

# A Study on Socio-Demographic Profile on Suicidal Hanging Cases Brought for Autopsy to GMCH Mortuary: A Cross Sectional Prospective Study

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## Abstract

Deaths by ligation around the neck are in practice from the time immemorial and before advent of civilization. Hanging is that form of asphyxia, which is caused by suspension of the body by a ligature which encircles the neck, the constricting force being the weight of the body or a part of the body weight. Due to population explosion, poverty and increasing stress and strain in our daily life, we frequently come across cases of suicides, homicides and accidents. The present study aims towards analyzing socio-demographic pattern, causes & precipitating factors for committing suicide by hanging in this region. Due to population explosion, poverty and increasing stress and strain in our daily life, we frequently come across cases of suicides, homicides and accidents<sup>22</sup>. 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. Hanging is the most common method of committing suicide as it is believed to offer a rapid and relatively painless death, and there is no cost involvement other than that of the ligature material<sup>2</sup>. According to NCRB reports the incidence of suicides by hanging increasing every year by India, 31.5% in 2010, 32.2% in 2011, 37.0% in 2012<sup>2</sup>. The present study aims towards analyzing socio-demographic pattern, causes precipitating factors for committing suicide by hanging in this region.

**Keywords:** Hanging, asphyxia, suicide, socio demographic profile, autopsy

## Introduction

Deaths by ligation around the neck have been occurring from time immemorial and before advent of civilization. The application of ligature for taking the life of another person was one of the common practices in uncivilized societies which were carried out into civilized societies<sup>10</sup>. Hanging is a form

of violent asphyxial death, which is caused by suspension of the body by a ligature which encircles the neck, the constricting force being the weight of the body or a part of the body weight. It may be complete or partial depending on the nature of suspension of the body<sup>8</sup>. Hanging could be of two types, namely complete hanging in which the whole body is

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suspended from the ground and partial hanging where a part of the body touches the ground<sup>21</sup>. Apart from the appearances of the hanging mark, internal cervical findings such as petechiae or ecchymoses in the soft tissue, fracture of hyoid bone and/or thyroid cartilage, and bruising of neck muscles greatly contribute in making a diagnosis of hanging<sup>(1,19)</sup>. As a rule of thumb, hanging is considered as suicidal unless proved otherwise<sup>11</sup>. The term asphyxia indicates a mode of dying, rather than a cause of death<sup>15</sup>. Due to population explosion, poverty and increasing stress and strain in our daily life, we frequently come across cases of suicides, homicides and accidents<sup>22</sup>. 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. Hanging is the most common method of committing suicide as it is believed to offer a rapid and relatively painless death, and there is no cost involvement other than that of the ligature material<sup>2</sup>. According to NCRB reports the incidence of suicides by hanging increasing every year by India, 31.5% in 2010, 32.2% in 2011, 37.0% in 2012<sup>2</sup>. The present study aims towards analyzing sociodemographic pattern, causes precipitating factors for committing suicide by hanging in this region.

### Methodology

This study was conducted on hanging cases coming for medico legal autopsy to the mortuary, GMCH during the 3 months study period from 01/12/2022 to 28/02/2023. A proper history, inquests, and other reports were collected on the information of friends and relatives. Consent of the legal guardian was taken in a prepared consent form. After due documentation, individual cases were taken and studied during autopsy.

**Inclusion Criteria:** • All the cases of suicidal hanging.

**Exclusion Criteria:** • Decomposed bodies  
• Strangulation cases. It was a cross sectional prospective study of death due to hanging to evaluate the incidence and other precipitating socio demographic factors.

### Results

The total numbers of 223 hanging deaths which were brought to mortuary of Gauhati Medical College, Guwahati, Assam between 01/12/2022 to 28/02/2023 were analyzed.

In this 3 months study, a total of 920 medico legal autopsies were performed. Out of these, 223 (24.23%) hanging cases were found.

**Sex Ratio:-** In the present study out of 223 cases of hanging, 103 (46.18%) cases were male and 120 (53.81%) cases were female.

**Table 1: Sex distribution of cases**

SI No.	Sex	No. of Cases	Percentage (%)
1	Male	103	46.18%
2	Female	120	53.81%
Total		223	

**Incidence of Victims In Relation To Marital Status:** - The incidence of hangings was more common in married individuals 119 cases (53.36%) as compared to single living person with 102 cases (45.73%). Widow people comprised of 2 cases 0.89%.

**DISTRIBUTION OF HANGING VICTIMS AS PER RELIGION** In the present study it has been shown that majority of hanging victims were Muslim.

**DISTRIBUTION OF HANGING VICTIMS AS PER LOCALITY** In present study it has been seen that majority of the hanging cases were hailed from rural area with 125 (56.05%) cases in comparison to urban area with 98 (43.94%) cases. In rural area female preponderance was more with 87 (72.50%) cases than female from urban area with 33 (27.50%). Whereas male from rural area had lower incidence with 38 (36.89%) than male from urban area had incidence with 65 (63.10%) cases.

**DISTRIBUTION OF VICTIMS AS PER SOCIOECONOMIC STATUS:** In the present study, it has been found that most of the victims were from lower socioeconomic status with 135 (60.53%) cases where male accounted as 57 (55.33%) cases and female accounted as 78 (65.00%) cases.

**INCIDENCE OF EDUCATIONAL STATUS OF HANGING VICTIMS:** In the current study, it has

been noticed that most of the victims had educational qualification up to high school group with 73 (32.73%) cases followed by primary school standard with 66 (29.59%) cases.

**OF SUSPENSION:** In the present study, it has been observed that complete hanging is more with 193 (86.54%) cases in comparison to partial hanging with 30 (13.45%) cases.

**DISTRIBUTION IN RELATION TO DEGREE**

**Table 2: Degree of Suspension**

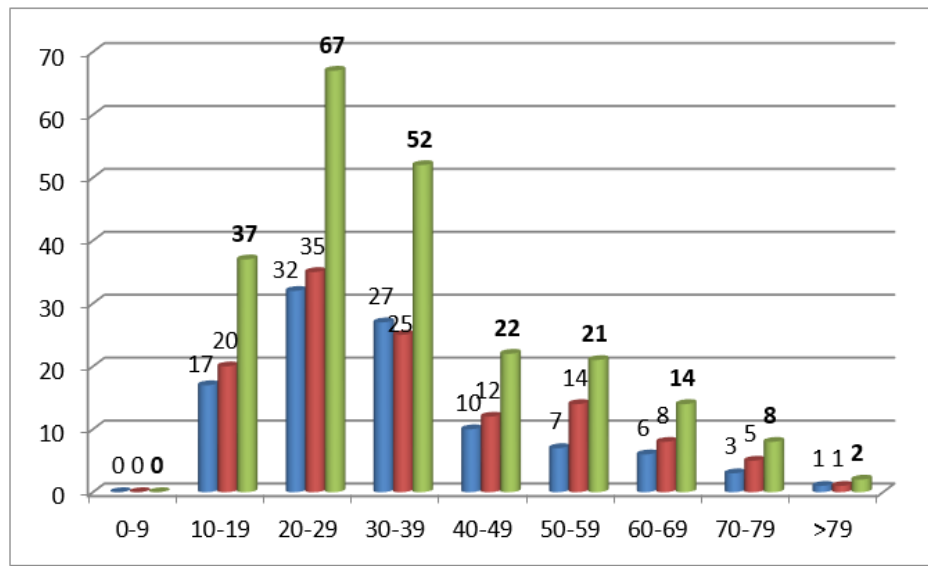
Degree of Suspension	Male Total=103	Female Total=120	No. of Cases Total=223	Percentage %
Complete	86 (83.49%)	107 (89.16%)	193	86.54%
Partial	17 (16.50%)	13 (10.83%)	30	13.45%

**DISTRIBUTION IN RELATION TO DRIBBLING OF SALIVA:** In the present study, it has been observed that in majority of the cases 188 (84.30%) showed absence of any salivary stain.

government service group were comprised of 16 (7.17%), 26 (11.65%), 40 (17.93%), 39 (17.48%), and 13 (5.82%) cases respectively.

**DISTRIBUTION OF VICTIMS AS PER OCCUPATIONAL STATUS:** In the present study most of the hanging victims belongs to unemployed group with 47 (21.07%) cases, followed by victims belonging to business group 42 (18.83%). Student, private job, daily wage earner, cultivator, and

**INCIDENCE OF VICTIMS AS PER AGE WISE DISTRIBUTION:** In the present study it has been found that majority of the hanging victims belongs to the age group (19-29) years with total number of cases 67 (27.65%), followed by the age group (29-39) years with total number of cases 52 (23.31%).



**Fig 1: Age wise distribution of hanging cases**

**Discussion**

The present study was carried out for period of 3 months duration from 01/12/2022 to 28/02/2023, a total of 920 autopsies were carried out in the mortuary of Forensic Medicine department, and out of these 223 cases were hanging. It was a cross

sectional prospective study of death due to hanging to evaluate the incidence and other precipitating socio demographic factors.

In the present study, it is observed that out of 920 autopsies carried out in the mortuary of Gauhati Medical College and Hospital, 223 cases i.e. 24.23% were hanging cases and all were suicidal in nature.

Similar results were found in a retrospective study conducted by Baruah AM & Chaliha R (2014) at the Department of Forensic Medicine, Guwahati Medical College, Guwahati over a period of one year from January 2013 to December 2013; who found all the hanging cases to be suicidal in nature<sup>3</sup>.

In the present study it has been found that majority of the hanging victims belongs to the age group (19-29) years with total number of cases 67 (27.65%). This is followed by the age group (29-39) years with total number of cases 52 (23.31%). Different outcomes were seen in a study by Sharija et al., as male dominance was noted in her study group as well as preponderance of female victims was noted in the younger groups<sup>20</sup>. Waghmare P B. et al., also mentioned that most affected age group was between 21 to 30 years<sup>24</sup>. This gives a hypothesis that younger yielding age group commonly vulnerable to suicide due to various factors such as academics, career and other related factors. Similarly in a retrospective study conducted in Department of FMT, RIMS, Ranchi prospectively from 1st March, 2013 to 30th May, 2014 by Kumar N et al (2016) found that out of 77 cases, a maximum of 9 (11.70%) cases belongs to the age group of (21-30) years followed by 8 (10.38%) cases falls under the age group (31-40) years<sup>9</sup>. This age group is most vulnerable because this period is more crucial struggling part of life where a person has to pass through great stress and strain, because he had to take all responsibilities of himself and family members too. In this period, they had to face lots of problems like job insecurity, financial insecurity, life style and also have the urge to be ahead of others in this highly competitive world. Besides the age group from (21-30) years, young people get frustration due to various reasons such as unemployment, family acceptance, poverty and love failure etc. so most of the victims were below 40 years of age.

During the study period of 3 months, in a sample of 223 cases, it was found that mostly females (53.8%) were affected as compared to males (46.1%). Similar findings with high female incidences were found in a study 'Deaths due to hanging among adolescents-A 10year retrospective study' conducted by S H Bhosle et al.(2015) who found that females(88.4%) were more affected than males(11.6%) among adolescents<sup>5</sup> and study by Begum Asma et al.(2017) 'Suicidal

Death Due To Hanging' with (61.54%) females<sup>4</sup>. The findings are different as per 5 years prospective analysis of the autopsy records made by Samanta AK et al (2012), where male preponderance was more than female<sup>17</sup>. The female preponderance in our study might be the result of increased stress and oppression from the society, which is mostly dominated by men in our country, the social status and lack of financial independence and the burden of morality precipitating such incidences.

In the present study the incidence of hangings are more common in married individuals which comprised of 119 cases 53.36%. It suggests that marital disharmony was a major factor for suicide. A study on suicidal hanging conducted by Rao D (2015) between 2010 and 2013, out of 264 hanging cases, 186 (70.45%) cases was married victims<sup>16</sup>. In this study male married victims had higher preponderance than female married, which is opposite to the present study<sup>16</sup>. A prospective study conducted by Chandegara PK et al (2014) where he observed that married persons have more incidence of hanging with total of 66% cases where female married comprised of 81.3% cases and male married person with 59.6% cases, which is similar to the present study<sup>25</sup>. From current study and comparison with previous study it has been observed that both married male and females are higher chances of suicidal hanging death in India. Due to repeated physical and mental torture, females were go beyond the threshold level of self-constrain and may commit suicide by hanging. In case of male; poverty, lack of job, family problems, defamation and alcoholism may be the main reason for suicidal hanging. The reason could be stress associated with marriage, dowry problems, dependency, interpersonal problems with spouse and his relatives etc. in relation to their socio demographical variance, family quarrel among husband and wife was also an important cause, which poses major problems among Indian married man as well as women in our society.

In the present study it has been shown that majority of hanging victims were from Muslim families, which is in contrast to Waghmare PB et al (2014) in his study on "Analysis of Asphyxia Deaths Due To Hanging" revealed that out of total 60 cases of hanging, 71.66% cases belongs to Hindu religion, 25% cases were Muslim and 3.3% cases were

Christian<sup>25</sup>. The increase number of victims might be due to higher density of Muslim population in rural parts of Assam with poor socio economic conditions and standard of living, the socio cultural scenario being peculiar to India.

In the present study, it has been found that hanging victims were more in the lower socioeconomic status with 135 (60.53%) cases. The findings are similar to the findings of Das G et al (2014)<sup>7</sup> and study conducted in Surat by Chandegara PK et al (2014)<sup>6</sup> who found most of the victims from lower socio economic status and from rural areas. The cause of the higher rates of incidence of hanging cases among rural population in this study could be due to poverty, poor educational status, social isolation, greater difficulty in detecting the warning sign, limited access to health facilities and doctors, unemployment and lack of awareness about the value of life. It also reflects that majority of people still live in villages than the cities because in India villages are more in comparison to town area. This is in accordance with the general trend of criminal profile which originates from the roots of environmental and psychological factors. In the current study, it has been noticed that most of the hanging cases belongs to high school group with 73 (32.73%) cases and least hanging victims were found in post-graduate educational status with 03 (1.34%) cases. The incidence rate of suicidal hanging was gradually decreases with the increasing level of education. The findings are similar to the findings of Samanta AK et al (2012)<sup>18</sup>.

Most of the hanging victims preferred to hang in indoor place with 157 (70.40%) cases as compared to outdoor places with 66 (29.59%) cases. Findings are similar to the findings of Patel AP et al (2012) who observed that majority 96.25% committed suicide by hanging within the closed secure places<sup>12</sup>.

Complete hanging is more with 193 (86.54%) cases in comparison to partial hanging with 30 (13.45%) cases. Findings are similar to the findings of Singh KHP et al (2013)<sup>23</sup> who found 68.57% complete hanging cases. The reason behind increase number of complete hanging cases in most of the studies probably due to belief on the 100% guaranteed and rapid death as because in complete hanging the entire body is suspended and the weight of the whole body is thrown upon the ligature.

In the present study most of the hanging victims belongs to unemployed group with 47 (21.07%) Cases, followed by victims belonging to business group 42 (18.83%). Findings are similar to the findings of Rawat V and Rodrigues EJ (2015)<sup>14</sup> who found majority of the victims were unemployed. The reason behind the occurrence of high incidence of suicidal hanging or any other suicidal deaths among daily wage earner and unemployed persons is probably due to financial distress, lack of social/financial support, difficulty to run family in daily competitive life.

In the present study, it has been observed that in most of the cases 196 (87.89%), the tongue is not protruded whereas it is protruded in only 27(12.10%) cases. Findings are like the findings of study by Rama Krishna et al.<sup>13</sup>, 'who noted that the tongue was found to be protruded at its tip and bitten or placed in between anterior/incisor teeth in 293 (40.92%). In the present study, it has been observed that in most cases, 188 (84.30%) showed absence of dribbling of saliva. Findings are similar to the findings of Rama Krishna et al.<sup>13</sup>

## Conclusion

A multisite intervention study on suicidal behaviors by the WHO had revealed that it is possible to reduce suicidal death by brief and lowcost intervention in developing countries. It is important to study the socioeconomic conditions and cultural factors involved in hanging cases in order to identify the vulnerable people who are likely to commit suicide in a target population. And as such this study will help us to understand the factors that may be the cause for hanging deaths and the outcome of these incidences.

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**Conflict of Interest:** None.

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