

## Post-Mortem Forensic Analysis of Suicidal Cases

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### Abstract

### Original Research Article

**Introduction:** Suicide is the act of intentionally killing oneself by using various methods. Hanging is a very common method of suicide worldwide. 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. **Aim of the study:** The objective of this study was to observe the demography of hanging cases, its distribution according to age group, sex, 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> copies of postmortem reports preserved in the department of Forensic Medicine, Rajshahi Medical College, Rajshahi, Bangladesh for the period of 2 years with proper permission from the autopsy surgeon. **Result:** 72% of the suicide victims were female, and 53% of those 361 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

Cases of suicide is greatly increasing in many parts of the world. One of the common methods used for suicide is suicide by hanging. Hanging, or self-suspension causes death by asphyxiation, resulted by the suspension of the body by a ligature which encircles the neck, where the constricting force is the weight of the body itself [1]. Hanging is mainly divided into suspension hanging and drop hanging. The drop hanging can kill in various ways other than asphyxia, and in cases where someone survives a drop hanging, it can leave long term impacts, including cerebral anoxia, laryngeal fracture, cervical spine fracture, tracheal fracture, and carotid artery injury. But suspension hanging is the more common hanging method among the two. In suspension method, sometimes the body completely suspends from above, this is categorized as complete hanging. Partial hanging is when a part of the body touches the ground, which is also called as incomplete hanging [2]. Suicide by hanging is a major cause of unnatural death, specially in the young female

population of our country. The number of suicidal deaths can indicate the socio-economical and health status of a society [3]. Hanging doesn't require any complex preparation and only needs the cost of a ligature material. And a thin rope around the neck can cause unconsciousness in 15 seconds, making it a painless and swift death option [4]. For these reasons, people prefer hanging as the common method 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 common populace.
- To determine the physical effects of suicide by hanging through postmortem.

## METHODOLOGY AND MATERIALS

This retrospective study was conducted in the Department of Forensic Medicine, Rajshahi Medical College, Rajshahi, Bangladesh with a sample size of 500, during the time period of May 2012 to April 2016. The data was collected with permission of autopsy surgeon, and family history was taken after 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

Majority of the suicide victims were female, and only 28% were male. Of the 361 female victims, 53% were married and 47% were unmarried. The major suspected cause for suicide was found to be marital disharmony, with 30% cases falling in this category. 14.8% had family problems, 13.4% had mental depression, 11.4% had substance abusers, 8.2% had failure in love affair as a cause, and 6.4% had unwanted pregnancy. The remaining 79 cases were undocumented. Most of the suicide victims were young adults. 46.8% were between 21-30 years of age, and 43.8% were between 31-40 years of age. 5.4% were between 11-20 years of age, and 2.6% were between 41-50 years of age. Only 0.8% were under 10 years of age, and 0.6% were above 50 years of age. The most commonly used ligature material was Orna (dupatta) with 41.6% of victims using this. 34.4% used jute rope, 7.6% used saari, 5.4% used nylon rope, 4.6% used lungi, 3.8% used kamiz, and 0.8% used electric wire. The remaining 9 cases were undocumented.

**Table I: Suspected cause of hanging (n=500)**

Suspected Cause of Hanging	N=500	N%
Marital Disharmony	150	30
Family Problems	74	14.8
Mental Depression	67	13.4
Drug Addiction	57	11.4
Failure in love affairs	41	8.2
Unwanted Pregnancy	32	6.4
Undocumented	79	15.8

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**Table-II: Age distribution of the victims**

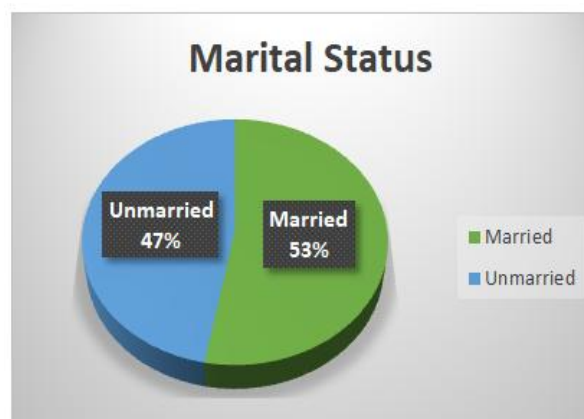
Age (years)	N=500	n(%)
01-10	4	0.8
11-20	27	5.4
21-30	234	46.8
31-40	219	43.8
41-50	13	2.6
Above 50	3	0.6

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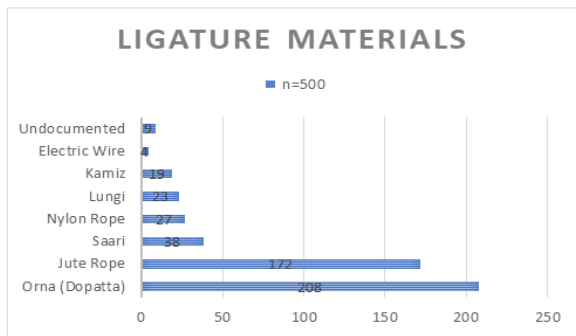
**Fig-I: Gender distribution Pie Chart**

Majority of the suicide victims were female and only 28% were male.



**Fig-II: Marital status of the female population (N=361)**

Of the 361 female victims, 53% were married and 47% were unmarried.



**Fig-III: Available Data of ligature materials used (n=500)**

The most used ligature material was Orna (dupatta) with 41.6% of victims using this. 34.4% used jute rope, 7.6% used saari, 5.4% used nylon rope, 4.6% used lungi, 3.8% used kamiz, and 0.8% used electric wire. The remaining 9 cases were undocumented.

## DISCUSSION

Bangladesh is one of the developing countries in southeast Asia. And like many other countries in this continent, the ratio of death by suicide is very high. This study showed that one of the major causes for unnatural death in our country is death by suicidal hanging. There are some other methods of suicide like jumping from a high building, overdosing on sleeping pills and etc., but hanging was found to be the most common method with 82.29% of the victims choosing this method [5]. Suicidal hanging was observed in all age group, but majority of the cases were from the age group of 21-30 years. This was found to be similar to another study where over 60% of the victims were from 11-30 years of age group [6]. This can be explained by the victims entering into adulthood and facing many hardships and challenges, causing great fluctuations of emotion. Unemployment, Poverty, Family problems, failure in examination, failure in love, etc. are some of the common problems faced by young adults. Any of these, or in some cases, multiple of these causes increasing interest in committing suicide. Although hanging is a common method of suicide in South-East Asia, death by hanging can be accidental or even homicidal in nature. Though the last case is very rare to see [7]. Partial hanging is considered to be suicidal unless proven otherwise. Victims may leave behind suicide notes, as suicide is generally committed because of clear motive [8]. This study found that suicide is much more prevalent in the female population, with only 28% male victims. This maybe because females in our society have to face much more provoking factors like eve-teasing, lack of family bonding, poverty, dowry, rape, pregnancy resulting from rape, unable to get married, unsuccessful marriage and many others. These eventually lead to the suicide attempts [9]. Specially in Bangladesh, cases of sexual harassment and eve teasing faced by the female population in their daily life is on the rise [10, 11]. The young adult females usually commit suicide to escape from these harassments. The biggest factor for suicide in this study

was found to be marital disharmony or arguments. Though it is categorized as argument, many cases go as far as physical violence and torture. In this country, the primary earning member of a family are the male. Oftentimes they take out their frustration of their daily life on their wives. This can take the form of verbal or physical abuse, or torture. One of the major reasons for marital disharmony is dowry, and despite many attempts from both government and non-government organizations, dowry system is still very prevalent in our society [12] and as the female members have low protective value in social institutes like family, repeated psychological and physical torture often leads them to commit suicide. In cases of male suicide victims, some of the major reasons were poverty, lack of educational success, lack of job, family problems, alcoholism, drug abuse and defamation. These causes were similar to another study findings conducted in India [13]. Cross-analysis of various other studies showed that hanging is the most common method of suicide [14, 15]. The study found that orna was the most common ligature material used in many of the suicide incidents. Orna (dupatta) being used as a common ligature material can be explained by the fact that salwar kamiz with orna is a common dress worn by the young female population of this country. Orna is a 8-10 feet long piece of cloth worn along with salwar kamiz. Which is why it is commonly used as a ligature material. Around 83% of the cases were victims of complete hanging. Although eve teasing and sexual harassment is a common cause of suicide in both low socio-demographic and in high socio-demographic, there are some causes more prevalent in the low socio-demographic, like lack of job, drug addiction, failure in love affairs, unwanted pregnancy etc. Majority of the suicide cases were young in age, and failure in examination is one of the major reasons in these incidents. The suicide rate among young people is increasing in both developing and developed countries, which is a tragic and preventable public health problem [16]. The cause of death at autopsy was determined to be asphyxia using different ligature materials in most of the cases. Most of the suicides happened inside a locked room, and some happened by hanging the orna or ligature material from a tree branch outside. In western countries, dog chain, belt, electric cable and some other ligature materials are commonly used, which are not usually used in our country [17]. In some cases, suicide can be a sign of mental instability or severe depression [18]. Incidence, etiology, and nature of suicide can vary from one community to another depending mainly upon age, sex, customs, economic status, education status, and marital status, environmental and social circumstances [19].

### Limitations of the study

This was a study with small sample size in a single centre. So, the findings may not be reflected in the whole country.

**Conflict of interest:** None Declared.

## CONCLUSION

The study showed the Increasing rate of suicide in our country, and recognized the common method of suicide as suicide by hanging. The cases of suicide were more prevalent in female population, and in the young adults. Common ligature material used was Dupatta. Family dispute is one of the major causes of suicide. Failure in education also played a role

## 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.

## REFERENCES

- Rahman FN, Ahmad M, Hossain MN, Akhter S, Biswas P. Autopsy analysis of suicidal hanging cases at Dhaka Medical College. *Delta Medical College Journal*. 2016 May 7;4(1):9-12.
- Nandy A. Principles of Forensic Medicine including Toxicology (3rd Edn) New central book agency.
- Mohanty S, Sahu G, Mohanty MK, Patnaik M. Suicide in India–A four year retrospective study. *Journal of forensic and legal medicine*. 2007 May 1;14(4):185-9.
- Knight B, Pekka S. Knight's Forensic Pathology. 3rd ed. London: Arnold; 2004.p.352-80
- Galgali RB, Rao S, Ashok MV, Appaya P, Srinivasan K. Psychiatric diagnosis of self poisoning cases: A general hospital study. *Indian Journal of Psychiatry*. 1998 Jul;40(3):254.
- Shah M, Ali M, Ahmed S, Arafat SM. Demography and risk factors of suicide in Bangladesh: A six-month paper content analysis. *Psychiatry journal*. 2017 Jan 1;2017.
- Rahman FN, Ahmad M, Hossain MN, Akhter S, Biswas P. Autopsy analysis of suicidal hanging cases at Dhaka Medical College. *Delta Medical College Journal*. 2016 May 7;4(1):9-12.
- Rahman FN, Ahmad M, Hossain MN, Akhter S, Biswas P. Autopsy analysis of suicidal hanging cases at Dhaka Medical College. *Delta Medical College Journal*. 2016 May 7;4(1):9-12.
- Morild I. Fractures of neck structures in suicidal hanging. *Medicine, Science and the Law*. 1996 Jan;36(1):80-4.
- Nahar P, Van Reeuwijk M, Reis R. Contextualising sexual harassment of adolescent girls in Bangladesh. *Reproductive health matters*. 2013 May 1;21(41):78-86.
- Islam MA, Amin T. Eve Teasing in Bangladesh: An Overview. *IOSR Journal of Humanities and Social Science (IOSR-JHSS)*. 2016;21(11):01-6.
- Akter M, Begum R. Factors for divorce of women undergoing divorce in Bangladesh. *Journal of Divorce & Remarriage*. 2012 Nov 1;53(8):639-51.
- Gupta SC, Singh H. Psychiatric illness in suicide attempters. *Indian journal of psychiatry*. 1981 Jan;23(1):69.
- Üzün İ, Büyük Y, Gürpınar K. Suicidal hanging: fatalities in Istanbul retrospective analysis of 761 autopsy cases. *Journal of forensic and legal medicine*. 2007 Oct 1;14(7):406-9.
- Starkuviene S, Kalediene R, Petrauskiene J. Epidemic of suicide by hanging in Lithuania: does socio-demographic status matter?. *Public health*. 2006 Aug 1;120(8):769-75.
- Eddleston M, Sheriff MR, Hawton K. Deliberate self harm in Sri Lanka: an overlooked tragedy in the developing world. *Bmj*. 1998 Jul 11;317(7151):133-5.
- Bennewith O, Gunnell D, Kapur N, Turnbull P, Simkin S, Sutton L, Hawton K. Suicide by hanging: multicentre study based on coroners' records in England. *The British Journal of Psychiatry*. 2005 Mar;186(3):260-1.
- Phillips MR, Li X, Zhang Y. Suicide rates in China, 1995–99. *The Lancet*. 2002 Mar 9;359(9309):835-40.
- Farooq IA, Afzal W, Salman M. Medicolegal aspect of burn victims: A ten years study. *Pak J Med Sci*. 2009;25(5):797-800.