1, 34,799 (11.0%) and 2014 is 1, 31,666 (10.6%). In Maharashtra alone the highest number of 16,307 (12.4%) suicides took place during the year 2014. Out of this the most common method of suicide adopted was Hanging in 55,050 (41.8%) of cases.<sup>5</sup> Sometimes hanging is adopted as a final method of self-destruction after other methods like consuming poison, cut throat injury etc. fail to produce the desired effect. In the international statistical classification of diseases and related health problems, suicides by hanging are classified under the code X70: "Intentional self-harm by hanging, strangulation and suffocation".<sup>6</sup>

### Aims and Objectives

1. To study the profile of cases of hanging with respect to the age, sex and the occupational status of the victims.
2. To suggest the preventive measures that can be undertaken to avoid suicidal death by hanging in above cases by targeted approach.

### Materials and Methods

It is a cross sectional study conducted on the dead bodies of either sex brought for medico legal autopsy with the history of death due to hanging in the department of Forensic Medicine and Toxicology at a medical college in Central India from 1<sup>st</sup> August 2011 to 31<sup>st</sup> July 2017. The study is both prospective and retrospective one with a total of 101 cases with history of hanging is included in the study. All the information gathered from the deceased relatives, from the police inquest, crime scene reports and photographs taken from the police and postmortem reports of the department were studied.

### Inclusion Criteria:

Autopsy on all medicolegal cases of asphyxial deaths due to hanging conducted at Mortuary, situated in central India are included in the current study.

### Exclusion Criteria:

1. All violent asphyxial deaths other than hanging.
2. Birth asphyxia.
3. Sudden natural deaths.
4. Presence of advanced decomposition state.

### Statistical Analysis:

1. The software for graphs and calculation of statistical values is – SPSS.
2. The software used during creation or modification of some of the diagrams.
  - a) Adobe Photoshop(R) 7.0
  - b) Corel Draw X3
  - c) Windows -10.

### Observations and Results

The present study is a cross sectional study (both prospective and retrospective) carried out on 101 cases of hanging for a total period of 6 years. All the cases of hanging brought to mortuary and autopsied are being studied. Out of the total medicolegal cases that had been autopsied during the above tenure, the cases of hanging were meticulously selected considering the objectives of the study, inclusion and the exclusion criteria's.

**Table 1: Age and sex wise distribution of cases of Hanging**

Age group (in years)	Male	Female	Total	Percentage	
				Male	Female
1 - 10	2	0	2	01.98%	00.00%
11 - 20	6	7	13	05.94%	06.93%
21 - 30	19	9	28	18.81%	08.91%
31 - 40	14	4	18	13.86%	03.96%
41 - 50	15	1	16	14.85%	00.99%
51 - 60	10	0	10	09.90%	00.00%
61 - 70	7	1	8	06.93%	00.99%
71 - Above	6	0	6	05.94%	00.00%
Total	79	22	101	78.21%	21.78%

### Profile of Age and sex wise distribution of cases of Hanging:

Out of the 101 cases, 79 (78.21%) were males and 22 (21.78%) were females indicating that a large majority of victims were male. Male to female ratio is 3.59:1. Maximum numbers of victims 28 cases (27.72%) were in the age group of 21 – 30 years, followed by 31 – 40 years of age group 18 cases (17.82%). Minimum numbers of victims were found in age group of 1-10 years 2 cases (01.98%) followed by 71 and above years, 6 cases (05.94%). Youngest victim was 1 year old male child and the eldest victim was the 80 years old male. The maximum numbers of 46 (45.54%) cases were in the age group of 21- 40 years.

**Table 2: Occupational Status of victims of cases of Hanging**

Occupation	No. of cases	Percentage
Farmer	31	30.69
Student	22	21.78
House wife	13	12.87
Employed	4	03.96
Self Employed	18	17.82
Labourer (daily wage)	8	7.92
Unknown	4	3.96
Not Applicable	1	0.99

Out of 101 cases, about 31 (30.69%) cases are farmers, 22 (21.78%) cases are student, 13 (12.87%) cases are housewife, 4 (3.96%) cases are employed, 18

(17.82%) cases are self-employed, 8 (7.92%) cases are labourer, in 4 (3.96%) cases occupation is unknown and in 1 (0.99%) case, the occupation is not applicable. The above data illustrates that hanging is more common in farmers, students and self-employed people in receding order.

## Discussion

**1: Age and Sex Wise Distribution of Cases of Hanging:** Out of the 101 cases of hanging, 78.21% cases were males and 21.78% cases were females, indicating that a large majority of the victims are male. Male to female ratio is 3.59:1. The maximum number of cases (27.72%) was in the age group of 21–30 years, followed by 31 – 40 years age group (17.82%) and 41–50 years age group (15.84%). Thus the majority of the cases (45.54%) were in the age group of 21–40 years and the least number (1.98%) were in 1–10 years age group. The youngest victim was the 1 year old child who got accidentally hanged in a nylon rope “Jhulla” as he was mishandled by the small child while playing with him in “Jhulla” and the eldest victim was the 80 years old male. The above fact stresses the need to change the age old practices of putting small child in a rope “Jhulla” as there are possibilities of accidental hanging.

The findings of our study are comparable with the studies done by Pal SK et al,<sup>7</sup> Singh Pradip Kumar K H et al,<sup>8</sup> Samanta Ashok Kumar et al,<sup>9</sup> Bhausaheb A Najan et al,<sup>10</sup> Sharifa Jayaprakash et al,<sup>11</sup> Udhayabanu R et al<sup>12</sup> and Bhosle S H et al<sup>13</sup> from different regions of India and abroad and the reason might be due to our society being a male dominated society, there is active participation of male population in various social and day to day activities. They are subjected to more stress and strains from every corner and they are desirous to fulfill family various financial problems.

Our study is in contrast to the study conducted by Rao Dinesh<sup>14</sup> at SIMS, Medical College, Bangalore where the author concluded that there is equal preponderance of female and male population in hanging and the prospective study carried out by Ahmed M et al<sup>15</sup> Dhaka Medical College, Dhaka, Bangladesh where the author concluded that female were predominantly seen (72.29%) in hanging cases. The reason might be due to the study being carried out in a metropolitan city where the women are actively involved socially and there is always equal exposure of women to various life stresses and strains as the male counter parts. Ours study was limited to a rural area and some urban area in the vicinity of a tertiary hospital where the women is not actively represented in the various social and day to day activities due to which they prefer to remain indoor and work for her family.

**2: Occupational Status of Victims of Cases of Hanging:** Out of the 101 cases, 30.69% are farmers, 21.78% are student, 12.87% are housewife, 3.96% are employed, 17.82% are self-employed, 7.92% are

labourer, in 3.96% cases, the occupation is unknown and in 0.99% cases, the occupational status is not applicable. The above values indicate that hanging is more common in farmers, students and self-employed people.

The findings are consistent with the study of author Bhosle S H et al<sup>13</sup> from Vidharbha; the reason might be the fact that the area under study is a notified area worldwide as a Farmer suicide area due to crop failure and debts from money lenders. The study is in contrast to the findings done by author Singh Pradip Kumar K H et al<sup>8</sup> at RIMS, Imphal where he had concluded that the hanging cases are predominant in house wives (34.29%), whereas in our study it is only 3.96%. The reason might be the fact that in Imphal, the female: male ratio (sex ratio) is more and there is active participation of females in various community and day to day activities.

Also the study is in contrast to the findings done by Samanta Ashok Kumar et al<sup>9</sup> at Bhubaneswar and Udhayabanu R et al<sup>12</sup> Pondicherry where the author had concluded that most of the victims 30.48% and 41.93% are daily wage laborers respectively. This is in contrast to our study where we found the percentage of labourers to be 7.92%. The reason might be the fact that Bhubaneswar and Pondicherry being a city area, large amount of migratory population from the nearby villages migrates there for employment and mainly work as daily wage laborer's in the city area. The increasing number of unemployment, monetary matters, financial restrains and life stresses make them prone to commit suicide by hanging which is a cheap, effective and painless method of suicide.

## Conclusion

From the above observations it can be concluded that

1. Hanging is more common in males (78.21%) than females (21.78%) with a male: female ratio of 3.59:1. The age group 21–40 years comprises of the majority of hanging cases.
2. According to occupational status most commonly involved victims were farmers (30.69%) followed by students (21.78%).
3. There is need for starting some welfare schemes in the form of financial assistance as well as psychological counseling on the part of the government for such targeted population because of the fact that farmer's suicide is very common in the area under study. Moreover the schemes will help them to tackle debt burdens as well as the psychological trauma due to repeated crop failure.

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**Ethical Clearance-** Taken from: Ethics committee, Mahatma Gandhi Institute of Medical Sciences, Sevagram, Wardha, Maharashtra, India.

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