Sociodemographic Characteristics, Psychosocial and Environmental Factors Pitching in Hanging Suicides

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Abstract

Background: Suicide is the act of deliberately killing oneself. Risk factors for suicide include mental disorder, especially depression and neurological disorders, cancer and HIV infection. Suicide remains a significant global health issue, with hanging being one of the most prevalent methods worldwide. Understanding the factors contributing to hanging suicides is crucial for effective prevention efforts. This study aimed to evaluate the factors associated with the use of highly lethal methods for suicide attempts, with a focus on hanging suicides.

Materials and methods: A retrospective observational study was conducted at Chittagong Medical College, analyzing 72 cases of hanging suicides. Data on sociodemographic characteristics, psychosocial factors and environmental factors were collected from autopsy reports and medicolegal records. Descriptive statistics, bivariate analysis, and regression analysis were used to analyze the data.

Results: Among the study participants, 69.4% were male, with a mean age of 34.2 years. Marital status analysis revealed that 52.8% were married. Unemployment was prevalent among 61.1% of cases. Environmental factors showed that 80.6% of cases occurred indoors, with an equal distribution between day time and night time incidents. Bivariate analysis indicated a significant correlation between marital status and hanging (p < 0.05) and a strong association between unemployment and hanging (p < 0.001). Regression analysis identified unemployment status as a significant predictor of hanging suicides (OR = 2.5, p < 0.01).

Conclusion: This study highlights the importance of considering psychosocial and environmental factors in understanding hanging suicides. Targeted interventions addressing unemployment and marital status may help reduce the incidence of hanging suicides and improve suicide prevention efforts.

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Introduction

Every year almost one million people die from suicide, 86% of whom are in low/middle income countries. Suicide is among the three leading causes of death for young people under 25 and accounts of 10%-20% of deaths in women up to one year after giving birth.[1] Suicide attempt, defined as a fatal self-injurious act with intent to die, remains a concerning issue despite advances in suicide prevention.[2] Despite the emergence of sophisticated suicide methods, hanging persists as one of the most common forms of suicide globally.[3] This method, with its historical significance, reflects a complex interplay of various contributing factors. While efforts to predict and prevent suicide often fall short, our understanding of risk factors has significantly improved over time. Mental disorders, past suicide attempts, specific personality traits, genetic predispositions, family dynamics and enviro- nmental stressors all play key roles in suicide risk.[4] Suicide is a significant public health concern worldwide, with hanging being one of the most common methods employed. Understanding the factors contributing to hanging suicides is crucial for effective prevention and intervention efforts. While previous research has explored various risk factors associated with suicide, including psychiatric disorders and socioeconomic status, less attention has been paid to the specific psychosocial and environmental factors influencing hanging suicides, particularly in the context of Bangladesh.

Chittagong Medical College, as a leading institution in forensic medicine, provides a unique setting to investigate the underlying determinants of hanging suicides. By analyzing cases from the Forensic Medicine Department, this study aims to identify and examine the psychosocial and environmental factors contributing to hanging suicides in Chattogram, Bangladesh. The findings

of this study have the potential to inform targeted prevention strategies and enhance suicide intervention programs tailored to the local context. The objectives of this study are threefold: firstly, to characterize the socio- demographic profile of individuals who died by hanging, secondly, to explore the psychosocial factors, including occupational status, educational level, and mental health history, associated with hanging suicides and thirdly, to investigate environmental factors such as the location of hanging and time of day. By addressing these objectives, this study aims to contribute to the existing literature on suicide prevention by providing insights into the specific psychosocial and environmental factors influencing hanging suicides in Chattogram, Bangladesh. Ultimately, this research endeavors to inform evidence-based interventions aimed at reducing the incidence of hanging suicides and promoting mental health and well-being in the community.

Materials and methods

This study employed a retrospective observational design to analyze cases of hanging suicides at Chittagong Medical College from July to December 2023. A total of 72 cases of hanging suicides were included in the study, identified from autopsy records and medicolegal reports of the Forensic Medicine Department. Data collection involved reviewing autopsy reports, medical records, and police reports for each case, capturing sociodemographic characteristics (e.g. Age, gender, marital status), psychosocial factors (e.g. Occupational status, educational level, mental health history) and environmental factors (e.g. Location of hanging, time of day). Descriptive statistics, including frequencies, percentages, means and standard deviations, were used to summarize the data. Bivariate analysis, employing chi-square tests or Fisher's exact tests, explored associations between variables, while regression analysis, such as logistic regression, identified predictors of hanging suicides. Despite limitations inherent to retrospective designs and sample size constraints, the study provides valuable insights into the multifaceted nature of hanging suicides, informing targeted prevention and intervention strategies aimed at addressing psychosocial and environmental risk factors. Necessary permission was taken from the proper authorities before start the study.

Result

Table I Sociodemographic characteristics

Demographic Variable	Number of Cases	Percentage
Gender		
Male	50	69.4%
Female	22	30.6%
Age		
Mean (SD)	34.2 (±8.5)	
Range	18 to 55	
Marital Status		
Married	38	52.8%
Single	24	33.3%
Divorced/Widowed	10	13.9%

The Table presents the sociodemographic profile of the study participants. Out of the 72 cases analyzed, 69.4% were male, and 30.6% were female. The mean age of the participants was 34.2 years, with a standard deviation of 8.5 years. In terms of marital status, 52.8% were married, 33.3% were single and 13.9% were divorced or widowed (Table I).

Table II Psychosocial Factors

Psychosocial Factor	Number of Cases	Percentage
Occupational Status		
Employed	28	38.9%
Unemployed	44	61.1%
Educational Level		
High School	18	25.0%
College	32	44.4%
University	22	30.6%
Mental Health History		
Yes (Depression/ Anxiety)	30	41.7%
No	42	58.3%

This Table delves into various psychosocial factors influencing the study cohort. Among the participants, 61.1% were unemployed, while 38.9% were employed. Regarding educational attainment, 25.0% had completed high school, 44.4% had a college education, and 30.6% held a university degree. Additionally, 41.7% had a history of mental health issues, while 58.3% did not report any such history (Table II).

Table III Environmental factors

Environmental Factor	Number of Cases	Percentage
Location of Hanging		
Indoor	58	80.6%
Outdoor	14	19.4%
Time of Day		
Daytime	36	50.0%
Nighttime	36	50.0%

The environmental factors table sheds light on the circumstances surrounding hanging incidents. It reveals that the majority of cases (80.6%) occurred indoors, while a smaller proportion (19.4%) happened outdoors. Furthermore, an equal number of cases (50.0%) were recorded during both daytime and nighttime (Table III).

Table IV Bivariate analysis

Bivariate Analysis	Number of Cases	Percentage	p-value
Correlation between			
Marital Status and Hanging			
Married vs. Single	38	52.8%	<0.05
Association between			
Unemployment and Hanging			
Employed vs. Unemployed	28	38.9%	<0.001

This Table summarizes the findings from the bivariate analysis, examining the relationships between various variables. It indicates that married individuals exhibited a higher incidence of hanging compared to single individuals (p < 0.05). Similarly, unemployed individuals showed a significantly higher prevalence of hanging compared to employed individuals (p < 0.001) (Table IV)

Table V Regression analysis

Regression Analysis	Odds Ratio (OR)	95% CI	p-value
Predictors of Hanging			
Unemployment Status vs.			
Employment Status	2.5	1.3-4.8	<0.01

The regression analysis table presents statistical measures identifying predictors of hanging. It reveals that unemployment status emerged as a significant predictor, with unemployed individuals being 2.5 times more likely to commit hanging compared to employed individuals (p < 0.01, OR = 2.5, 95% CI: 1.3-4.8).

Discussion

This study sheds light on the intricate dynamics surrounding hanging suicides and emphasizes the significance of addressing psychosocial and environmental factors in suicide prevention strategies. The findings reveal several noteworthy insights deserving of discussion.The sociodemographic profile of individuals who died by hanging in our study reflects certain patterns consistent with previous research.[5-7] The predominance of males (69.4%) aligns with global trends indicating higher suicide rates among men. Similarly, the mean age of 34.2 years suggests that hanging suicides commonly affect individuals in their prime adulthood.[8,9] The marital status distribution underscores the importance of considering social relationships in suicide risk assessment, with 52.8% of cases being married. This highlights the potential role of marital stressors and interpersonal conflicts as contributing factors to hanging suicides. Similarly, some previous studies conducted on the University of Dhaka, the University of Ethiopia, and the University of Fiji also found mental distress anxiety, loneliness, hopelessness, substance use, and lack of social support as risk factors for suicide.[10-12]

Psychosocial factors emerged as significant determinants in our analysis, with unemployment being particularly notable. A striking 61.1% of cases were unemployed, indicating a strong association between joblessness and suicide risk. This finding underscores the importance of addressing socioeconomic stressors and providing support services for unemployed individuals to mitigate suicide risk. Additionally, the prevalence of mental health issues (41.7%) among the study participants underscores the need for enhanced mental health screening and access to treatment services. Environmental factors, including the location of the hanging, revealed that the majority of incidents occurred indoors (80.6%). This underscores the need for targeted interventions addressing access to lethal means within indoor environments. Interestingly, the equal distribution of incidents between daytime and nighttime suggests that the time of day may not significantly influence the occurrence of hanging suicides. Bivariate analysis highlighted significant correlations between marital status and hanging (p<0.05) and a strong association between unemployment and hanging (p<0.001). Regression analysis further confirmed unemployment status as

a significant predictor of hanging suicides (OR = 2.5, p<0.01), emphasizing the critical role of socioeconomic factors in suicide risk.

Limitation
Due to time constrain the sample size was relatively small.

Conclusion
In conclusion, this study provides valuable insights into the multifaceted nature of hanging suicides, revealing the interplay of sociodemographic, psychosocial and environmental factors. The high prevalence of unemployment among hanging suicide cases underscores the urgent need for targeted interventions addressing socioeconomic stressors and promoting employment opportunities. Additionally, the association between marital status and hanging highlights the importance of addressing interpersonal conflicts and providing support for individuals in strained relationships.

Recommendation
The results can be more broadly applied if studies are carried out with bigger, more varied populations at several locations.

Contribution of authors
SK-Conception, design, acquisition of data, data analysis, drafting & final approval.

HRB-Design, data analysis, interpretation of data, drafting, critical revision & final approval.

Disclosure
Both the author declared no competing interest.

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