

## Original Article

# One-Year Case Study of Autopsy of Hanging in a Tertiary Teaching Hospital at Dhaka City of Bangladesh

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## Abstract

**Background:** Suicidal hanging is not only a problem of any specific country, state or region but also a global problem irrespective of age, sex, race, religion and nationality and so on. **Objective:** The objective of the study was to find out the sociolect-demographic profiles of suicidal hanging within a leading urban area in Bangladesh along with the autopsy findings. **Methodology:** This was a cross-sectional type of study. It was conducted in the Department of Forensic Medicine at Dhaka Medical College, Dhaka, Bangladesh from January 2022 to December 2022 maintaining legal and ethical issues. Total 120 autopsies were done in order to ascertain deaths for suicidal hanging. Ligature material used by the victim was noted from the available forensic reports. The accompanying police papers provide much of the information regarding age, sex, residence, marital status, date of date, reasons and manner of death, and all other relevant information about the case. **Results:** The study findings revealed that female victims (53.3%) were slightly predominant than the males (47.7%). Young ages up to 33 years (66.7%) were the majority of the victims. Muslim population (85.83%) died due to suicidal hanging. Definite reasons for suicides by hanging could not be find out in 6.67% cases. But family disharmony (21.67%) was one of the leading cause of deaths. Parchmentization in subcutaneous tissue (93.33%), Dribbling of saliva (13.33%) and tongue bite (8.33%) were found externally indicating antemortem suicidal hanging. **Conclusion:** In conclusion hanging death is the most common methods of suicides in both urban and rural area in Bangladesh and most of them are younger Muslim female.

**Key Words:** Autopsy; hanging; suicide

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## Introduction:

Hanging is one of the ten leading causes of death in the world with more than million deaths annually.<sup>1</sup> Hanging is also termed as self-suspension. It is therefore defined as a form of violent asphyxia as a result of suspension of the body by a ligature round the neck, the constricting force being the weight of the body. The constricting force is

either weight of the whole body or the weight of the head alone. Hanging may be complete or partial depending on the position of the body at the time of hanging.<sup>2</sup> In a hanging, from high point of suspension when the body completely suspends above without touching the ground is called complete hanging and while hanging from low point of

suspension sometime some part of the body touches the ground is called incomplete or partial hanging. It may lead to death by any one or varying combination of the injuries to the spinal cord (Judicial hanging) vagal inhibition and mechanical constriction of the structures of the neck and it is ordinarily presumed to be suicidal unless the circumstantial and the other evidence are strong enough to rebut the presumption.<sup>3</sup>

Study shows that in Asia common suicide methods shift with the introduction of technologies and constructions. The biological, psychological, sociocultural economic, and environmental factors are responsible for the causation of hangings all over the world. These factors contribute to the opportunities and limitations of choice of ligature material to be used by the person for committing suicide.<sup>4</sup> Rapid urbanization, industrialization and emerging nuclear family systems are resulting in social upheaval and distress. In the modern era, internet usage is growing exponentially which is not only shaping our lives but altering our brain also. The applications of Wikipedia, blog, or social networking are being used extensively and the web postings have become the interactive and self-initiated medium to acquire information about changing suicide trends in relation to methods used.

In Bangladesh shari, orna, dopatta, lungi, nylon rope, belt, muffler, ropes are commonly available at home which can be used to hang themselves at any place and any time and table, stool, chair and cot are commonly used to reach the site of suspension.<sup>5</sup> There are unique patterns of suicide methods in Bangladesh that markedly differ from those of the West.<sup>5</sup> This may be due to cross-cultural differences.<sup>6</sup> In Western countries, dog chain, belt, electric cable, scarf, tie, dressing gown cord, shoe lace are used as ligature materials, which are not usually used in our country.<sup>7</sup> The objective of the study was to find out the socio-demographic causes of suicidal hanging within a leading urban area in Bangladesh along with the postmortem findings in order to address the issue with an aim to stop the incidence of suicidal hanging.

## Methodology

**Study Settings and Population:** This was a cross-sectional descriptive type of study, conducted in the Department of Forensic Medicine and Toxicology at Dhaka Medical College, Dhaka, Bangladesh from January 2022 to December 2022 maintaining legal and ethical issues. Total 120 autopsies were done in order to ascertain deaths from suicidal hanging. Excluding judicial hanging execution, this study is done only upon suicidal hanging cases.

All other suicidal cases like poisoning, burning are excluded in this study.

**Study Procedure:** This study was conducted by direct observing the autopsy of Dhaka Medical College, Dhaka from January 2022 to December 2022. Data was collected from there in a tabulated form and study was done. All the demographic variables like age, gender, religion and occupation were recorded. Probable reason for suicide like failure of love affair, family disharmony, prolong illness, domestic violence, extramarital affair, depression, failure in exam, emotional conflict with parents, drug addict, financial problem, online gamble and not ascertained information were collected. Post-mortem reports were also collected to get the findings.

**Statistical Analysis:** Frequency tabulation was done by Excel method.

**Ethical Clearance:** Ethical clearance was given from Head of the Department of Forensic Medicine and Toxicology of Dhaka Medical College, Dhaka.

## Results

Total 120 suicidal cases of hanging were analyzed during one year period from January 2022 to December 2022. Comparing with the sex of the victims, data revealed that female victims (53.33%) were higher than the males (46.67%) (Table 1). Highest percentage of deaths belongs to two age groups those were 10-21 years (36.67%) and 22-33 (30%) years, a sum of 66.67%(Table 1). Of them 85.83% were Muslims followed by 9.17% Hindu (Table 1). Employed (29.17%) people were more prone to suicidal hanging (Table 1). Though reasons for suicide could not be ascertained in 6.67% but family disharmony (21.67%) were one of the leading causes of death (Table 2). During postmortem examinations, parchmentation was found in 93.3% cases. (Table 3).

Though among the victims, reasons of suicides could not be ascertained in about 6.67% cases. But family disharmony (21.67%) was the leading cause of deaths. Besides that, emotional conflict with parents (18.33%), domestic violence (15%), financial problem (10%), depression (8.33%) were also the significant causes of deaths by suicidal hanging (Table 2).

Dribbling of saliva (13.33%) and tongue bite (8.33%) were found externally indicating antemortem suicidal hanging. Parchmentation in subcutaneous tissues (93.33%) were found in majority cases. Neither hyoid bone nor thyroid cartilage were found fractured (Table 3).

**Table 1: Distribution of Hanging According to Sex, age, religion, and by profession(n=120)**

Studied variables	Frequency	Percent
<b>Gender</b>		
Male	56	46.7
Female	64	53.3
Total	120	100
<b>Age Group</b>		
10 to 21 Years	44	36.7
22 to 33 Years	36	30.0
34 to 45 Years	27	22.5
46 to 57 Years	9	7.5
58 & above	4	3.3
Total	120	100
<b>Religion</b>		
Muslim	103	85.8
Hindu	11	09.2
Christian	02	01.7
Buddhist	04	03.3
Total	120	100
<b>Profession</b>		
Student	26	21.7
House wife	28	23.3
Unemployed	31	25.8
Employed	35	29.2
Total	120	100

**Table 2: Reason for suicide (n=120)**

Probable reason for suicide	Frequency	Percent
Failure of love affair	4	3.3
Family disharmony	26	21.7
Prolong illness	2	1.7
Domestic violence	18	15.0
Extramarital affair	6	5.0
Depression	10	8.3
Failure in exam	4	3.3
Emotional conflict with parents	22	18.3
Drug addict	4	3.3
Financial problem	12	10.0
Online gamble	4	3.3
Not ascertained	8	6.7

**Table 3: Postmortem report findings**

PM findings	Frequency	Percent
Parchmentization	112	93.3
Dribbling of saliva	16	13.3
Tongue bite	10	8.3
Hyoid bone fracture	Nil	Nil
Thyroid cartilage fracture	Nil	Nil

## Discussion

Suicide is a major public health problem in Bangladesh. Age, place of residence, economic status and literacy were the major associating factors related to suicide. Adolescents, elderly and those residing in rural regions were the most vulnerable groups.<sup>7</sup> In order to quantify the burden and risk factors of fatal and nonfatal suicidal behaviors in rural Bangladesh a census was carried out in seven sub-districts encompassing 1.16 million people. Face-to-face interviews were conducted at the household level. Findings of the study for common methods for fatal and non-fatal suicidal behaviors were hanging and poisoning.<sup>8</sup> In a study conducted in European Alliance Against Depression (EAAD) countries among seven predominant suicide methods hanging ranked first among females in eight countries and only in Switzerland hanging was second for males.<sup>9</sup> In this present study, it was found that female victims (53.33%) were higher than the males (46.67%) with highest percentage of deaths belongs to two age groups those are 10-21 years (36.67%) and 22-33(30%) years, a sum of 66.67%. That means teenage and young were the dominant ages regarding suicidal hanging. Similar findings regarding sex and age were found in the study conducted in Bangladesh<sup>10</sup> and Iraq.<sup>11</sup> But findings regarding sexual variations were not similar to the study of Kingdom of Saudi Arabia<sup>12</sup> and another study done in Bangladesh.<sup>13</sup> In these studies males outnumbered females. Moreover, fourth decade and above were more prone to suicidal hanging as stated in the study of Saudi Arabia<sup>13</sup> and Bangladesh.<sup>14</sup> In our findings, 85.83% were Muslims followed by a sum of 14.17 % Hindu, Christians and Buddhist which were near similar to the studies in Bangladesh.<sup>10,14</sup> In Bangladesh, the finding of higher percentage of suicidal hanging among Muslim was due to the Muslim majority. Our study showed that employed (29.17%) people were more prone to suicidal hanging followed by unemployed (25.83%). A good percentage of students (21.67%) were also the victims of suicidal hanging. These three comprises of total 76.67% and rest of 23.33% were only housewives. In a study revealed that housewives (35%) and other professions (65%) were the victims of suicidal hanging, though the other professions were not mentioned separately in this study in Bangladesh<sup>11</sup>.

Reasons for suicide could not be ascertained in 6.67% but family disharmony (21.67%) were second leading cause of death found in our study. On the other hand, study marked domestic/family related issues comprising 31.06%, 44% and 38.9% respectively.<sup>15,11,14</sup>

Study also revealed that, 18.56% and 8% were due to

relationship crisis.<sup>15,11</sup> In our study we found that 3.33% deaths were due to failure of love affairs. While the link between suicide and mental disorders (in particular, depression and alcohol use disorders) is well established, many suicides happen impulsively in moments of crisis. Further risk factors include experience of loss, loneliness, discrimination, a relationship break-up, financial problems, chronic pain and illness, violence, abuse, and conflict or other humanitarian emergencies. The strongest risk factor for suicide is a previous suicide attempt.<sup>16</sup> In this present study during postmortem examinations we found dribbling of saliva (13.33%) followed by tongue bite (8.33%). Dribbling of saliva 29.49% and 39.6% were found in the studies in Bangladesh<sup>10</sup> and in Nepal<sup>17</sup> respectively. In this study parchmentation was found in 93.3% cases which was 87.5% in this study of Bangladesh.<sup>10</sup> The study in Nepal showed 35.4% face congestion and cyanosis with hyoid bone and thyroid cartilage fractured in 15.2% and 2.0% respectively.<sup>17</sup> A study in Bangladesh found 5.0% hyoid bone fractured.<sup>18</sup> In this study we did not find any fracture both in hyoid and thyroid cartilage. May be fracture in hyoid and thyroid cartilage were not found in our study due to lack of good number of cases along with old age victims.

The study was conducted in the Dhaka Medical College morgue which is located in the capital city of Bangladesh. As a result, it may not give a similar socio-demographic findings of suicidal hanging in rural area of Bangladesh. Moreover, sample size in this study, though collected within the period of one year was relatively smaller in numbers.

## Conclusion

Our study along with other studies of suicidal hanging showed that causes of suicidal hanging and along other findings may differ due to socio-cultural and demographic variations. We have been outlined these fact and findings in our study comparing with local, regional and international levels. Moreover, autopsy findings may also differ depending upon various factors related with the suicidal hanging. Our findings may be considered as the tip of the iceberg of a pathetic social problem existing in our society. To reduce the mortality rate of suicidal hanging strategy should be taken and implemented by huge community participation.

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**Contributions to authors:** Ferdous J, Tasnim Z involved in protocol preparation, Data collection; statistical analysis Aziz M, Sumon MSR have involved in manuscript writing and revision of the manuscript.

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**Conflict of Interest:** All the authors declared no competing interest.

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