

**Research Article****Study of Suicidal Deaths in Children and Adolescents in Chennai**

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Received Date: 18/04/2026

Accepted: 17/05/2026

Publication Date: 26/06/2026

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**ABSTRACT**

**Background:** Suicide among children and adolescents has emerged as a major public health concern worldwide and is one of the leading causes of death in young individuals. Adolescence is a vulnerable period characterized by significant psychological, emotional, and social changes that may predispose individuals to suicidal behavior. Understanding the epidemiological profile and associated factors of suicidal deaths is essential for developing effective preventive strategies.

**Aim:** To study the pattern and epidemiological profile of suicidal deaths among children and adolescents undergoing medicolegal autopsy at Government Kilpauk Medical College Hospital, Chennai. **Materials and Methods:** A retrospective descriptive observational study was conducted in the Department of Forensic Medicine and

Toxicology, Government Kilpauk Medical College Hospital, Chennai, from January 2026 to March 2026. A total of 100 confirmed cases of suicidal deaths among children and adolescents aged less than 19 years were included in the study. Data were collected from postmortem records, police inquest reports, hospital records, and toxicological reports. Variables analyzed included age, gender, residence, educational status, method of suicide, place of occurrence, presence of suicide notes, and associated precipitating factors. Data were analyzed using SPSS version 26.0 and expressed as frequencies and percentages.

**Results:** Among the 100 cases studied, the majority of victims belonged to the 16–18 years age group (65%), with a mean age of  $16.1 \pm 2.4$  years. Males constituted 58% of the victims, while females accounted for 42%. Most victims were from urban areas (72%) and were studying in higher

secondary (38%) or high school (34%). Hanging was the most common method of suicide (68%), followed by poisoning (18%). The majority of suicides occurred at home (71%). Suicide notes were present in 19% of cases. Academic stress and examination failure emerged as the most common associated factor (28%), followed by family conflict (24%), relationship issues (18%), and psychiatric illness (12%).

**Conclusion:** Suicidal deaths among children and adolescents predominantly affected older adolescents, males, and urban residents. Hanging was the most common method of suicide, and most incidents occurred within the home environment. Academic stress, family conflict, and relationship issues were the leading contributing factors. Strengthening school-based mental health programs, improving family support systems, and ensuring timely psychological and psychiatric interventions are essential for reducing the burden of adolescent suicide.

**Keywords:** Suicide; Adolescents; Children; Hanging; Academic Stress; Forensic Autopsy; Chennai; Mental Health.

## INTRODUCTION

Suicide is a major public health problem and represents one of the leading causes of preventable mortality worldwide. According to the World Health Organization (WHO), more than 700,000 people die due to suicide every year, accounting for approximately one death every 40 seconds. Suicide is one of the top causes of mortality for people between the ages of 15 and 29 worldwide, making adolescents and young adults an especially vulnerable demographic <sup>[1]</sup>. Beyond death, suicide has a significant psychological, social, and financial impact on families, communities, and healthcare systems. Adolescence and childhood are crucial developmental stages marked by rapid changes in social, emotional, cognitive, and physical domains. People have several difficulties in these early years with regard

to identity formation, interpersonal interactions, academic success, and emotional control. Vulnerable children and teenagers may be more susceptible to mental health issues, self-harm, and suicide behavior if they are unable to manage these pressures<sup>[2]</sup>. According to new research, some of the most significant risk factors for suicide in this age range are depression, anxiety disorders, drug misuse, family problems, bullying, social isolation, and negative childhood experiences <sup>[3]</sup>. Over the past several decades, there have been substantial changes in the epidemiology of suicide among children and adolescents. Suicide has become one of the leading causes of death for teenagers worldwide, which is indicative of the rising rates of psychological discomfort and mental health issues among young people<sup>[1]</sup>. According to WHO estimates, one in seven teenagers suffers from a mental health issue, yet many go misdiagnosed and untreated because of stigma, a lack of knowledge, and restricted access to mental health treatments <sup>[4]</sup>. As a result, suicidal thoughts and actual suicides are on the rise in many countries, especially in low- and middle-income countries.

A significant amount of the world's suicide burden falls on India. The nation confronts particular difficulties with regard to juvenile mental health because it has one of the biggest adolescent populations in the world. A worrying rise in child and teen suicides over the last 20 years has been shown by recent studies of National Crime Records Bureau (NCRB) data. during 134,000 children and adolescents in India have committed suicide during the past 26 years, according to Jena et al., with a steady rising trend shown in subsequent years <sup>[5]</sup>. The scientists also projected that if preventive measures are not improved, teenage suicide rates will continue to grow over the next ten years.

A complex interplay of biological, psychological, family, educational, and societal variables influences adolescent suicide in India. Important triggering variables have been repeatedly identified,

including family conflicts, academic pressure, exam-related stress, interpersonal problems, mental illness, drug addiction, chronic illness, and socioeconomic challenges<sup>[6,7]</sup>. In metropolitan environments, where fierce rivalry and parental expectations may negatively impact psychological well-being, academic stress in particular has been identified as a major factor. The rising mental health issue among school-age teenagers is highlighted by recent reports that show a significant rise in student suicides throughout India<sup>[8]</sup>.

Suicidal conduct has also been shown to differ by gender. Due to the employment of very deadly techniques, completed suicides are typically more prevalent among men, although suicidal ideation and attempts are often more common among women. These disparities may be caused by gender-specific stresses, family obligations, cultural expectations, and societal pressures<sup>[9]</sup>. Designing focused preventative measures requires an understanding of these demographic differences. Geographical location, cultural customs, and the availability of deadly weapons all influence how children and teenagers commit suicide. Hanging has regularly been found to be the most prevalent means of completed suicide in Indian studies, followed by poisoning, drowning, and self-immolation. The method of choosing has a major impact on mortality results and has substantial ramifications for preventative measures, such as limiting access to suicide tools. Another significant risk factor for youth suicide is mental health issues. Suicidal behavior has been closely linked to depression, anxiety disorders, bipolar illness, conduct disorders, and drug use disorders<sup>[3]</sup>. Unfortunately, due to low mental health literacy, societal stigma, and a lack of psychiatric services, mental diseases in children and adolescents frequently go undiagnosed. Early detection and treatment of mental illnesses can significantly lower suicide risk and enhance long-term results.

Research on forensic autopsies offers important insights into the circumstances and epidemiological features of suicide deaths. Medicolegal investigations, in contrast to hospital-based research, allow for a thorough evaluation of demographic characteristics, techniques used, scene discoveries, and related psychological issues. Identifying susceptible groups and developing evidence-based preventative initiatives require this kind of information. There are still very few region-specific forensic research looking at suicidal deaths among children and adolescents in India, despite the country's rising teen suicide rate. Rapid urbanization, educational rivalry, social variety, and shifting family arrangements are characteristics of Chennai, one of the biggest cities in South India. These elements may have an impact on young people's suicidal behavior patterns and determinants. The epidemiological profile of suicide deaths in children and adolescents may be studied at Government Kilpauk Medical College Hospital, a significant tertiary care referral institution that gets a significant number of medicolegal cases from Chennai and the surrounding areas. Therefore, the current study was conducted to examine the demographics, suicide techniques, and related variables of children and adolescents who committed suicide and had medicolegal autopsies at Government Kilpauk Medical College Hospital in Chennai. The results of this study may help public health officials, educators, mental health experts, and legislators better understand the burden of teenage suicide and design effective prevention strategies.

### **AIM**

To study the pattern and epidemiological profile of suicidal deaths among children and adolescents undergoing medicolegal autopsy at Government Kilpauk Medical College Hospital, Chennai.

### **OBJECTIVES**

1. To determine the age and sex distribution of suicidal deaths among children and adolescents.
2. To identify the common methods employed for suicide.
3. To analyze the socio-demographic characteristics of the victims.
4. To study the place and circumstances surrounding suicidal deaths.
5. To identify major precipitating and associated risk factors contributing to suicide.
6. To evaluate the pattern of suicidal deaths among different age groups of children and adolescents.

## **MATERIALS AND METHODS**

### **Study Design**

Retrospective descriptive observational study.

### **Study Setting**

Department of Forensic Medicine and Toxicology, Government Kilpauk Medical College Hospital, Chennai, Tamil Nadu, India.

### **Study Duration**

January 2026 to March 2026.

### **Study Population**

All cases of suicidal deaths among children and adolescents brought for medicolegal autopsy during the study period.

### **Sample Size**

A total of 100 cases fulfilling the inclusion criteria were included in the study.

### **Inclusion Criteria**

- Confirmed cases of suicide based on police investigation, inquest findings, and autopsy examination.
- Victims aged less than 19 years.
- Cases undergoing medicolegal autopsy at Government Kilpauk Medical College Hospital during the study period.

### **Exclusion Criteria**

- Homicidal deaths.
- Accidental deaths.
- Undetermined manner of death.
- Cases with incomplete records or missing essential information.

## **Data Sources**

Data were collected from:

1. Postmortem examination records.
2. Police inquest reports.
3. Hospital medical records.
4. Toxicological examination reports.
5. Statements of relatives and witnesses available in medicolegal documents.

## **Study Variables**

The following variables were studied:

### **Demographic Variables**

- Age
- Sex
- Religion
- Educational status
- Residence (Urban/Rural)

### **Suicide-Related Variables**

- Method of suicide
- Place of occurrence
- Time of occurrence
- Presence of suicide note
- Previous suicide attempts

### **Risk Factors**

- Family conflicts
- Academic stress
- Psychiatric illness
- Relationship issues
- Substance abuse
- Chronic medical illness
- Socioeconomic problems

## **Study Procedure**

After obtaining approval from the Institutional Ethics Committee and permission from the Department of Forensic Medicine, all medicolegal autopsy records of children and adolescents diagnosed as suicidal deaths during the study period were reviewed.

Relevant information regarding demographic profile, circumstances of death, autopsy findings, toxicological reports, and associated risk factors was extracted using a predesigned structured data collection proforma. Data were checked for completeness and accuracy before entry into Microsoft Excel.

Cases were categorized according to age group, sex, method of suicide, and associated precipitating factors. The

collected data were subsequently analyzed to identify patterns and trends in suicidal deaths among children and adolescents.

### Statistical Analysis

Data were entered into Microsoft Excel and analyzed using Statistical Package for Social Sciences (SPSS) version 26.0.

Categorical variables were expressed as frequencies and percentages. Continuous variables were expressed as mean  $\pm$  standard deviation.

Association between categorical variables was assessed using Chi-square test or Fisher's exact test wherever applicable. A p-value of less than 0.05 was considered statistically significant.

### Level of Significance

p < 0.05: Statistically Significant

p < 0.01: Highly Significant

p < 0.001: Very Highly Significant

## RESULTS

**Table 1: Age Distribution of Suicidal Deaths Among Children and Adolescents (n=100)**

| Age Group (Years) | Number (n) | Percentage (%) |
|-------------------|------------|----------------|
| 0–9               | 2          | 2.0            |
| 10–12             | 8          | 8.0            |
| 13–15             | 25         | 25.0           |
| 16–18             | 65         | 65.0           |
| <b>Total</b>      | <b>100</b> | <b>100.0</b>   |

Table 1 shows the age distribution of suicidal deaths among children and adolescents. The age range of 16–18 years old accounted for 65% of the victims, while the age group of 13–15 years old made up 25% of the cases. Just 2% of instances were seen in children between the ages of 0 and 9, but youngsters between the ages of 10 and 12 made up 8% of the study group. The average age of the victims was  $16.1 \pm 2.4$  years, suggesting that older teenagers accounted for the majority of suicide fatalities.

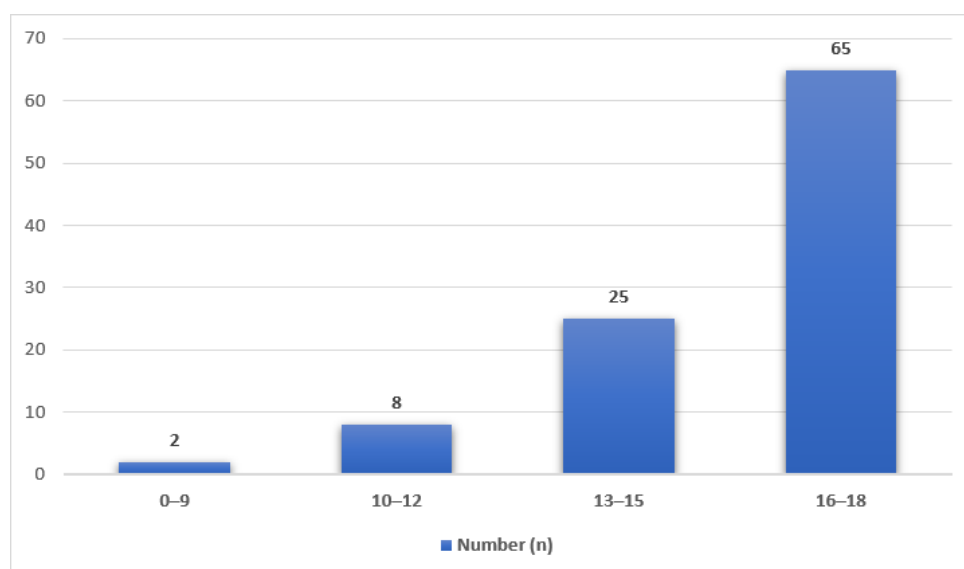


**Figure 1: Age Distribution**

**Table 2: Sociodemographic Characteristics of Victims (n=100)**

| Variable      | Number (n) | Percentage (%) |
|---------------|------------|----------------|
| <b>Gender</b> |            |                |
| Male          | 58         | 58.0           |
| Female        | 42         | 42.0           |

| Residence          |    |      |
|--------------------|----|------|
| Urban              | 72 | 72.0 |
| Rural              | 28 | 28.0 |
| Educational Status |    |      |
| Primary School     | 6  | 6.0  |
| Middle School      | 14 | 14.0 |
| High School        | 34 | 34.0 |
| Higher Secondary   | 38 | 38.0 |
| School Dropout     | 8  | 8.0  |

Table 2 depicts the sociodemographic profile of the study participants. Male victims constituted 58% of the cases, whereas females accounted for 42%, demonstrating a male predominance. In terms of where they lived, 72% of the victims were from cities, while 28% were from rural areas. Higher secondary students made up the biggest group (38%) in terms of educational standing, followed by high school students (34%). While elementary school students and school dropouts made for 6% and 8% of cases, respectively, middle school students accounted for 14% of cases. These results imply that older teenagers enrolled in school were especially susceptible to suicide fatalities.

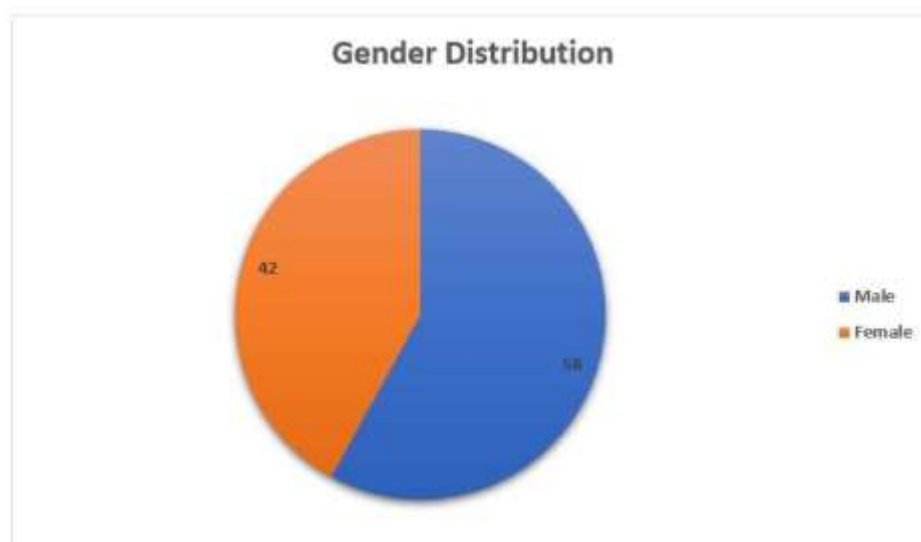


**Figure 2: Sex Distribution**

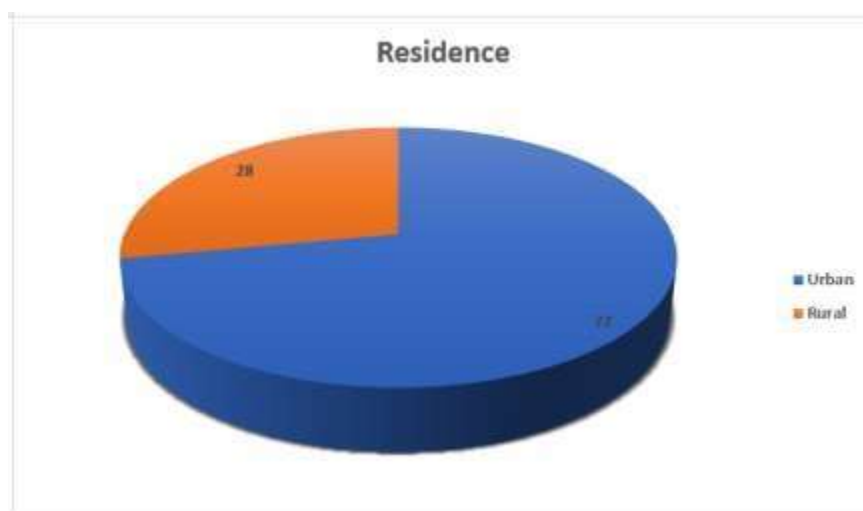
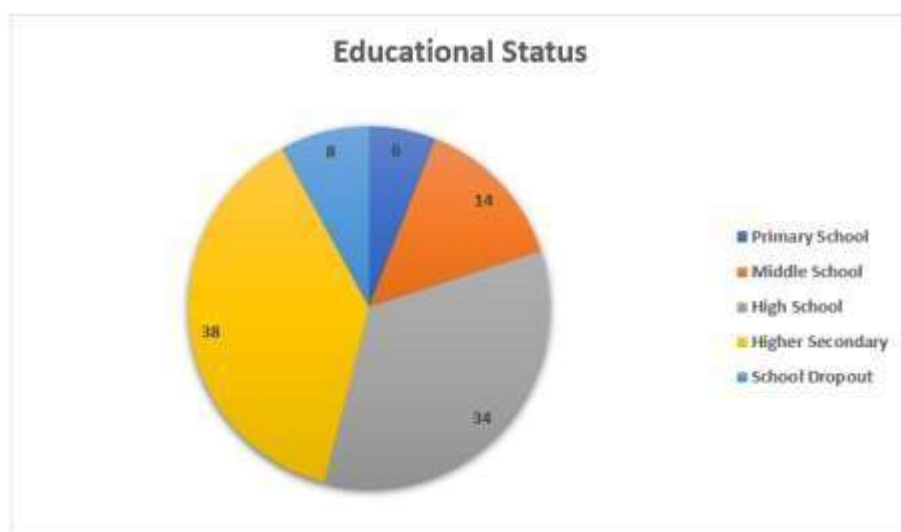


**Figure 3: Residence Distribution****Figure 4: Education Distribution****Table 3: Methods of Suicide Among Children and Adolescents (n=100)**

| Method of Suicide | Number (n) | Percentage (%) |
|-------------------|------------|----------------|
| Hanging           | 68         | 68.0           |
| Poisoning         | 18         | 18.0           |
| Drowning          | 6          | 6.0            |
| Railway Injury    | 4          | 4.0            |
| Jump from Height  | 3          | 3.0            |
| Self-immolation   | 1          | 1.0            |
| <b>Total</b>      | <b>100</b> | <b>100.0</b>   |

Table 3 illustrates the distribution of methods employed for suicide. Hanging was the most common method, accounting for 68% of all cases. The second most common technique, accounting for 18% of fatalities, was poisoning. Six percent of instances involved drowning, four percent involved railway accidents, and three percent involved jumping from a height. With just 1% of instances, self-immolation was the least popular technique. These results show that hanging is the most common way for kids and teenagers to end their lives.

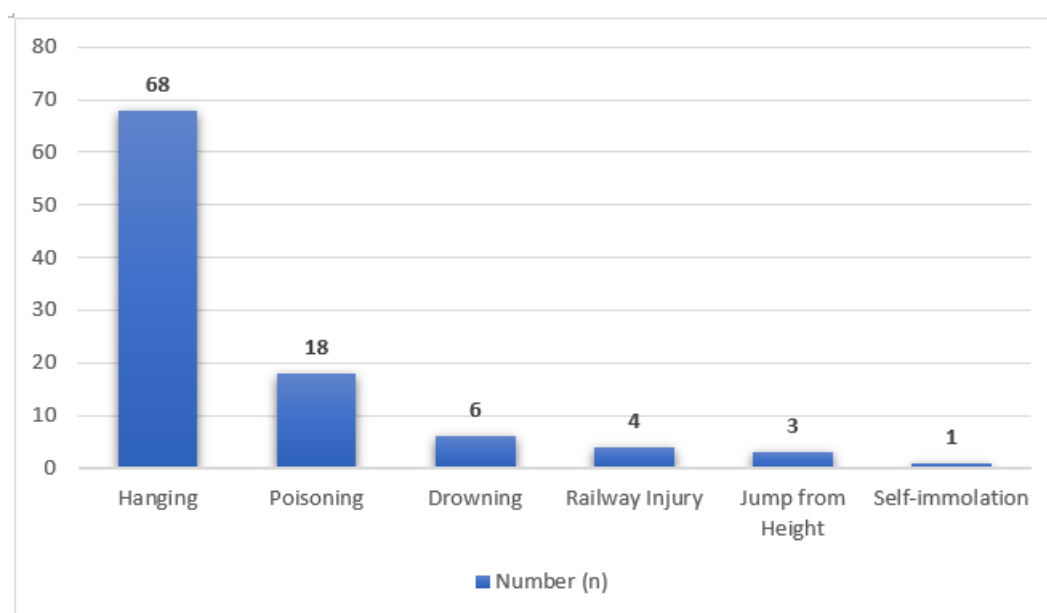


**Figure 5: Methods of Suicide Among Children and Adolescents**

**Table 4: Place of Occurrence and Presence of Suicide Note (n=100)**

| Variable                   | Number (n) | Percentage (%) |
|----------------------------|------------|----------------|
| <b>Place of Occurrence</b> |            |                |
| Home                       | 71         | 71.0           |
| Hostel                     | 10         | 10.0           |
| School/College             | 3          | 3.0            |
| Public Place               | 12         | 12.0           |
| Others                     | 4          | 4.0            |
| <b>Suicide Note</b>        |            |                |
| Present                    | 19         | 19.0           |
| Absent                     | 81         | 81.0           |

Table 4 presents the place of occurrence of suicide and the presence of suicide notes among the victims. Homes accounted for 71% of suicides, with public spaces coming in second at 12% and hostels at 10%. 3% of suicides happened in schools or colleges, while 4% happened somewhere else. Only 19% of victims left a suicide note, compared to 81% of instances where no suicide note was found. According to the research, the majority of suicides took place at home and frequently lacked written declarations of purpose.

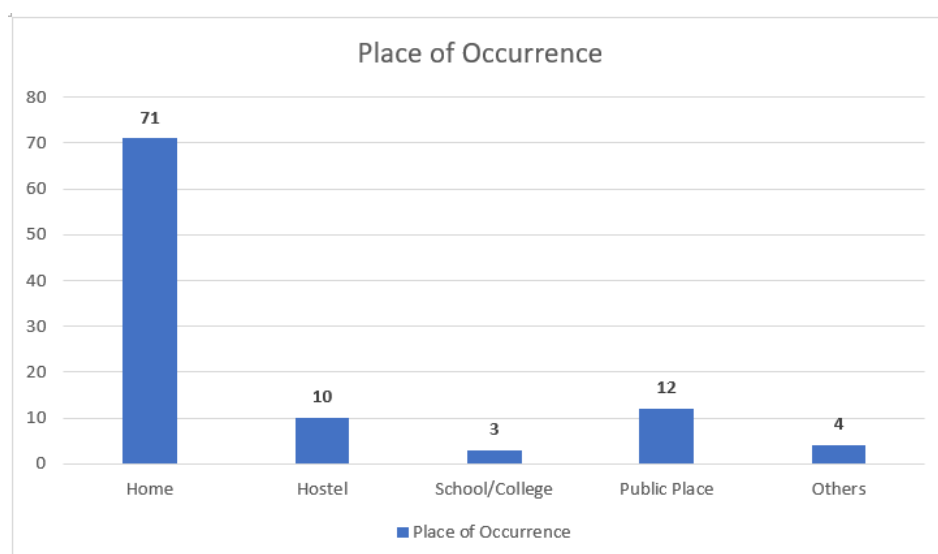


**Figure 6: Place of Occurrence and Presence of Suicide Note**

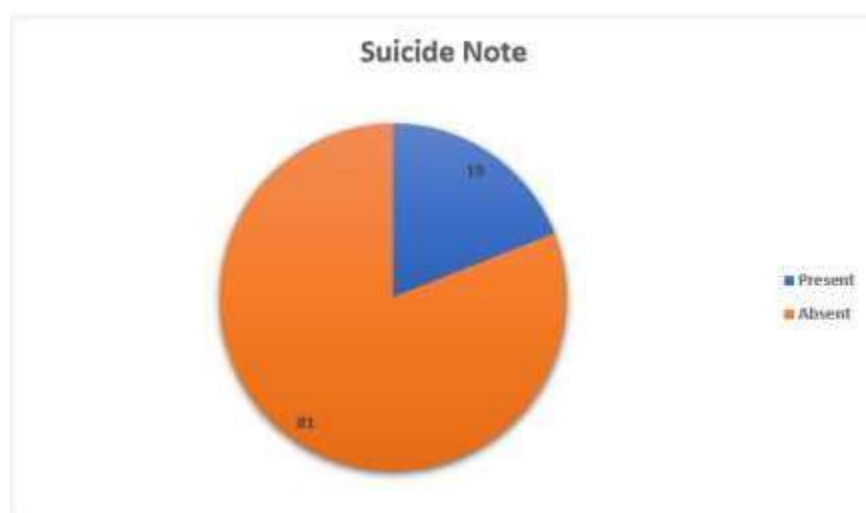


**Figure 7: Suicide Note**

**Table 5: Associated Factors Leading to Suicide (n=100)**

| Associated Factor                   | Number (n) | Percentage (%) |
|-------------------------------------|------------|----------------|
| Academic Stress/Examination Failure | 28         | 28.0           |
| Family Conflict                     | 24         | 24.0           |
| Relationship Issues                 | 18         | 18.0           |
| Psychiatric Illness                 | 12         | 12.0           |
| Financial Problems                  | 8          | 8.0            |
| Substance Abuse                     | 5          | 5.0            |
| Chronic Medical Illness             | 3          | 3.0            |
| Unknown                             | 2          | 2.0            |
| <b>Total</b>                        | <b>100</b> | <b>100.0</b>   |

Table 5 shows the various factors associated with suicidal deaths among children and adolescents. With 28% of instances, academic stress and exam-related failure turned out to be the most frequent contributing cause. Relationship problems were a factor in 18% of instances, while family conflict was found in 24% of victims. Twelve percent of the victims had a documented mental disorder. Substance misuse, chronic disease, and financial difficulties made up 8%, 5%, and 3% of cases, respectively. There was no discernible triggering cause in 2% of

the instances. These results demonstrate the important impact that psychological, family, and academic pressures play in teenage suicide conduct.

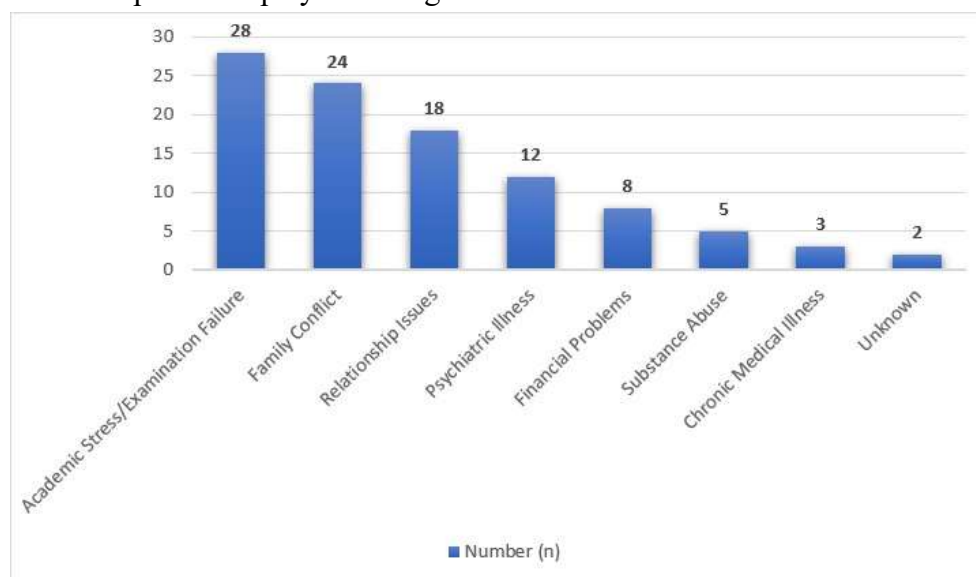


**Figure 5: Associated Factors Leading to Suicide**

## DISCUSSION

Suicide among children and adolescents is a major public health concern and represents one of the leading causes of death among young people worldwide. One hundred instances of suicide deaths among children and adolescents who were autopsied at Government Kilpauk Medical College Hospital in Chennai during the research period were examined in this study. The results offer significant new information on the strategies, epidemiological traits, and related variables that lead to suicide in this susceptible group. The majority of victims in this study were between the ages of 16 and 18 (65%), followed by those between the ages of 13 and 15 (25%) (Table 1). The victims were  $16.1 \pm 2.4$  years old on average. According to these findings, suicidal behavior is more likely to happen in late adolescence. Similar findings were reported by Senapati RE et al., who examined national suicide statistics and discovered that the bulk of suicide fatalities among Indian children and adolescents occurred in older teenagers [10]. According to Senapati et al., rising scholastic demands, emotional instability, interpersonal disputes, and an increase in psychosocial stresses all contribute to a

gradual rise in suicide rates during adolescence [3]. The increased prevalence among older teenagers might be explained by increased exposure to interpersonal problems, job uncertainty, scholastic demands, and identity-related difficulties. Males made up 58% of cases, while females made up 42%, according to gender-wise study (Table 2). The current study's male preponderance is in line with results from a number of Indian and foreign research [7,11]. According to Radhakrishnan and Andrade, although suicidal thoughts and attempts may be more prevalent in women, completed suicides are frequently more common in men due to their propensity to adopt more deadly techniques [7]. The higher suicide mortality rate among male teenagers may also be caused by cultural expectations, social obligations, risk-taking behavior, and a reluctance to seek psychological assistance.

Adolescents who lived in urban areas made up 72% of the study group, whereas those who lived in rural regions made up 28% (Table 2). Rapid urbanization, competitive educational settings, evolving family patterns, social isolation, and elevated psychological stress linked to urban lifestyles may all contribute to the

preponderance of urban cases. Recent research on young suicides in India's cities has shown similar patterns<sup>[3,6]</sup>. Being a large metropolis, Chennai exposes teenagers to a variety of social and scholastic pressures that might make them more susceptible to suicide thoughts and actions. Higher secondary students made up the biggest percentage of victims (38%), followed by high school students (34%), according to an examination of educational level (Table 2). According to this research, students who are getting ready for board exams and making transfers to higher education face significant psychological challenges. Exam stress, fear of failing, family expectations, and career-related uncertainty have all been identified as major factors in youth suicide in prior research<sup>[6,12]</sup>. The necessity for school-based mental health treatments and counseling services is highlighted by the concentration of cases among high school and upper secondary students. Hanging accounted for 68% of all suicide occurrences in the current research, with poisoning coming in second at 18% and drowning at 6% (Table 3). These results are in line with the National Crime Records Bureau's records and other forensic investigations carried out in India, where hanging has been found to be the most common way for teenagers to commit suicide<sup>[13]</sup>. Due to its great lethality, ease of access, and lack of preparation, hanging is frequently chosen. Because home chemicals, insecticides, and pharmaceuticals are readily available, poisoning became the second most popular approach. Khazaei S et al. and other Indian researchers researching teenage suicides have documented similar findings<sup>[14]</sup>. The bulk of suicides took place at home (71%), with lower percentages occurring in public spaces (12%), dorms (10%), schools or colleges (3%), and other settings (Table 4). Privacy, ease of access to resources, and less options for intervention might all contribute to the prevalence of home-based suicides. Similar results have been

documented in forensic examinations from several regions of India, where teenagers' homes were the most common setting for completed suicides<sup>[15]</sup>. These results highlight the significance of early warning sign detection in the home environment, family communication, and parental monitoring. While 81% of victims did not leave a suicide note, only 19% did (Table 4). This finding is consistent with other research indicating that only a small percentage of completed suicides had suicide notes<sup>[16]</sup>. The majority of youth suicides are spontaneous, and the lack of a suicide note emphasizes how difficult it is to foresee suicidal conduct. Teenagers frequently act without clearly expressing their goals when they are experiencing intense emotional discomfort. Academic stress and exam-related problems accounted for the majority of cases (28%), followed by family conflict (24%) and relationship problems (18%), according to the analysis of relevant variables (Table 5). In the Indian setting, where educational attainment is often linked to social standing and future employment prospects, these findings are quite pertinent. Jena et al. and Senapati et al. revealed similar findings, identifying academic stress as one of the key factors influencing teenage suicide in India<sup>[10,3]</sup>. Adolescents may experience significant psychological strain due to the growing competition of educational institutions, anxiety of subpar performance, and family expectations. In the current investigation, family conflict was shown to be the second most frequent related factor (24%) (Table 5). Domestic abuse, parental conflict, family instability, and insufficient emotional support have all been repeatedly identified as significant risk factors for suicide conduct in young people<sup>[17]</sup>. Teens who grow up in chaotic homes may be less able to cope and more susceptible to hopelessness and sadness. In the current study, 18% of patients had relationship problems (Table 5). Interpersonal connections and emotional attachments are critical to psychological

development during adolescence. Suicidal conduct and mental anguish can be strongly influenced by relationship failures, rejection, and social shame <sup>[18]</sup>. Studies assessing the psychosocial causes of teenage suicide conducted in India and other countries have shown similar results. Twelve percent of the victims had a mental disorder (Table 5). The underdiagnosis and underreporting of mental health illnesses in developing nations is probably the reason for this proportion, even if it seems lower than that seen in Western literature <sup>[19]</sup>. Due to stigma and restricted access to mental health services, depression, anxiety disorders, and behavioral disorders are often misdiagnosed among Indian teenagers. In this demographic, early screening and prompt psychiatric assistance may significantly lower the risk of suicide. Overall, the results of this study show that suicide fatalities in children and adolescents are complex occurrences impacted by social, psychological, family, educational, and demographic variables. The areas that need focused preventative interventions are highlighted by the prevalence of older teenagers, male victims, hanging as the favored technique, home as the prevalent site, and academic stress as the primary linked factor. Reducing youth suicide mortality requires strengthening school mental health programs, encouraging family support networks, expanding access to psychiatric treatment, and raising knowledge of early warning signals of suicide.

## CONCLUSION

The present study highlights the significant burden of suicidal deaths among children and adolescents in Chennai, with older adolescents (16–18 years) constituting the most affected age group. There was a male preponderance, most of the victims lived in cities, and most were enrolled in high school or upper secondary education. The most prevalent means of suicide was hanging, and the majority of these instances took place in homes. The multidimensional

character of teenage suicide was highlighted by the identification of interpersonal problems, familial disputes, and academic stress as the primary variables linked to suicidal deaths. The results highlight the critical role that social, psychological, family, and educational pressures have in shaping young people's suicide conduct. Essential techniques for preventing suicide include early detection of susceptible teenagers, bolstering counseling services in schools and colleges, raising awareness of mental health issues, enhancing family communication, and guaranteeing prompt psychiatrist care. To answer the rising issue of teenage suicide and lower avoidable mortality in this age range, a multidisciplinary strategy including parents, educators, medical professionals, mental health specialists, and legislators is needed.

## LIMITATIONS OF THE STUDY

1. The study was conducted at a single tertiary care center; therefore, the findings may not be generalizable to the entire population of Chennai or other regions of India.
2. The retrospective nature of the study limited data collection to information available in autopsy records, police inquest reports, and medicolegal documents.
3. Certain psychosocial variables such as personality traits, social media influence, bullying, peer pressure, and family dynamics could not be assessed comprehensively due to the absence of detailed documentation.
4. Psychiatric illnesses may have been underreported because many adolescents had not undergone formal psychiatric evaluation prior to death.
5. Information regarding precipitating factors was dependent on statements provided by family members and investigating authorities, introducing the possibility of reporting bias.
6. The relatively short study duration and sample size may limit the assessment of long-term trends and seasonal variations in

suicidal deaths among children and adolescents.

7. As the study included only completed suicides undergoing medicolegal autopsy, findings cannot be extrapolated to suicidal ideation, suicide attempts, or self-harm behaviors among adolescents.

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