

## Original Article

# A Retrospective Observational Study of Socio-Demographic Causes of Death Due to Hanging in Sir Salimullah Medical College Hospital, Dhaka, Bangladesh

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### Abstract

**Background:** Hanging is the most common violent asphyxial death in Bangladesh. It is a form of asphyxia by a ligature material around the neck. When the body is suspended by ligature, the body weight constricts force, and the noose moves against gravity.

**Objective:** To evaluate the profile and socio-demographic characteristics in the cause of death due to hanging.

**Materials and Method:** The Department of Forensic Medicine & Toxicology at the Sir Salimullah Medical College in Bangladesh carried out a two-year retrospective investigation of hanging deaths from January 2023 to December 2024. Police inquest findings and post-mortem reports were examined. The current study's objective was to examine the different hanging death profiles and contrast the results with previously published research.

**Result:** Most participants were aged 21-30, and 86 (51.5%) were female. Orna was the top choice 104 (62.3%) for ligatures, then rope 44 (26.3%) and gamcha 13 (7.8%). Neck injuries are observed in most cases; 158 (94.6%) cases had a solitary ligature mark, while 2 (1.2%) had a double mark, and 7 (4.2%) had a barely visible one.

**Conclusion:** Suicide through hanging remains one of the critical health problems that cause death; factors that contribute to suicide include poverty, family conflict, mental illness, and unemployment. The government and non-governmental organizations should work to address this issue by focusing on stress management and providing appropriate mental health education.

**Keywords:** Hanging, Suicide, Autopsy

### Introduction

Asphyxia is a condition where the organs and tissues are deprived of oxygen because of interference with breathing or a lack of oxygen in the air that is being breathed. In this sense, hanging is common since any

object that can support body weight while suspended can be used as a ligature, such as sturdy nylon ropes or shoelaces<sup>1</sup>. Hanging is one of the leading causes of unnatural death and a popular suicide technique worldwide is hanging. Since death happens quickly—within minutes of the act—there is no turning back once it has been attempted<sup>2</sup>. The weight or a portion of the body weight acts as a constricting force when the body is suspended with a ligature around the neck, resulting in hanging, a violent asphyxial death<sup>3</sup>. The head's weight is sufficient to exert a constriction. In 15 seconds, a thin rope around the neck will render a person unconscious<sup>4</sup>. A condition when a person's entire body is suspended from above without touching the ground is referred to as "complete hanging". Partial hanging, on the other hand, only suspends a portion of the body. The position of the knot is crucial because uneven pressure on the different

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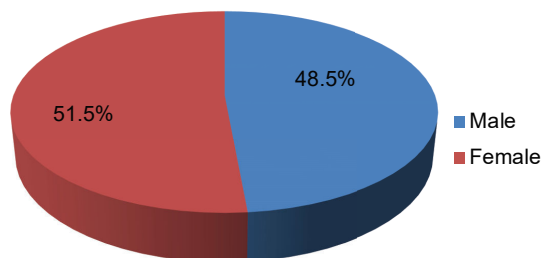
parts of the neck can result in a wide range of injuries. Because the earth is not supporting the body's weight when hanging completely, there is a far higher chance of damage than when hanging partially<sup>5</sup>. In this study, we have to assess the sociodemographic traits and profile in the event of a hanging death.

### Materials and Methods

The 167 hanging cases that were autopsied in the mortuary of Sir Salimullah Medical College Hospital in Dhaka were included in this retrospective analysis, which was carried out between January 2023 and December 2024. The information is gathered from post-mortem and inquest reports. The resulting data was evaluated, and the study was conducted in terms of the distribution of age and sex, the cause of death, post-mortem results, and ligature findings. The police inquest report included information regarding the crime scene. Microsoft Excel was used for analysis once the gathered data was collated on a master chart.

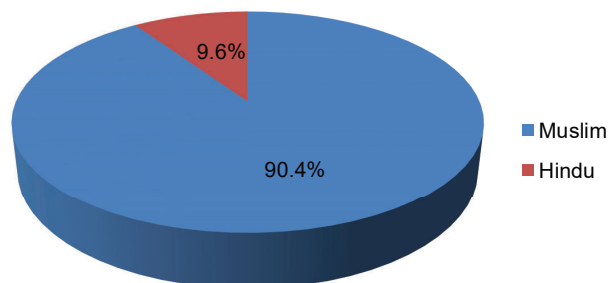
### Results

Distribution of hanging cases according to age and sex, out of 167 cases of hanging, 81 (48.5%) were male, and 86 (51.5%) cases were female, thus indicating that the majority of victims were female. These data are given below in Figure 1.



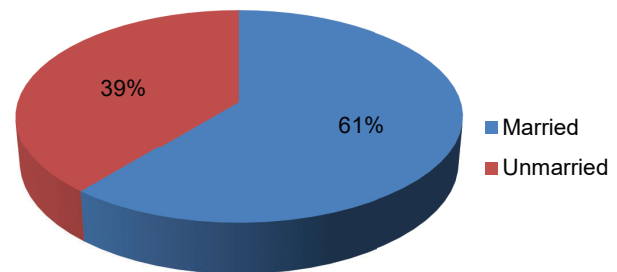
**Figure 1:** Distribution of participants stratified by sex.

In our observation, we found the majority of people were Muslim 151 (90.4%) whereas 16 (9.6%) were Hindu. No evidence was found in Buddhist and Christian. These are shown in figure 2.



**Figure 2:** Religion

According to the data presented in Figure 3, 61% was married and 39% was unmarried which is presented below.



**Figure 3:** Marital Status

Table 1 shows the ligature mark pattern. It showed that hanging occurs most often by encircling in a single loop 158 (94.6%), and in 7 cases (4.2%) cases, the loop mark tends to be very faint. These observations shown below.

**Table 1:** Differences in the marks made by ligatures on the neck

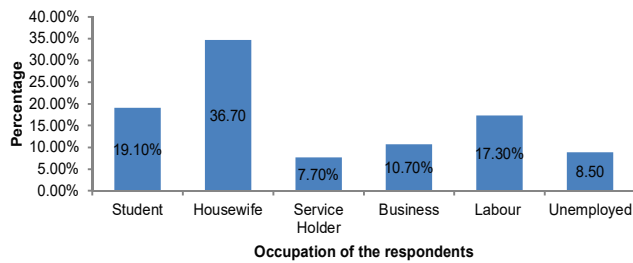
Variables	Observation (n=167)
Single	158 (94.6%)
Double	2 (1.2%)
Very Faint	7 (4.2%)

According to the data presented in Table 2, A significant proportion of patients fell within the 21-30 age range, with 45% falling within this category.

**Table 2:** Age distribution

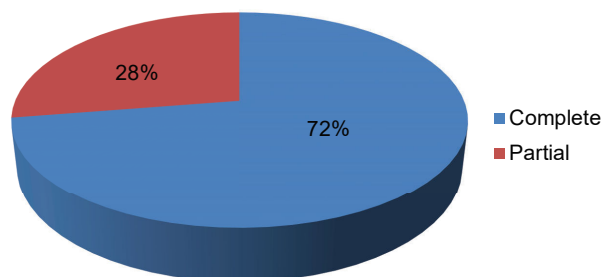
Variables	Age Group (n=167)
10-20	53 (31.7%)
21-30	75 (45%)
31-40	16 (9.6%)
41-50	14 (8.4%)
51-60	5 (3%)
61-70	3 (1.8%)
71-80	1 (0.60%)

In this study, maximum cases were observed among the housewives (36.70%). Minimum cases were found among the service holders (7.70%). These data were mentioned in Figure 4.



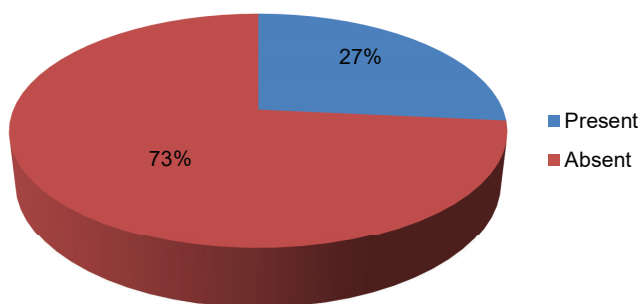
**Figure 4:** Occupation-wise Distribution

During observation of a variety of hangings, we found complete hanging was 72% of cases and partial hanging cases was 28%, which are mentioned in Figure 5 and given below.



**Figure 5:** Type of hanging

Saliva stain mark are one of the most critical presentations for hanging cases. However, this stain mark was present in only 27% of the cases. In most cases, 73% presented no saliva stain mark. All of these are shown in Figure 6.



**Figure 5:** Saliva stain marks

According to Table 4, the most commonly used ligature material for hanging among the patients was orna accounting for 62.3% of cases, followed by rope at 26.3% and gamcha at 7.80%.

**Table 4:** Ligature Material during the incidence

Material	Number (N=167)
Orna	104 (62.3%)
Rope	44 (26.3%)
Gamcha	13 (7.80%)
Sharee	5 (3%)
Wire	1 (0.60%)

The prevalence of hanging cases reported in a tertiary hospital varied across Dhaka South police stations. South Keraniganj had the highest prevalence, accounting for 38 (22.7%) cases, followed by Keraniganj Model with 35 (20.9%) cases and Demra with 22 (13.1%) cases. Bongshal (6.5%), Nawabganj (3.1%), Kamrangirchor (3.5%), and Kotwali (4.1%) reported moderate cases. In contrast, areas like Kadamtoli (2.9%), Sutrapur (2.3%), Lalbag (1.2%), and Wari 0.6% had the lowest reported cases. Other regions, including Gendraria, Sympur, Sadargahat Nou Ghat, Jatrabari, and Dohar, each contributed between 1.7% and 4.1% of the total cases. These findings highlight the variation in reported cases across police station jurisdictions (Table 5).

**Table 5:** Prevalence of hanging in a territory hospital among the Dhaka South Police stations based on reported cases.

Police station	Prevalence rate
South Keraniganj	38 (22.7%)
Keraniganj Model	35 (20.9%)
Demra	22 (13.1%)
Bongshal	11 (6.50%)
Kotwali	7 (4.10%)
Nawabganj	15 (3.10%)
Kadamtoli	5 (2.90%)
Sutrapur	4 (2.30%)
Lalbag	2 (1.20%)
Gendraria	7 (4.10%)
Sympur	3 (1.70%)
Sadargahat Nou ghat	3 (1.70%)
Kamrangirchor	6 (3.50%)
Khilgaon	1 (0.60%)
Jatrabari	3 (1.80%)
Dohar	4 (2.40%)
Wari	1 (0.60%)

Maximum cases were observed due to Depression 57 (34.1%) followed by Familial disharmony 41 (24.5%). This data was given below on table 6.

**Table 6:** Causes of hanging

Cause	Number(N=167)
Familial disharmony	41 (24.5%)
Arrogance	13 (7.8%)
Poverty	31 (18.6%)
Depression	57 (34.1%)
Mental Unsoundness	12 (7.2%)
Anger	13 (7.8%)

### Discussion

Every suicide is a terrible tragedy that results in the untimely death of a person and has a lasting impact on the lives of the victim's family and community<sup>6</sup>. It is unknown, how many people in Bangladesh hang themselves every year, but in India, where we have a close ally, there is a suicide every 5 minutes and seven suicide attempts for a total of roughly 100,00 suicide deaths every year<sup>7</sup>. Among the 167 people who were found to have been hanged, a small fraction of respondents were male, and the majority of the respondents were female. Among them significant number of respondents were married. When looking across all age groups, marital strife was the main cause of suicide are argument, mental despair, drug addiction, romantic disappointment, unwanted pregnancies, incurable diseases, mental instability, and a host of other issues in the family were all factors. Young individuals are more likely to commit suicide in both developed and developing countries. Motivating elements include social pressure and mental health difficulties<sup>8</sup>. The most common head covering in Nepal, according to research done by Pradhan A between January 2007 and April 2008, was rope, which was followed by shawls (31.81%), sharis (9.09%), and woolen mufflers (4.54%)<sup>9</sup>. The victims push themselves off the ceiling, fan, book, pipe, beam, girder, etc. after standing on a chair, table, or other object. In these situations, a lamppost, tree limb, or other outdoor fixture is frequently used as the suspension point. Using ligature materials like a belt, electric wire, scarf, tie, dressing gown cord, shoelace, curtain cord, telephone cord, shower lead, etc. is not typical in our country<sup>10</sup>.

### Conclusion

The present research focuses on the many aspects of suicidal hanging in Bangladesh, where married women

make up the bulk of those who have committed suicide by hanging in a prohibited area. The primary, most common cause in this study is depression in people aged 21 to 30. Salivary dribbling, seen as an indication of antemortem hanging, was present in a negligible proportion of cases. A small number of cases involving hyoid bone or thyroid cartilage were found.

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### Conflict of interest

No conflicts of interest are disclosed by the author.

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