

A Retrospective Analysis of Suicidal Death Cases at a Tertiary Care Hospital in Bangladesh

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Abstract

Background: Suicide is the leading cause of unnatural death worldwide. Over the past five decades, there has been noticeable increase in suicide rates around the globe. The pattern of suicide fatalities in a particular community is reflected in the relationship between an individual's mental health and social status. Suicide is influenced by a wide range of cultural and socio-economic factors, as well as quality of life of an individual. **Objective:** The purpose of this study was to determine the demographics and trends of suicidal deaths at a Tertiary Health Center in Bangladesh. **Methods:** This retrospective study was conducted at The Department of Forensic Medicine and Toxicology, Sir Salimullah Medical College and Mitford Hospital in Dhaka, Bangladesh. The study covered all suicidal deaths that occurred between 2022 to 2024. In all cases, a complete post-mortem examination was performed and findings were recorded. Details of all suicidal deaths regarding age, gender, religion, marital status and mode of death were duly documented. **Results:** A total of 446 cases were evaluated, of them 208 were male and 238 were female. Maximum (44.11%) cases were in 21-30 years age group followed by 42.01% were in 11-20 years age group then 8.82% were in 31-40 years age group. Regarding the marital status majority (65.02%) of the cases were married in both genders. Among the study cases hanging (64.13%) was the most adapted method to commit suicide followed by poisoning (35.87%). **Conclusion:** The current study demonstrated that suicidal deaths are prevalent among females and married individuals. Adolescent and young adults are vulnerable to suicidal deaths. Hanging is the most adapted method to commit suicide followed by poisoning. To lower suicide rates particularly in adolescent and young adults, a well-designed comprehensive program is required that will identify the causative factors and may aid in suicide prevention.

Keywords: Pattern, Suicidal Deaths, Hanging, Poisoning.

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INTRODUCTION

Suicide is often referred to be the destruction or harm that a person or society experiences as a result of their own actions [1]. Suicide is an act with fatal outcome

initiated performed by the person with the knowledge and expectation of its fatal outcome [2]. WHO estimate that nearly 9, 00,000 people in the world commit suicide every year, among them about 3,00,000 in China, 1,70,000 in India and 1,40,000 in high income countries

[3]. It is believed that how advanced the technology people will always have the means of killing other people (homicide) and of killing themselves. Suicide is one of the public health problems everywhere in the world [4]. The physical and mental illness, the rapid change in lifestyle, increase mental stress, economic difficulty, adaptation problems at home and working place, are some important reasons behind such deaths [5]. The method used to commit suicide depends on the availability of mean knowledge about the lethal effectiveness and the person's motivation. The common methods used to commit suicide are poisoning, burring, hanging, jumping from height, downing etc. Suicide can be caused by multiple circumstances, not just the sufferer. Suicide diagnosis and registration are still influenced by societal and religious factors [6]. Social disarray, a weak familial support network, economic inequality, conflicts, population explosion and technical advancements are all regarded to be contributing factors to suicidal deaths. It is estimated that around 500 million individuals commit suicide despite the stigma and shame attached to it [7]. The stigma associated with mental illness and seeking psychiatric assistance makes the issue worse, resulting in a 30% to 100% underreporting of suicides [8]. In fact, the number of suicidal deaths exceeds the number of instances that records. Pattern of suicidal deaths reveals the existing social and psychological state of mind of the people of a region. Suicidal behavior, pattern and rates differ in various population and culture [9]. Understanding the pattern of suicidal deaths is crucial for strengthening national public health strategies, particularly in low- and middle-income countries like Bangladesh, where suicide remains an underreported yet growing concern. This study provides valuable insights into the demographic distribution, underlying causes, and prevailing methods of suicide among cases presented at a tertiary health center. By analyzing these trends, the research identifies high-risk groups, explores potential socio-economic and

psychological determinants, and highlights critical gaps in prevention and early intervention efforts.

MATERIALS AND METHODS

This retrospective descriptive study was conducted at the Department of Forensic Medicine and Toxicology of Sir Salimullah Medical College and Mitford Hospital, located in Dhaka, Bangladesh. The study encompassed all confirmed cases of suicidal death examined over a three-year period from January 2022 to December 2024. Inclusion criteria were based on medico-legal confirmation of suicide following comprehensive forensic evaluation. Data were systematically collected on key sociodemographic variables including- age, sex, marital status, religion, as well as the method and pattern of suicide. Information was obtained through multiple sources to ensure validity and completeness, including interviews with the relatives of respective suicide case, review of police inquest reports and case record files, and examination of hospital registry data. For each case, detailed postmortem examination reports were retrieved and critically analyzed. Particular attention was given to findings from toxicological (chemical) analyses to corroborate the cause and manner of death. The integration of autopsy findings with circumstantial evidence from police documentation and information provided by relatives allowed for a comprehensive assessment and accurate classification of the patterns of suicidal deaths.

RESULTS AND OBSERVATIONS

This study intended to identify the demographics and patterns of suicidal deaths at a tertiary health center in Bangladesh from 2022 to 2024. During the study period total number of autopsy cases of suicidal death were 446; among them 208 (46.6%) were male and 238 (53.4%) were female (Figure- 1).

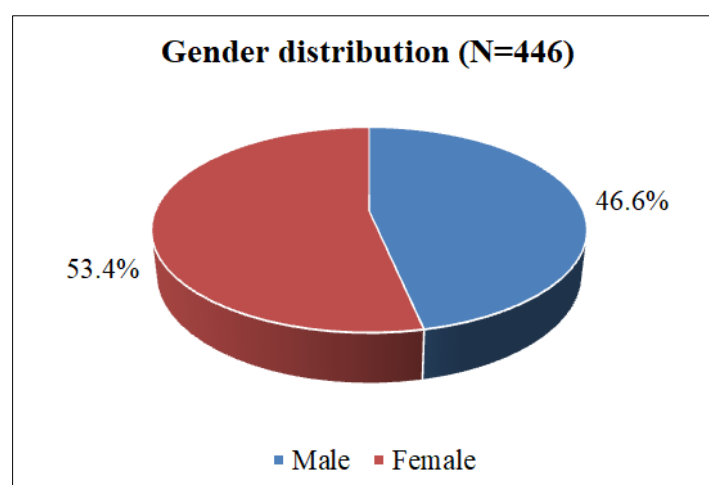


Figure 1: Gender distribution among the suicidal deaths between 2022-2024 (N= 446)

In this study majority cases were seen in age group 21-30 years the total number was 201(45.06%),

followed by 140(31.39%) from 11-20 years age group then 62(13.90%) from 31-40 years age group and

25(5.60%) from 41-50 years age group. Minimum cases 3(0.67%) were in less than 10 years age group, 4(0.89%) cases were seen in 51-60 years age group and in 60 years

or above age group 11(2.46%) cases were found (Figure-2).

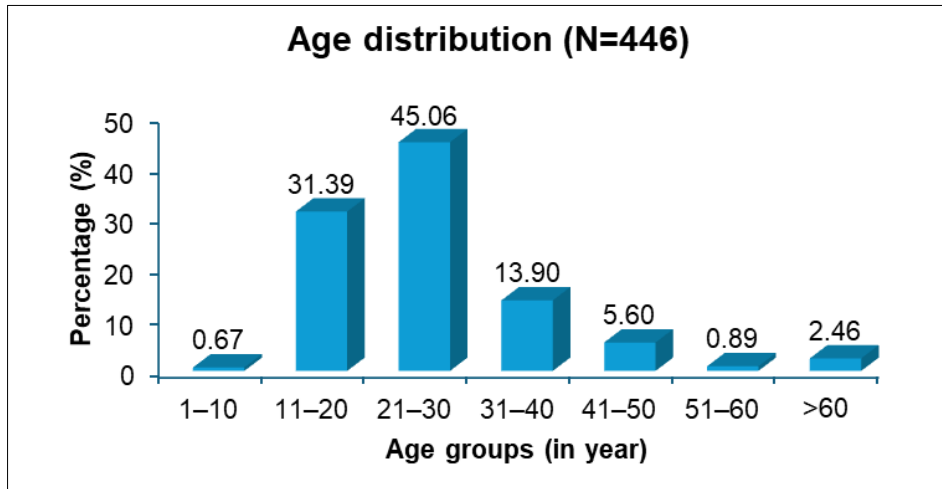


Figure 2: Age distribution among the suicidal deaths between 2022-2024 (N= 446)

Among the male cases maximum 96(46.15%) were in 21-30 years age group followed by 41(19.71%) and 40(19.23%) were in 31 to 40 years and 11 to 20 years age groups respectively. Among the female cases

maximum 105(44.11%) were in 21-30 years age group followed by 100(42.01%) and 21(8.82%) were in 11 to 20 years and 31 to 40 years age groups respectively (Table- 1).

Table 1: Age and sex distribution of suicidal deaths in the years 2022-2024 (N= 446)

Age- groups (Years)	Male cases between 2022-2024				Female cases between 2022-2024			
	n (%)				n (%)			
	2022	2023	2024	Total	2022	2023	2024	Total
1-10	02(2.4)	00(00)	00(00)	02(.961)	01(1.02)	00(00)	00(00)	01(0.42)
11-20	13(15.66)	19(23.75)	08(17.77)	40(19.23)	40(40.81)	45(43.68)	15(40.54)	100(42.01)
21-30	37(44.57)	36(45)	23(51.1)	96(46.15)	44(44.80)	44(42.71)	17(45.94)	105(44.11)
31-40	18(21.68)	16(20)	07(1.55)	41(19.71)	10(10.20)	11(0.67)	00(00)	21(8.82)
41-50	08(9.63)	06(7.5)	02(4.44)	16(7.69)	02(2.04)	03(2.91)	04(10.81)	09(3.78)
51-60	02(2.40)	01(1.25)	00(00)	03(1.44)	00(00)	00(00)	01(2.70)	01(0.42)
>60	03(2.61)	02(2.5)	05(11.11)	10(4.80)	01(1.02)	00(00)	00(00)	01(0.42)
Total	83	70	45	208	98	103	37	238

Digit in parentheses indicate corresponding percentage

Regarding the marital status of the female suicidal death cases; 159(66.80%) were married and 79(33.19) were unmarried. On the other hand, among the

male suicidal deaths; 131(62.98) cases were married and 77(37.01%) cases were unmarried (Table- 2).

Table 2: Marital status of suicidal cases in the years 2022-2024 (N= 446)

Marital status	2022		2023		2024		Total	
	n	%	n	%	n	%	n	%
Female								
Married	66	67.34	70	67.96	23	62.16	159	66.80
Unmarried	32	32.65	33	32.03	14	37.83	79	33.19
Male								
Married	55	64.70	41	65.07	35	58.33	131	62.98
Unmarried	30	35.29	22	34.92	25	41.66	77	37.01

Data analysis revealed that, out of total 446 suicidal deaths; the most common method adopted in this study was hanging 286(64.13%) followed by poisoning

160(35.87%). However, there were no reported cases on burning, drowning or jumping (from height) to commit suicide during the study period (Table- 3).

Table 3: Methods adapted to commit suicide among the study cases (N= 446)

Methods	2022		2023		2024		Total	
	n	%	n	%	n	%	n	%
Poisoning	62	34.44	59	32.41	39	46.42	160	35.87
Hanging	118	65.55	123	67.58	45	53.57	286	64.13
Burning	-	-	-	-	-	-	-	-
Drowning	-	-	-	-	-	-	-	-
Jumping	-	-	-	-	-	-	-	-

DISCUSSION

Among unnatural deaths, suicidal deaths account one of the leading causes of death worldwide [10]. Around 200,000 adolescent and young adult suicide cases are reported globally each calendar year [11]. Suicide is commonly associated with self-destruction. Suicide victims can hurt themselves in a variety of ways, some of which are really strange. Frustration in life, stressful life events, lack of job opportunity, poverty, isolation, alcohol/substance abuse, mental disorders, previous suicidal attempts, family history of suicides are the important risk factors associated with suicidal deaths [12]. Suicidal death is a generally preventable problem that can affect people of all ages and can have serious social, familial, and individual consequences. This study was aimed to identify the demographics and patterns of suicidal deaths at a tertiary health center in Bangladesh.

In the present study, a total of 446 suicidal deaths were recorded, comprising 238 females and 208 males, demonstrating a clear female predominance. This finding aligns with several earlier studies from South Asia and other low- and middle-income countries, where females have been shown to be more vulnerable to suicidal behavior compared to males [13-15]. Female predominance in suicide has been attributed to a range of socio-cultural, economic, and psychological factors. In many Asian contexts, women often experience greater domestic stress, gender-based violence, restricted autonomy, and limited access to mental health services, all of which may increase the risk of self-harm. Overall, the female predominance in suicidal deaths observed in this study is consistent with earlier research and highlights the complex interplay of socio-cultural and psychological factors influencing self-harm behaviors among women in this region. This underscores the need for gender-sensitive public health strategies, including targeted mental health interventions, improved social support systems, and policies addressing domestic violence and gender inequity.

In this study, the age distribution of suicidal deaths revealed that the 21-30 years age group accounted for the highest proportion, representing 45.06% cases, followed by 31.39% cases in the 11-20 years age group, 13.90% cases in the 31-40 years age group and 5.60% cases in the 41-50 years age group. This pattern is consistent with earlier research from South Asia and other low- and middle-income countries, where suicide

rates have been shown to peak among adolescents and young adults [5-16]. The predominance of suicides among individuals aged 21-30 years is well recognized. This phase of life is often associated with intense social, economic, and emotional pressures, including academic stress, job insecurity, financial instability, marital problems, and rapid social transitions. Studies from India and Sri Lanka similarly documented the highest suicide burden in young adults, highlighting the influence of psychosocial stressors and limited coping mechanisms during this vulnerable period [15, 16]. The relatively high proportion of cases in the 11-20 years age group underscores growing concerns regarding adolescent mental health in the region. Research has reported that adolescents frequently face academic pressure, family conflict, relationship issues, and identity crises, which contribute to suicidal behavior [16]. Furthermore, limited awareness of mental health, inadequate support systems, and the stigma surrounding psychological problems exacerbate vulnerability during adolescence. The decline in suicide cases in the 31-40 years and 41-50 years age groups in the present study aligns with earlier South Asian data, which typically show a tapering trend after the mid-thirties. This may reflect improved emotional maturity, greater life stability, and better-developed coping skills among individuals in this age range [13]. Overall, the age-wise distribution observed in this study mirrors well-established regional trends, emphasizing that late adolescence and young adulthood are the most critical periods for suicide prevention efforts. Targeted mental health programs, early detection of psychological distress, school- and community-based counselling services, and strengthening social support may help address the elevated risks in these age groups.

Among the study cases married persons were relatively high in both genders. Although marriage is traditionally considered a protective factor against suicidal behavior, several studies have demonstrated that suicidal deaths can be relatively common among married individuals, particularly in socio-cultural contexts where marital stressors are pronounced. Multiple studies have highlighted that married persons may experience substantial psychosocial burdens such as financial pressure, family responsibilities, emotional conflicts, or lack of social support within the marital bond; which may elevate the risk of suicide [13, 14]. Vijayakumar L found that marital disharmony, intimate partner violence,

and dowry-related issues were important contributors to suicide among married adults, especially women [13].

A suicide method is any measure by which the person purposely kills himself/herself. Suicidal methods can be broadly classified into physical and chemical types. Physical methods typically act by incapacitating the respiratory system or the central nervous system, usually through the destruction or dysfunction of one or more vital components. This method to end life will depend upon the circumstance and the availability of the material to commit the act. Insecticides (poisons) are available in rural areas and means for hanging such as ropes, clothing are easily available to commit suicide in anywhere. In the present study, hanging emerged as the most common method of suicide, accounting for 64.13% cases, followed by poisoning, which comprised 35.87% cases. This pattern is consistent with findings from previous studies conducted in South Asian countries, where hanging has frequently been reported as the predominant method of suicide [17-19]. Hanging is often the leading method due to its wide availability, minimal preparation, and the high lethality associated with it. Several studies have reported similar trends. For example, Gunnell D *et al.*, identified hanging as one of the most common and rapidly increasing suicide methods globally, particularly in Asian countries [17]. A study from India by Lalwani S *et al.*, also showed that hanging was the most frequent method of suicide encountered in medicolegal autopsies [18]. Likewise, research by Rahim M *et al.*, in Pakistan reported that hanging was the dominant mode of suicide, highlighting its easy accessibility in domestic settings [19].

Poisoning, which was the second most common method in our study, has also been widely documented in South Asian contexts [20, 21]. The availability of agricultural pesticides and toxic household chemicals contributes substantially to poisoning-related suicides in rural and semi-urban regions. Santhosh CS and Newaz B showed poisoning (49.73%) was the most common method adopted to commit suicide in their study followed by hanging (32.44%) [5]. Eddleston M and Phillips MR reported that pesticide self-poisoning accounted for hundreds of thousands of deaths annually in Asia, reflecting similar patterns to those observed in our findings [21]. In Sri Lanka and parts of India, pesticide ingestion has traditionally been a significant method of suicide, especially among younger individuals facing acute psychosocial distress [19]. The distribution of hanging and poisoning in our study underscores the influence of local availability of means, socioeconomic conditions, and cultural patterns on the selection of suicide methods. Moreover, the prominence of highly lethal methods such as hanging highlights the urgent need for preventive strategies that include restricting access to means, community awareness programs, and early identification of individuals at risk.

Overall, our findings reflect well-established regional trends and emphasize that suicide prevention policies should incorporate both environmental safety measures and mental health interventions, tailored to the specific methods commonly used in the population. The findings of this study offer essential evidence for health authorities, mental health professionals and policymakers to design targeted awareness campaigns, improve crisis-intervention services and implement community-based mental health programs. Moreover, the study contributes to the limited national data on suicide, supporting more accurate surveillance and informing future research.

CONCLUSION

This study concluded that, suicidal deaths are common among married people and women. Adolescents and young adults are more susceptible to suicide. Hanging is the most adapted method to commit suicide followed by poisoning. The findings of current study may help to guide effective preventive strategies and promote a more comprehensive approach to reducing the burden of suicidal deaths in Bangladesh.

Recommendation

Suicide is a leading cause of unnatural and unacceptable death, with adolescents and young people being the most affected. Individuals at risk of suicide can be helped through timely counseling and by maintaining supportive and healthy family relationships. Adolescents should receive proper guidance to help them adjust to common social expectations and cope effectively with challenging circumstances. Early detection of mental health problems and ensuring accessible mental healthcare for everyone are essential. Additionally, appropriate social measures must be implemented to address common social issues that contribute to suicidal behavior.

Conflicts of Interest: All authors declared that there is no conflict of interest regarding this publication.

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