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# An Autopsy-Based Analysis of Unnatural Deaths in Dinajpur, Bangladesh

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**ABSTRACT:** ***Background:*** Unnatural deaths are a significant public health and legal issue in Bangladesh. They are linked to social, economic, and psychological stressors and remain a major cause of premature mortality. ***Objective:*** This study aimed to describe the demographic and toxicological profiles of unnatural deaths in Dinajpur during January–December 2023. ***Methods:*** A retrospective review of autopsy records was conducted. Data were analyzed for age, sex, type and manner of death, place of occurrence, toxicological findings, and seasonal variation. Descriptive statistics were used to summarize the findings. ***Results:*** A total of 141 cases were included. Hanging was the most common type of death, followed by poisoning and road traffic accidents. Suicidal deaths predominated over homicidal and accidental ones. Most incidents occurred at home. Young adults, particularly those aged 21–30 years, were the most affected group. Toxicology tests were frequently not performed, limiting interpretation. ***Conclusion:*** Unnatural deaths in Dinajpur are a serious concern, with suicide being the leading manner of death. The findings underscore the need for preventive strategies focusing on mental health, regulation of toxic substances, and family and community support systems.

**Keywords:** Unnatural Deaths, Suicide, Hanging, Poisoning, Forensic Autopsy.

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## INTRODUCTION

Natural death means death occurring due to some natural disease or pathological condition, old age, debility or devitalization.[1, 2] Any death where an outside intervening influence, either directly or indirectly is contributory to the individual's demise, or accelerates and exacerbates an underlying disease process to such a degree as to cause death would be categorized as unnatural.[2, 3] Unnatural deaths occur due to external causes such as hanging, poisoning, burns, drowning, and accidents. They impose a heavy burden on families and the healthcare system. It has been estimated that 60 people are directly affected by each suicide death, including family, friends, classmates, and work colleagues.[4] In Bangladesh, these suicidal deaths are often linked with low socioeconomic status, higher levels of stress, financial strain, diminished social standing, depression and hopelessness.[5] Homicide may be considered as destruction of human life by the act, agency, procurement, or culpable omission of some other person(s).[1] Studying the patterns of unnatural deaths can provide insight into prevention and guide the policymakers. Dinajpur, a northern district of Bangladesh, records a significant number of such cases every year. This study analyzes the distribution of unnatural deaths in Dinajpur using autopsy-based data.

## METHODS

This study employed a retrospective, cross-sectional design. It analyzed data on unnatural deaths in the Dinajpur district. Data was sourced from autopsy records performed by the author. The dataset covered a specific period, from January 2023 to December 2023. The dataset included 141 cases of unnatural death. Each case contained several variables. These variables included sex, age group,

type of death, manner of death, month of occurrence, place of occurrence, and toxicology report status. The upazila of each case was also recorded. Data was collected using Google Forms and Microsoft Excel. Collected data was processed and analyzed using descriptive statistics. Frequencies and percentages were calculated for all variables. Cross-tabulations were created to examine relationships between key factors. For example, we linked sex with type of death. These analyses were done in Microsoft Excel. The results are presented in the following section using tables and descriptive text. This approach provides a clear overview of the characteristics of unnatural deaths in this region.

## RESULTS

A total of 141 cases of unnatural deaths were analyzed. The ages of the deceased ranged from 4.5 to 82 years. The median age of the deceased was 32 years. The median was chosen as the most suitable measure of central tendency because it is less affected by the presence of extreme values or outliers, such as the ages of a few individuals in the dataset. The results are broken down into several key areas. Sociodemographic Characteristics The majority of victims were male (79, 56%), and female victims accounted for 62 cases (44%). [Table 1, Figure 1] The age distribution showed that young adults were the most affected. The largest group was the 21-30 years cohort (41 cases, 29.08%). This was followed by those over 60 years (25 cases, 17.73%) and the 31-40 years group (24 cases, 17.02%). Very few children (0-10 years) were recorded (1 case). [Figure 2]

**Table 1: Sex Distribution**

| Male | Female |
|---|---|
| 79 (56%) | 62(44%) |

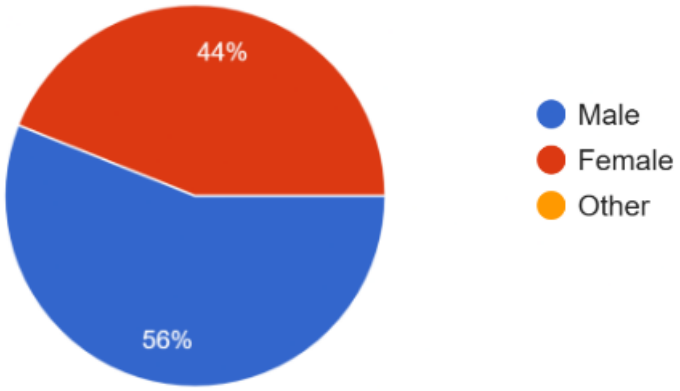


**Figure 1: Percentage of Sex Distribution**

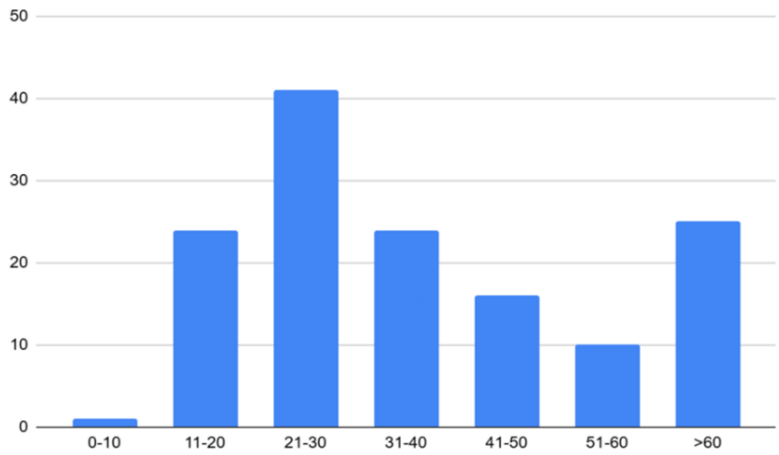

**Figure 2: Age Group Distribution of The Deceased**

**Manner and Type of Death**

The manner of death was primarily suicidal (81 cases, 57.45%). Homicidal (27 cases, 19.15%) and undetermined (27 cases, 19.15%) manners were equally common. Accidental deaths were rare (6 cases, 4.26%). [Figure3]

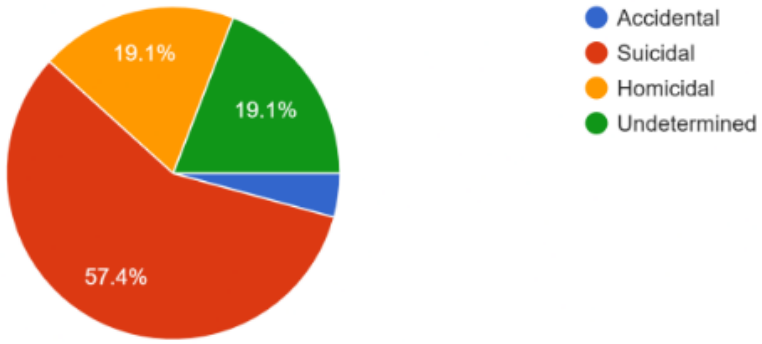


**Figure 3: Percentage of Manner of Death**

**Cross-tabulation: Sex vs. Manner of death**

Table 2 and Figure 4 show how the sex and manner of death are related. Suicidal tendencies were predominant among the females. While males were more subjected to homicidal and accidental deaths.

**Table 2: Manner of Death vs. Sex**

| | Male | Female | Total |
|---|---|---|---|
| Suicidal | 33 (40.74%) | 48 (59.26%) | 81 |
| Homicidal | 19 (70.37%) | 8 (29.63%) | 27 |
| Accidental | 6 (100%) | 0 (0%) | 6 |
| Undetermined | 21 (77.78%) | 6 (22.22%) | 27 |
| | 79 | 62 | 141 |

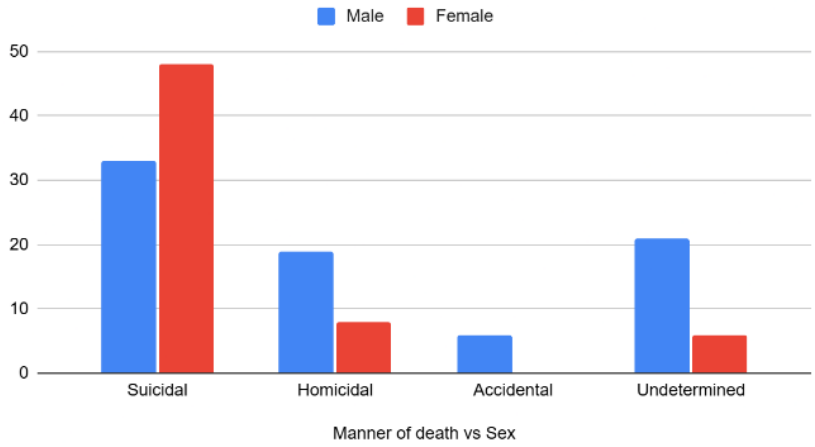


**Figure 4: Manner of Death Among Sex Distribution.**

Regarding the specific type of death, hanging was the most common method (62 cases, 43.97%). This was followed by blunt force trauma (25 cases, 17.73%) and poisoning (24 cases, 17.02%). Other types, like sharp force trauma and road traffic accidents, were less frequent. [Table 3]

**Table 3: Type of Death**

| Trait | Frequency | Percentage |
|---|---|---|
| Hanging | 62 | 43.97% |
| Poisoning | 24 | 17.02% |
| Sharp Force Trauma | 7 | 4.96% |
| Blunt Force Trauma | 25 | 17.73% |
| Road Traffic Accident | 8 | 5.67% |
| Burn | 2 | 1.42% |
| Drowning | 1 | 0.71% |
| Firearm | 1 | 0.71% |
| Electrocution | 1 | 0.71% |
| Unknown | 10 | 7.09% |
| Total | 141 | 100.00% |

**Temporal and Spatial Patterns**

Deaths occurred throughout the year. The months of June, July, and August had the highest frequency (15 cases each). [Figure 5] The home was the most common place of occurrence (94 cases, 66.67%). This was far higher than roads or public places (13 cases each).

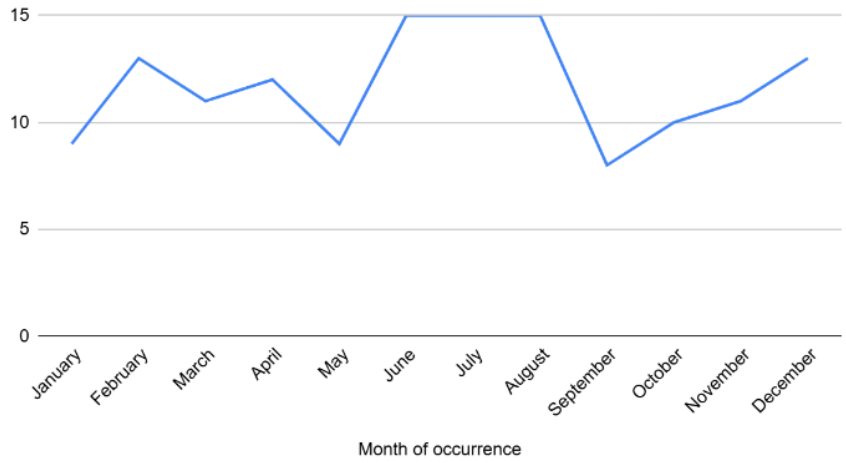


**Figure 5: Temporal Pattern of Unnatural Death Throughout the Year**

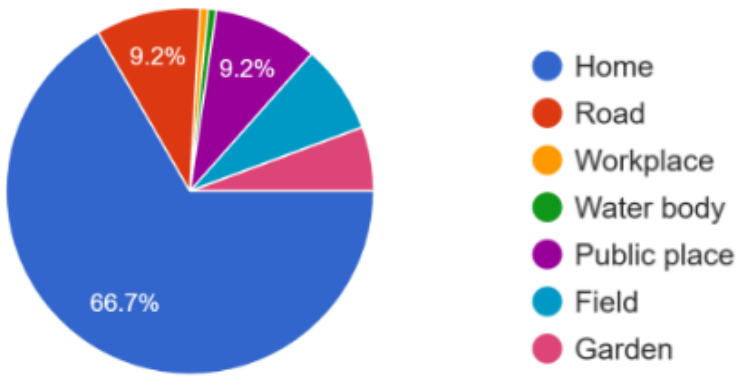

**Figure 6: Place of Occurrence**

**Upazila Distribution**

Geographically, the highest number of cases occurred in the Kotwali Upazila (41 cases). This was followed by Kaharole (14 cases) and Parbatipur (13 cases).

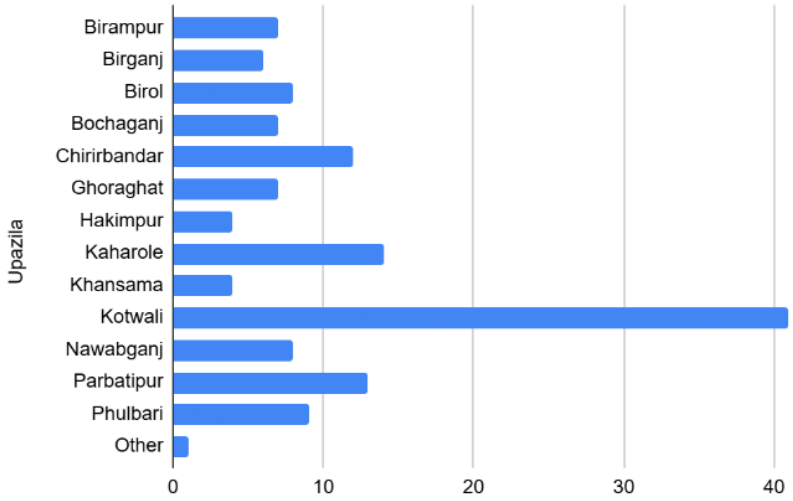


**Figure 7: Upazila Distribution of Unnatural Deaths**

**Toxicology Reports:** A large proportion of cases lacked toxicological testing. [Figure 8]

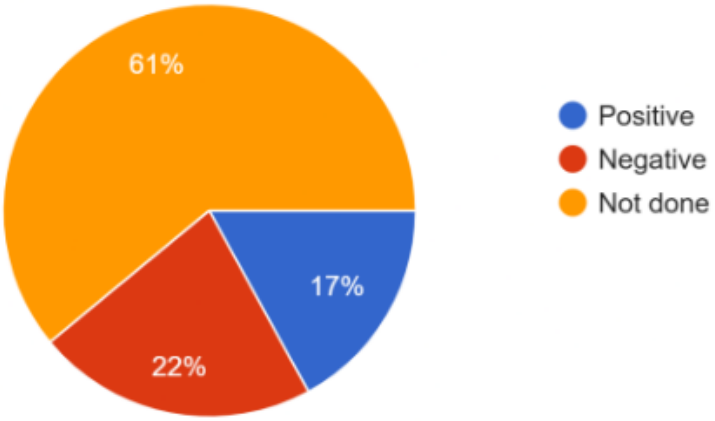


**Figure 8: Toxicology Report**

## DISCUSSION

This study shows that hanging is the leading cause of unnatural deaths in Dinajpur. Similar findings have been reported in other districts of Bangladesh and in South Asian countries.[6] Hanging is often associated with impulsive acts during emotional distress, such as in domestic quarrels. The predominance of young adults indicates that social and psychological pressures contribute significantly. Marriage-related conflict, academic stress, and financial hardship may play a role.[7] The data shows a concerning involvement of women. They represent a large portion (43.97%) of all victims. Notably, women constitute a majority of suicidal deaths (48 of 81 cases). This suggests potential underlying issues. These may include gender-based violence, social pressures, or limited access to mental health resources.[7] Poisoning was the second most common cause. In rural areas, easy access to pesticides and chemicals increases the risk.[6, 8] Many of these deaths are preventable with better regulation of toxic substances. Awareness can be raised through proper public education in pesticide

usage and management. Road traffic accidents also contributed to unnatural deaths. This highlights the need for improved road safety measures. Suicidal deaths outnumbered accidental and homicidal ones. This is an alarming trend It points to rising mental health challenges and lack of support systems. Stigma surrounding psychiatric illness often prevents people from seeking help. Community-based counseling and awareness programs could reduce the risk. The high number of undetermined deaths (27 cases) is a limitation. It points to potential gaps in the death investigation process. Improving forensic capabilities and standardizing investigations could reduce this number.[9] This would lead to more accurate data.

Most deaths occurred at home. This shows that domestic environments are not always safe. This is contrary to the common perception of public spaces being more dangerous. Family disputes, interpersonal violence, and lack of coping mechanisms may push individuals to take drastic steps. Strengthening family support and communication can help prevent such tragedies.[10, 11] The concentration of cases in specific upazilas like Kotwali warrants further study. It may be related to population density. It could also be linked to socioeconomic factors unique to those areas. The monthly distribution showed fluctuations, with peaks in certain months. Seasonal stress, agricultural workload, or festivals may influence these patterns. More detailed studies are needed to confirm these associations. The low rate of toxicological testing (only 39% of cases) is another critical finding. Manycases were not tested, as the cause and manner of death were already clearly determined from postmortem findings. But without this data, it is difficult to assess the role of intoxication. Substance abuse could be a major contributing factor in many cases. Increasing routine toxicology screening is strongly recommended. Overall, the findings underline the need for a multi-sectoral approach. Law enforcement, healthcare, social services, and education systems must work together. Preventive measures should include pesticide control, mental health services, road safety initiatives, and community awareness.[6, 12]

## CONCLUSION

Unnatural deaths in Dinajpur are a major concern. Hanging and poisoning are the leading types, with most deaths being suicidal and occurring at home. Young adults are the most vulnerable group. Preventive strategies focusing on mental health, pesticide regulation, road safety, and family support systems are urgently needed.

**Recommendation**

This analysis highlights an urgent need for suicide prevention programs in Dinajpur. These programs should focus on mental health support. They should also promote means restriction, especially for hanging and poisoning. Community awareness campaigns are essential. Future efforts must strengthen death investigation systems. It is recommended to perform a more elaborate study involving a larger number of datasets and to include a few more variables in the study. Better data leads to better policies and saves lives.

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**Conflict of Interest:** The author declares that there is no conflict of interest regarding this research.

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