

## Forensic Analysis of Suicidal Hanging Cases: Study in a District Hospital

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### Abstract

**Introduction:** Hanging is a very common method of suicide in Bangladesh as well as around the globe. The rate of suicide cases by hanging is increasing daily in Bangladesh. Suicide by hanging means killing oneself intentionally by suspending themselves from an anchor point by a ligature or by jumping from a height with a noose around the neck. As hanging is a simple method that does not require any complicated techniques, and the materials are also easy to come by, many choose this as their suicide method. The objective of this study was to observe the demography of hanging cases, its distribution according to age group, sex, and common ligature materials used by victims, observe post-mortem findings, and in this way, try to identify the causes and develop the preventive measures that are essential to reduce death due to hanging. **Methods:** This was a retrospective study done on the basis of the 3<sup>rd</sup> copy of postmortem reports preserved at the Department of Forensic Medicine, Pabna Medical College Hospital, Pabna, Bangladesh from January 2018 to December 2018 for the period of 1 year with proper permission from the autopsy surgeon. **Result:** 72% of the suicide victims were female, and 53% of those 115 victims were married. Most of the victims were from the age group of 21-30 years. Marital disharmony was the biggest common cause. The commonly used ligature material was Orna (dupatta). **Conclusion:** The number of deaths by suicide is on a rise, and to reduce this, a well-designed program is needed. This can help identify the causative factors of suicide by hanging and could help in preventing suicide cases.

**Keywords:** Ligature, Hanging, Suicide, Marital Disharmony, Orna, Asphyxia.

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## INTRODUCTION

Suicide is becoming increasingly common in many regions of the world. Suicide by hanging is one of the most popular means of suicide. The suspension of the body by a ligature that encircles the neck, with the restricting force being the weight of the body itself, produces death by asphyxiation [1]. Suspension hanging and drop hanging are the two basic types of hanging. Other than hypoxia, a drop hanging can kill, and in situations when someone survives, it can leave long-term effects such as cerebral anoxia, laryngeal fracture, cervical spine fracture, tracheal fracture, and carotid artery damage. However, suspension hanging is the more prevalent of the two hanging methods. When using the suspension method, the body can occasionally be suspended from above, which is referred to as complete hanging. Partial hanging occurs when a portion of the body contacts the ground, also known as incomplete hanging [2]. Suicide by hanging is a leading

cause of unnatural death in our country, particularly among our young female population. The number of suicide fatalities might indicate a society's socioeconomic and health state [3]. Hanging requires no complicated preparation and simply the expense of ligature material. A small rope around the neck may render a person unconscious in 15 seconds, making it a painless and quick death option [4]. For these reasons, hanging is the most commonly used form of suicide. This study focused on the post-mortem reports of such cases preserved in the Department of Forensic Medicine at Rajshahi Medical College, Rajshahi, Bangladesh

## OBJECTIVE

### General Objective

- To generate a plan to decrease suicide victims

### Specific Objectives

- To determine the causes of suicide in the common

populace

- To determine the physical effects of suicide by hanging through postmortem

### METHODOLOGY

This retrospective study was conducted at the Department of Forensic Medicine, Pabna Medical College Hospital, Pabna, Bangladesh from January 2018 to December 2018 for the period of 1 year with proper permission from the autopsy surgeon. Informed consent was obtained from the legal guardians of the victims. The data were collected with the permission of the autopsy surgeon, and family history was taken after an interview with family members or available guardians. The data was then collected and analyzed using SPSS software.

#### Inclusion Criteria

- Only Suicide by hanging cases

#### Exclusion Criteria

- Suicide by other methods
- Unable to get authorization from autopsy surgeon

### RESULTS

The majority of the suicide victims were female, and only 28% were male. Of the 115 female victims, 53% were married and 47% were unmarried. The major suspected cause for suicide was found to be marital disharmony, with 30% of cases falling in this category. 15% had family problems, 13.1% had mental depression, 11.3% were substance abusers, 8.1% had a failure in a love affair as a cause, and 6.3% had an unwanted pregnancy. The remaining 16.3% of cases were undocumented. Most of the suicide victims were young adults. 46.9% were between 21-30 years of age, and 43.8% were between 31-40 years of age. 5.6% were between 11-20 years of age, and 2.5% were between 41-50 years of age. Only 0.6% were under 10 years of age, and another 0.6% were above 50 years of age. The most commonly used ligature material was Orna (dupatta) with 41.9% of victims using this. 34.4% used jute rope, 7.5% used Saari, 5.6% used nylon rope, 4.4% used lungi, 3.8% used kameez, and 0.6% used electric wire. The remaining 3 cases were undocumented.

**Table 1: Suspected cause of hanging (n=160)**

Suspected Cause of Hanging	N=160	N%
Marital Disharmony	48	30.0%
Family Problems	24	15.0%
Mental Depression	21	13.1%
Drug Addiction	18	11.3%
Failure in love affairs	13	8.1%
Unwanted Pregnancy	10	6.3%
Undocumented	26	16.3%

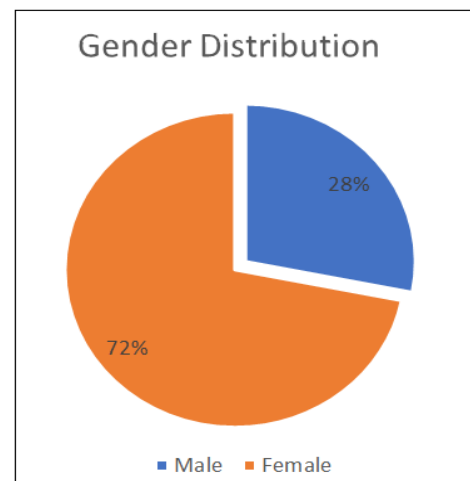
The major suspected cause for suicide was found to be marital disharmony, with 30% of cases

falling in this category. 15% had family problems, 13.4% had mental depression, 11.3 were substance abusers, 8.1% had a failure in a love affair as a cause, and 6.3% had an unwanted pregnancy. The remaining 26 cases were undocumented.

**Table 2: Age distribution of the victims (n=160)**

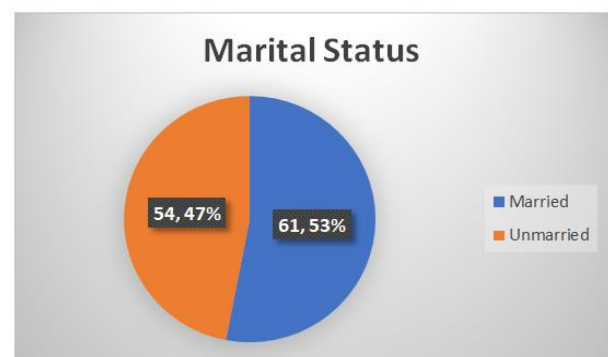
Age (years)	n=160	n(%)
01-10	1	0.6%
11-20	9	5.6%
21-30	75	46.9%
31-40	70	43.8%
41-50	4	2.5%
Above 50	1	0.6%

Most of the suicide victims were young adults. 46.9% were between 21-30 years of age, and 43.8% were between 31-40 years of age. 5.6% were between 11-20 years of age, and 2.5% were between 41-50 years of age. Only 0.6% were under 10 years of age, and 0.6% were above 50 years of age.



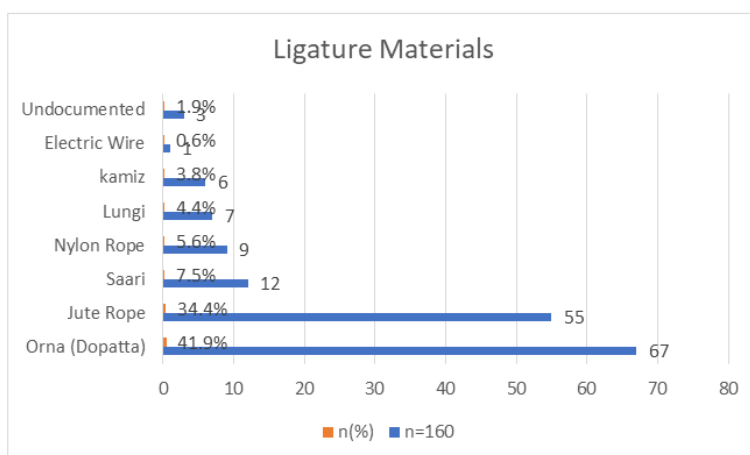
**Figure 1: Gender distribution Pie Chart (n=160)**

The majority of the suicide victims were female, and only 28.1% (n=45) were male.



**Figure 2: Marital status of the female population (n=115)**

Of the 115 female victims, 53% were married and 47% were unmarried.



**Figure 3: Available Data of ligature materials used (n=160)**

The most used ligature material was Orna (dupatta) with 41.9% of victims using this. 34.4% used jute rope, 7.5% used Saari, 5.6% used nylon rope, 4.4% used lungi, 3.8% used kamiz, and 0.6% used electric wire. The remaining 3 cases were undocumented.

## DISCUSSION

Bangladesh is a developing country in Southeast Asia. And, like many other countries on this continent, the suicide rate is quite high. Suicidal hanging is one of the leading causes of unnatural death in our country, according to this report. Other ways of suicide include leaping from a high building, overdosing on sleeping drugs, and so on, however hanging was discovered to be the most prevalent, with 82.29 percent of victims selecting this technique [5]. Suicidal hanging was found in all age groups, however, the majority of instances were between the ages of 21 and 30. This was discovered to be comparable to another research in which more than 60% of the victims were between the ages of 11 and 30 [6]. This can be explained by the victims reaching maturity and encountering several hardships and problems, resulting in extreme emotional oscillations. Unemployment, poverty, family troubles, test failure, love failure, and other frequent issues confront young adults. Any of these, or in some situations, a combination of them, might increase one's desire to commit suicide. Although hanging is a prevalent form of suicide in South-East Asia, it can be unintentional or even violent. Though the final situation is quite unusual [7]. Unless proven differently, the partial hanging has been deemed a suicide. Suicide is often performed for a specific reason, hence victims may leave suicide notes [8]. Suicide is far more common in the female population, according to this survey, with just 28.1% of male victims. This might be due to the fact that females in our culture confront far more inciting elements such as eve-teasing, a lack of family connection, poverty, dowry, rape, pregnancy as a result of rape, incapacity to marry, a failed marriage, and many more. These events eventually lead to suicide attempts [9]. Cases of sexual harassment and eve-teasing against women in their daily lives are on the

rise, particularly in Bangladesh [10, 11]. To avoid these harassments, many young adult ladies commit themselves. In this study, marital discord or disputes were determined to be the most significant risk factors for suicide. Though it is classified as an argument, many cases involve physical violence and torture. The mail is the chief earning member of a family in this nation. They frequently vent their frustrations about their daily lives to their wives. This can include verbal or physical abuse, as well as torture. Dowry is one of the biggest causes of marital discord, and despite numerous efforts from both government and non-government groups, the dowry system remains popular in our society [12]. And, because female members have poor protective value in social institutions like family, persistent psychological and physical trauma frequently leads to suicide. Some of the top causes for male suicide victims included poverty, a lack of educational accomplishment, a lack of a job, family issues, alcoholism, drug misuse, and defamation. These factors were similar to those discovered in another study done in India [13]. A meta-analysis of previous data revealed that hanging is the most prevalent form of suicide [14, 15]. The study found that orna was the most common ligature material used in many suicide incidents. The usage of orna (dupatta) as a frequent ligature material can be explained by the fact that salwar kamiz with orna is an article of common clothing worn by this country's young female population. Orna is a long piece of cloth that is worn with salwar kamiz. As a result, it is frequently employed as a ligature material. Approximately 83% of the instances included total hanging. Although eve-teasing and sexual harassment are common reasons for suicide in both low and high socio-demographic groups, some factors are more widespread in the low socio-demographic, such as unemployment, drug addiction, failure in love affairs, and unplanned pregnancy, and so on. The majority of the suicide instances included children, and one of the key causes was a lack of inspection. Suicide among young people is on the rise in both developing and industrialized countries, posing a devastating and avoidable public health issue [16]. In the majority of

instances, the cause of death was established to be suffocation utilizing various ligature materials at autopsy. The majority of the suicides took place within a closed room, with others taking place outside by hanging the orna or ligature material from a tree limb. Dog chains, belts, electric cable, and other ligature materials are extensively utilized in Western nations but are not commonly used in our country [17]. Suicide can be an indication of mental instability or severe depression in some circumstances [18]. Suicide incidence, cause, and nature differ from one group to the next, owing mostly to age, gender, customs, economic status, education status, marital status, and environmental and social situations [19].

### Limitations of the study

This was a study with a small sample size in a single center. So, the findings may not reflect the situation of the whole country.

**Conflict of Interest:** None Declared.

## CONCLUSION

The survey revealed an increasing prevalence of suicide in our country and identified suicide by hanging as the most prevalent mode of suicide. Suicides were more common in the female population and among young adults. Dupatta was a common ligature material. One of the leading reasons of suicide is family conflict. Education failure also had a part.

## RECOMMENDATION

A well designed and comprehensive method is needed to identify the causative factors and prevention of suicidal hanging. More importance needs to be given on mental wellbeing to prevent suicide by hanging. Eve-teasing and sexual harassment should be punished by extreme measures to decrease such case.

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