

Pattern of Deliberate Self Harm in Children

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Abstract

Background: Deliberate self-harm refers to an intentional self-inflicted injury with or without the desire to die. It includes cutting, scratching, hitting oneself, intentional drug overdose, food restriction, and other risk-taking behaviors like speeding or unsafe sexual activity. Risk factors include psychopathology, family conflict, unstable caregiving, and maltreatment. Children who self-harm often have psychiatric illnesses such as depression, mood or anxiety disorders, conduct problems, and an increased risk of suicide. The present study aimed to analyze the pattern of deliberate self-harm in children below 15 years of age and identify associated factors.

Methods: This retrospective cross-sectional study was conducted at Nepalgunj Medical College, Kohalpur, from November 2022 to October 2024. Data were collected from the medical records of children admitted to the Pediatric Intensive Care Unit for deliberate self-harm. After stabilization, all children underwent psychiatric evaluation.

Results: Among 42 children, the male-to-female ratio was 1:2. The youngest child was 8 years old, and most (57.1%) were 14 years old. Self-poisoning, mainly by organophosphorus compounds and rat poison (zinc phosphide), was the most common method (78.6%), followed by hanging (9.5%). Major triggers included family-related stress (68.4%) followed by school stress (44.7%). Depression was present in 38.09% of the children, and 26.19% had definite suicidal intent. Depression was significantly associated with suicidal intent ($p < 0.01$).

Conclusion: Deliberate self-harm is common in children. Self-poisoning was the most common method. The attempts were both impulsive and associated with suicidal intent. Depression and acute psychosocial stressors were major triggers, highlighting the urgent need for targeted prevention strategies.

Keywords: Child; Depression; Poisoning; Self-Injurious Behavior; Stress, Psychological; Suicide, Attempted

Declarations

Ethics approval and consent to participate: This study was conducted with prior ethical approval from Ethical Review Board of Nepalgunj Medical College and Teaching Hospital (Ref no. 36/ 081-082) and informed consent has been obtained from participants prior to the enrollment.

Consent for publication: Informed consent was obtained from the patient for the publication of identifying features along with the manuscript.

Availability of data and materials: The full data set supporting this research is available with the corresponding author upon request by the readers.

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BACKGROUND

Deliberate self-harm (DSH) refers to an intentional act of causing physical injury to oneself with or without the intention to die. Other terms used are “attempted suicide” and “parasuicide.” DSH behaviors most commonly include cutting (with a knife or razor), scratching or hitting oneself, and intentional drug overdose [1]. They may also include restriction of food intake and other risk-taking behaviors such as driving at high speeds and engaging in unsafe sex [2]. Risk factors for child self-harm include psychopathology, family conflict, unstable caregiving, maltreatment, and residence in poorer communities [3].

Most authors distinguish between deliberate self-harm and suicide based on the absence or presence of an apparent intent to kill oneself. A prior episode of deliberate self-harm is one of the strongest predictors of future completed suicide [4]. Studies suggest that about one third to one half (30 - 52%) of adolescents who present with deliberate self-harm have underlying psychiatric issues such as depression, mood disorders, anxiety disorders, conduct problems, and an elevated risk of suicide [5]. Children who begin self-harming before adolescence are at much higher risk for subsequent self-harm events compared to those with a later onset of self-harm [6].

DSH has been extensively studied in adults and adolescents; however, very few studies have been conducted among younger children. Younger children may engage in self-harm for reasons distinct from those of older age groups, including difficulties with emotional regulation, exposure to family violence, bullying, or limited access to supportive adult relationships [4]. In many cases, younger children may lack the cognitive maturity to cope with distress, leading to impulsive behaviors that serve as coping mechanisms [5]. A significant gap exists in understanding the developmental, social, and environmental contributors to DSH in children. Thus, the present study was undertaken to analyze the pattern of deliberate self-harm in children below 15 years of age and to identify associated factors.

METHODS

The retrospective cross-sectional study was carried out in the Departments of Pediatrics and Psychiatry at Nepalgunj Medical College, Kohalpur, from November 2022 to October 2024. Data were retrospectively collected from the medical records of all children below 15

years of age who were admitted to the Pediatric Intensive Care Unit (PICU) with a history of deliberate self-harm in any form, by the researcher (a pediatrician). Children with accidental or homicidal injuries/presentations were excluded.

Ethical clearance was obtained from the Institutional Review Committee, Nepalgunj Medical College and Teaching Hospital (Ref no. 36/ 081-082). All children were managed initially in the PICU and, after stabilization, were evaluated by a psychiatrist for the presence of psychiatric illnesses. The child and the accompanying parent were interviewed directly.

The study included 42 children. Details regarding age, sex, family and school environment, stressors, and the nature of self-harm were extracted from the medical records. Psychiatric diagnosis was made using appropriate standardized diagnostic scales. Childhood depression was diagnosed using the Children's Depression Rating Scale-Revised (CDRS-R) [7], and suicidal intent was evaluated using the Columbia Suicide Severity Rating Scale (C-SSRS) Pediatric-Clinical (version 6/23/10) [8]. CDRS-R is a clinician-rated tool designed to assess depression in children and adolescents aged 6–18 years, using 17 symptom areas for accurate diagnosis and treatment monitoring. Total scores range from 17 to 113, with higher scores indicating more severe symptoms [7]. The C-SSRS is a tool used to evaluate suicidal thoughts and behaviors in children, adolescents, and adults. The Pediatric Clinical Version (6/23/10) is specifically designed for use in younger children and adolescents. A 5-point ordinal scale was used to classify the severity of suicidal ideation; higher scores indicated greater severity of suicidal ideation [8].

The results were tabulated and statistically analyzed using SPSS version 25. Descriptive statistics were used to determine frequencies. Fisher's exact test was used to assess the association between suicidal intent and depression.

RESULTS

The study site, Nepalgunj Medical College, Kohalpur, functions as a tertiary care center and the sole teaching hospital in the mid- and far-western regions of Nepal. Owing to this, cases of deliberate self-harm from the surrounding areas are referred to this center for specialized PICU management.

During the study period, a total of 42 children were

registered in the Pediatric Intensive Care Unit records with deliberate self-harm. Among them, 14 (33.3%) were males and 28 (66.7%) were females, giving a male-to-female ratio of 1:2. The youngest child was 8 years old, while the majority of cases (24; 57.1%) were 14 years old.

Poisoning was the most common method of self-harm (33 cases; 78.6%). Of these, 28 children ingested organophosphorus compounds and 5 consumed rat poison (zinc phosphide). Hanging was the second most common method (4 cases; 9.5%), followed by self-inflicted wrist injuries (2 cases; 4.8%) and drug overdoses (3 cases; 7.1%) involving paracetamol, clonazepam, and phenytoin. One child, who overdosed on phenytoin was receiving regular treatment for a seizure disorder. Multiple methods (hanging and self-inflicted injury) were used by 2 children (4.8%) (Table 1).

Table 1: Methods employed for deliberate self-harm (n = 42)

Methods of Self harm	n (%)
Poisoning	33 (78.57)
• Organophosphate	28
• Rat Poison (Zinc Phosphide)	5
Hanging	4 (9.50)
Self-inflicted/cut injury (over wrist)	2 (4.76)
Drugs overdosing	
(Paracetamol, clonazepam and phenytoin)	3 (7.14)
Multiple methods (hanging and self-inflicted injury)	2 (4.76)

Stress factors were identified in 38 (90.5%) children. Family-related stress was the most common stressor (26 cases; 68.4%), followed by school-related stress (17 cases; 44.7%) and stress related to a romantic relationship breakup (1 case; 2.6%). (Table 2)

Table 2: Stress factors in children with deliberate self-harm (n=38)

Stress Types	n (%)
Family stress	26 (68.4)
• Conflict with parents	17
• Conflict with siblings	6
• Broken family	2
• Parental alcoholism	1
School stress	17 (44.7)
• Conflict with peers/bullying	11
• Conflict with teachers/punishment	4
• Learning difficulties/exams failures	2
Romantic relationship breakup	1 (2.6)

Depression was documented in 16 (38.09%) children with a history of deliberate self-harm. Eleven children (26.19%) expressed a definite suicidal intent, while the remaining children exhibited impulsive behavior or attention-seeking behavior without suicidal intent. There was a statistically significant association between depression and suicidal intent ($p < 0.01$) (Table 3).

Table 3: Association between Depression and Suicidal intent in children with DSH

Depression	Suicidal intent			p - value*
	Yes	No	Total	
Yes	9	7	16	0.001
No	2	24	26	
Total	11	31	42	

*Fisher's exact test

DISCUSSION

DSH involves intentional injury to one's own body and may result in unintentional fatal outcomes, including death. Adolescents who engage in DSH represent a particularly vulnerable and high-risk population [9]. Self-harm is not uncommon in children, and they are at markedly increased risk for repeated self-injury and suicide attempts, emphasizing the need for early recognition, comprehensive assessment, and timely intervention.

The American Academy of Pediatrics (AAP) recommends routine suicide risk screening beginning at age 12 years and screening children aged eight to 11 years when clinically indicated. In children below eight years of age, routine screening is not recommended; however, assessment for suicidal thoughts and behaviors should be undertaken if warning signs are present [10].

However, the youngest child in the present study was 8 years old, which is at the lower limit of the recommended age for clinically indicated suicide risk screening. Similar findings were reported by Thomson AJ et al [11], although in their study all children were below eight years of age. In the study by Krishnakumar P et al, the youngest child with DSH was six years old, and the majority of children were between 11 and 13 years of age [5]. Similar age distributions were observed in the present study and in the study by Hawton K et al [12].

The male-to-female ratio in the present study was 1:2, in concordance with the studies by Krishnakumar P et al.⁵ and Lauw MS et al [9]. Possible explanations for this finding include earlier pubertal onset in girls, a higher prevalence of depression and anxiety symptoms among

girls, a tendency to express distress in an intro-punitive manner, and, perhaps, greater acceptance of DSH as a coping behavior.

Self-poisoning was the most common method of deliberate self-harm in the present study, followed by hanging, self-inflicted injuries, and drug overdose. Similar findings were reported by Subba SH et al [13] and Krishnakumar P et al [5], who also observed poisoning as the most common mode of DSH. Self-poisoning was predominantly due to organophosphorus compounds, likely because these pesticides are widely used in agricultural practices in our country. They are readily available and are often stored without adequate safety measures. Furthermore, the absence of strict regulations regarding their sale, storage, and distribution may contribute to their easy accessibility.

Stress in various forms was present in children with DSH. In the present study, family-related stress was the most common stressor, followed by school-related stress and romantic relationship breakups. Similar findings regarding stress as a risk factor have been reported in previous studies [5, 14 - 16]. Repetition of DSH is more common in children from dysfunctional families [17]. It may be presumed that a supportive family environment helps children cope with stress more effectively and reduces the likelihood of deliberate self-harm. High parental expectations and the resulting parental behaviors were important contributors to school-related stress in the present study.

Children in the present study were evaluated for depression, which was found in approximately 38% of cases. Similar studies have also identified depression as a major psychiatric disorder among individuals with deliberate self-harm [9, 18 - 20].

In the present study, 26.19% of children expressed definite suicidal intent, whereas the remainder exhibited impulsive or attention-seeking behavior. Studies by Sarkar M et al [21] and Whalen DJ et al [22] reported similar proportions of children with suicidal intent. Children generally have less developed problem-solving skills and coping mechanisms; therefore, negative experiences that appear insurmountable may lead to feelings of hopelessness and despair, resulting in suicidal intent or self-harming behavior.

The present study demonstrated a significant association between depression and suicidal intent among children.

This finding is consistent with previous researches demonstrating that mood disorders significantly increase children's vulnerability to suicidal thoughts and behaviors. Similarly, Kumar CS et al [23] reported that children diagnosed with depressive disorders have a higher likelihood of engaging in suicidal behavior compared to their non-depressed peers. Stewart JG et al [24] also found that depression contributes to the emergence of suicidal intent and may increase its severity. Therefore, early recognition and treatment of depression are crucial for reducing the risk of suicidal intent in children.

The child and the accompanying parent were interviewed, and CDRS-R was used to assess depression in the study. However, no standardized stress assessment tool was used to evaluate stressors. This may have limited the accuracy of the stress-related findings. Although C-SSRS includes validated items for assessing suicidal ideation and intent, the reliability of self-reported suicidal intent may be limited in younger children because of their developmentally immature understanding of death, intentionality, and limited capacity for introspection. Furthermore, this was a single-center study with a relatively small sample size of 42 children admitted to the Pediatric Intensive Care Unit. Therefore, the findings may not be generalizable to all children with deliberate self-harm. A larger, multicenter study may yield different results and conclusions.

CONCLUSION

This hospital-based retrospective study found that deliberate self-harm is common in children, with females affected more frequently than males. Self-poisoning with organophosphorus compounds was the most frequent method. Approximately 26.19% of the children expressed a definite intent to commit suicide, while the remaining children exhibited impulsive or attention-seeking behavior without suicidal intent. These findings highlight the urgent need for targeted preventive interventions, including school-based mental health screening for early detection and increased community awareness to reduce stigma and promote help-seeking behavior.

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