

Pattern of Unnatural Death in Paediatric Age Group: A Retrospective Study at a Tertiary Care Centre (Lakhimpur), Assam

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Received: 30 Dec 2025/ Revised: 26 Jan 2025/ Accepted: 25 Feb 2026

ABSTRACT

Background: Unnatural deaths in the paediatric age group are a significant public health concern, particularly in developing regions. With a transition from infectious diseases to injury-related mortality, analysing the pattern and causes of such deaths is essential for planning preventive strategies. This study aimed to analyse the demographic profile, manner, and causes of unnatural deaths among children aged 0–18 years in a tertiary care centre in Lakhimpur, Assam.

Methods: A retrospective study was conducted over 1 year (January 2025 to December 2025) at Lakhimpur Medical College and Hospital. Data were collected from 60 paediatric autopsy cases of unnatural deaths using a structured proforma. Information regarding age, sex, manner, and cause of death was obtained from police records and relatives. Descriptive statistical analysis was performed.

Results: Out of a total of 501 autopsies, 60 cases (11.97%) were paediatric unnatural deaths. Males accounted for 55% and females 45% (male: female=1.32:1). The majority of cases (76.66%) belonged to the 12–18 years age group. Accidental deaths were most common (70%), followed by suicidal (26.66%), homicidal (1.6%), and undetermined (1.6%) cases. Drowning was the leading cause of death (40%), followed by hanging (26.66%). Other causes included road traffic accidents, falls, and burns.

Conclusion: Accidental deaths, particularly due to drowning, are the leading cause of paediatric unnatural mortality in this region, with adolescents being the most affected group. The notable proportion of suicides highlights the need for strengthened mental health support and targeted preventive measures.

Key-words: Paediatric deaths, Unnatural deaths, Drowning, Suicide, Autopsy, Assam

INTRODUCTION

It has been rightly stated that "Child is the father of Man", and indeed, the health condition of a community is mirrored by the pediatric demographic (0 to 18 years) in a specific region. Globally, it is estimated that over 26,000 young children under the age of five, primarily

from developing countries, pass away each day. India accounts for one-sixth of the global population, with 29.5% of its population in the 0–14-year age group.^[1]

Paediatrics is the field of medicine focused on the healthcare of infants, children, and adolescents, generally covering the age span from birth to 18 years. According to the Bharatiya Nyaya Sanhita (BNS) 2(3), any individual under 18 years of age is considered a child.^[2]

Neonates and infants possess limited mobility and delicate physiology, rendering them susceptible to falls, suffocation, or improper handling. Toddlers and young children, motivated by curiosity and unsteady movement, frequently explore their surroundings without fully understanding the associated risks, leading to falls, choking, or burns.^[3]

How to cite this article

Pandey R, Das NK, Hassan A, Juneja GS. Pattern of Unnatural Death in Paediatric Age Group: A Retrospective Study at a Tertiary Care Centre (Lakhimpur), Assam. SSR Inst Int J Life Sci., 2026; 12(2): 9507-9511.



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Adolescents, conversely, are at a heightened risk for injuries due to engaging in risk-taking behaviors, succumbing to peer pressure, and exhibiting cognitive immaturity, which adversely affects their judgment and impulse control.^[4] At every age, insufficient supervision, hazardous environments, and unpredictable behavior further amplify their vulnerability to accidents.

Today's children face an overwhelming amount of stress, stemming from strained parental relationships that lead to broken homes, high expectations for academic performance, comparisons among peers, and a growing sense of self-neglect. Over the past few decades, the causes of death in the pediatric population have shifted from infections to social factors. Injuries and violence have become significant threats to children's lives, impacting social, psychological, economic, and medical aspects globally. They are responsible for numerous fatalities among individuals under 18 years of age each year, thereby creating substantial public health challenges.^[4] With this consideration, a study was conducted with the aims of outlining the demographic profile, evaluating the proportion, and identifying the causative factors of unnatural deaths within the paediatric age group.

MATERIALS AND METHODS

Study Design and Setting- During the study period, a total of 501 autopsies were conducted, among which 60 (11.97%) were paediatric autopsies. The study was conducted at the Mortuary, Department of Forensic Medicine, Lakhimpur Medical College, Assam, from 1 January 2025 to 31 December 2025.

Data Collection- Data were collected using a pre-tested structured proforma from all cases of unnatural deaths within the paediatric age group (0–18 years) that were brought to Lakhimpur Medical College and Hospital, Assam, over a period of one year. Information regarding demographic characteristics, manner, time, and place of death was gathered from investigating police officers, police reports, and trustworthy attendants of the deceased.

The primary data in each case were collected from the police inquest, along with statements of relatives

recorded by investigating officers and the autopsy surgeon. Findings from a thorough external and internal examination of the body were studied in detail. Postmortem reports were reviewed in all cases. These cases were analysed based on various parameters such as age, gender, ethnicity, and the identified cause of death, obtained from forensic autopsy records.

Inclusion Criteria

1. All paediatric cases aged 0–18 years.
2. All cases of unnatural deaths in the paediatric age group, including deaths due to accidents such as road traffic accidents, drowning, burns, falls, and poisoning, as well as suicidal deaths (e.g., hanging, poisoning) and homicidal deaths, were brought for medico-legal autopsy at the tertiary care centre during the study period.

Exclusion Criteria

1. Decomposed/skeletal remains with an inconclusive cause of death, where the cause/manner of death cannot be determined reliably.
2. Cases with incomplete or missing records.
3. Brought-dead cases without sufficient history or medico-legal documentation.

Statistical Analysis- The data from this study were analysed using appropriate tables and graphs. Descriptive statistics, including mean, median, standard deviation, and percentages, were calculated.

RESULTS

During the study period, a total of 501 autopsies were conducted; 60 (11.97%) were pediatric autopsies, conducted at the Mortuary, Department of Forensic Medicine, and Lakhimpur Medical College, Assam, from 1 January 2025 to 31 December 2025 (Fig. 1).

Out of 60 paediatric autopsies, 42 cases (70%) were of accidental/unintentional paediatric death, 16 cases (26.66%) were suicidal, 01 case (1.6%) was homicidal, and 1 case (1.6%) was of unknown history provided by the investigating officer at the time of autopsy conducted (Fig. 2).

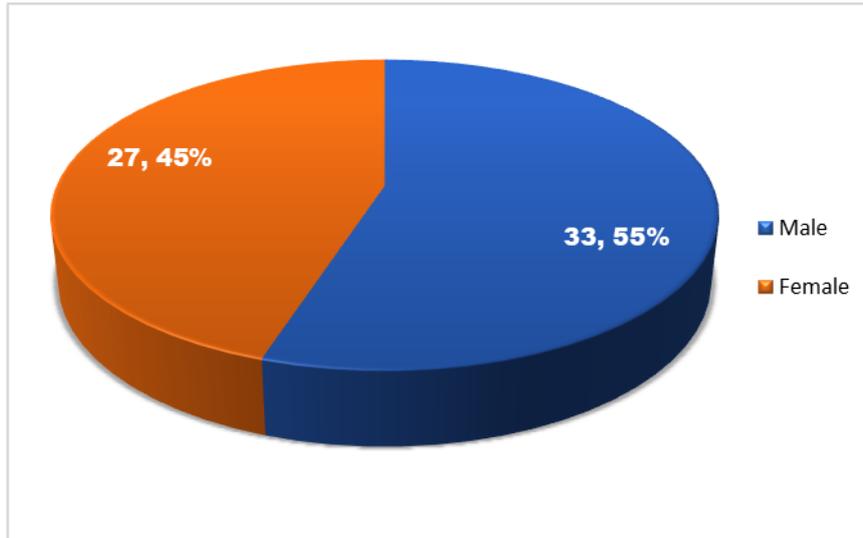


Fig. 1: Gender Distribution of Paediatric Cases

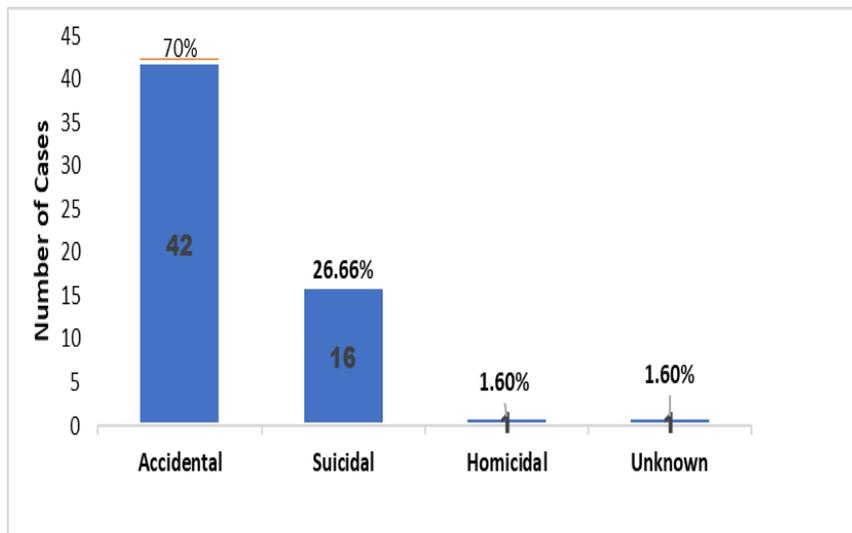


Fig. 2: Age Distribution of Paediatric Cases

Fig. 3 illustrates the distribution of various causes of unnatural deaths among paediatric cases. Drowning was the most common cause, accounting for 40% of cases,

followed by hanging (26.66%). Other causes included road traffic accidents, falls, and burns, contributing to a smaller proportion of deaths.

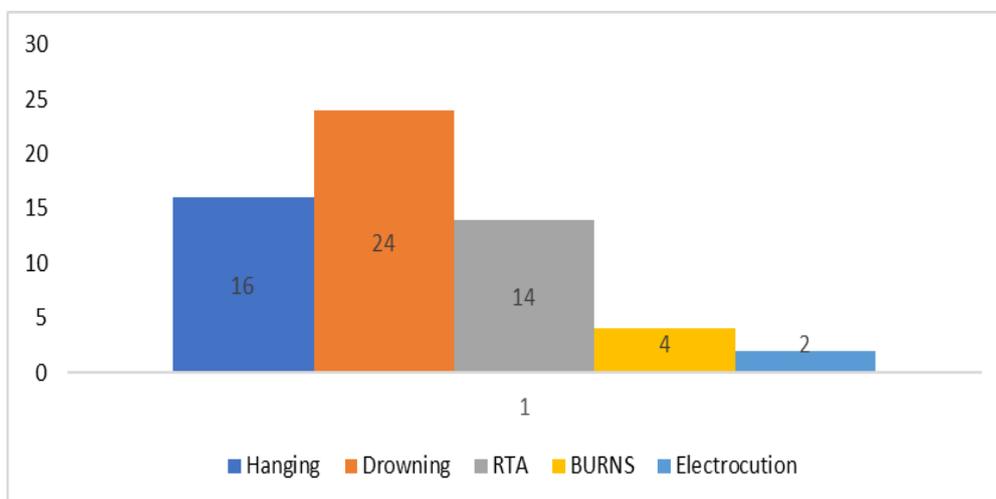


Fig. 3: Cause of Death of Paediatric Cases

DISCUSSION

During the 12 months of study, only 60 cases of unnatural deaths among the paediatric age group 0-18 years were studied. It represents only a part of the problem of unnatural deaths among the paediatric age group in North Lakhimpur, Assam.

In the present study, of a total of 512 autopsies, 60 cases were in the paediatric age group. Among these, males constituted the most victims (55%). In comparison, females accounted for 45%, resulting in a male-to-female ratio of approximately 1.32:1. This indicates a clear male predominance in paediatric unnatural deaths.

Similar observations have been reported in other studies. Athani *et al.* (Bangalore) ^[6] documented 55.22% male victims, while Kumar *et al.* (Varanasi) ^[7] reported 56.55% male victims. Likewise, Varma *et al.* (Bangalore) ^[8] observed a male predominance of 56%. The consistency of these findings across different geographical regions suggests a common epidemiological pattern.

The male predominance may be due to behavioral and social factors, as boys are more involved in outdoor, adventurous, and less supervised activities, increasing their exposure to risks. Sociocultural norms allowing greater freedom of movement for males may further contribute to this trend.

Thus, the findings of the present study are consistent with previous literature, reinforcing the need for targeted preventive strategies focused on child safety, particularly among male children, through improved supervision, awareness, and risk-reduction measures.

Among 60 cases of unnatural deaths in the paediatric age group, more deaths were seen in the age group of 12-18 years (Teens), i.e. 46 (76.66%) cases. The mean age of males was 16.0 years, while that of females was 14.8 years, according to Ohene and Meel's report ^[9,10]. Unnatural deaths increase with age, since there is more violence expected in older children ^[9]. This could be attributed to mental instability and hormonal influence. Proper parental guidance and suitable moral support should be provided for the same.

In this study of 60 pediatric unnatural deaths, most were accidental, accounting for 70% (42 cases). This highlights children's vulnerability to environmental hazards, inadequate supervision, and risk-prone behaviors, with common causes including road traffic accidents, drowning, falls, and burns.

Suicidal deaths were the second most common category, accounting for 26.66% (16 cases). Though lower than accidental causes, this proportion remains concerning and highlights issues related to the mental health and psychosocial well-being of children and adolescents. Contributing factors may include academic stress, family conflict, social pressure, and emotional instability, consistent with findings by Athani *et al.* ^[6], Ben *et al.* and Khamele *et al.* ^[11,12]

In the present study, drowning emerged as the leading cause of death among pediatric autopsy cases (24 cases), followed by hanging (16 cases). This indicates that accidental causes and asphyxial deaths contribute substantially to pediatric mortality in the study population. Drowning may reflect environmental and supervisory factors, especially in regions where children have easy access to open bodies of water.

In contrast, a study conducted by Soni *et al.* ^[13] reported road traffic accidents (RTA) as the most common cause of death in the pediatric age group. This variation in findings could be attributed to differences in geographic location, urbanization, traffic density, and lifestyle patterns. Areas with higher vehicular movement and urban exposure are more likely to report increased RTA-related fatalities. In contrast, regions with abundant water sources or inadequate safety measures may show a higher incidence of drowning.

CONCLUSIONS

In the present study, drowning emerged as the leading cause of death among pediatric autopsy cases (24 cases), followed by hanging (16 cases). This indicates that accidental causes and asphyxial deaths contribute substantially to pediatric mortality in the study population. Drowning may reflect environmental and supervisory factors, especially in regions where children have easy access to open bodies of water. In contrast, a study conducted by Mahesh Soni reported road traffic accidents (RTA) as the most common cause of death in the paediatric age group. This variation in findings could be attributed to differences in geographic location, urbanization, traffic density, and lifestyle patterns. Areas with higher vehicular movement and urban exposure are more likely to report increased RTA-related fatalities. In contrast, regions with abundant water sources or inadequate safety measures may show a higher incidence of drowning.



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