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Prevalence of Deliberate Self-Harm Among Youth: A Retrospective Study in Eastern India

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ABSTRACT

Background: This retrospective cross-sectional study investigated the prevalence of deliberate self-harm (DSH) among youth attending a tertiary care center in Eastern India from October 2022 to September 2023. The study aimed to ascertain the prevalence and to identify the primary functions underlying DSH engagement among the youth population, with a focus on emotional regulation.
Materials and Method: Data from hospital records were collected, and one on one interviews were conducted using NSSI questionnaire to assess DSH behaviour. A total of 66 subjects were enrolled, aged 15 to 29 years, deliberate self-harm behaviour over the study period. Statistical analysis, including descriptive statistics and chi-square tests, was conducted using SPSS version 27.
Results: Findings revealed a notable prevalence of DSH, 59% of the 66 respondents had, had a documented history of deliberate self-harm with various underlying causes, with majority within the age category between 21 to 29 years. The primary functions of DSH were linked to emotional dysregulation, such as coping with frustration, anger, and stress.
Conclusion: The study underscores the importance of understanding the functions of DSH to inform clinical interventions targeting the specific needs of youth experiencing mental health challenges in Eastern India. The results also emphasises the need for targeted interventions addressing emotional dysregulation.

Keywords: Non-suicidal Self Injury, emotional regulation, mental health, prevalence, Self-harm

1.0 INTRODUCTION

"Deliberate Self-harm sometimes referred to as superficial moderate self-mutilation, self-injurious behaviour, parasuicide, and self-wounding, refers to the intentional harm of one's own body without a clear suicidal intention"[1]. Regardless of the motive, it is one important predictions of suicide[2]. Geographical differences have occasioned the use of a different term; nonsuicidal self-injury (NSSI), a term used more in the American subcontinent, which refers to "self-injury without the intent of suicide"[2]. NSSI has been included in the

Diagnostic and Statistical Manual of Mental Disorders-5th Edition as a condition for study. Consequently, this has led to diverse assessments and interpretations leading to challenges in comparing international data.

The onset of DSH can be as early as 11 years with an approximated suicide risk of 50-100 times extra within the 1st Year in the aftermath of a Self-harm experience[3]. Data gathered from low and middle income countries revealed that the average 12-moth prevalence of suicide attempts among adolescents stands at 17.2%[3].

In India the existing data was scare and that life time prevalence of NSSI may be greater than the international average (19.8% vs 17.2%)[2]. This scarcity might pass as a reason for the no existing data on the prevalence of DSH in Eastern India after our thorough search of various databases. Due to these principal reasons- differences in assessment methodology and differences in classification structures for self-injury, it is difficult to compare prevalence estimates from different studies[4]. Additionally, most DSH cases are under reported due to various reasons including cultural factors. It is viewed as a social stigma in India and so most of the cases related to poisoning are presented as accidental poisoning[5] which also has a cascading effect on the reported cases of accidental poisoning. There is the need for thorough investigation into people who report to the tertiary care with accidental poisoning related complains to be sure if such persons are not having DSH ideation.

For the purposes of this study the definition for youth has been taken from that which is given by the Indian National Youth Policy in the year, 2014 which include all those who fall within the age brackets of 15-29[6]. This study was aimed at exploring the prevalence of DSH among youth in a tertiary care center in Eastern India to find out the pronounced functions for engaging in DSH so as to be able to propose measures to be deal with this condition among the youth.

2.0 MATERIALS AND METHODS

Study setting & Design: This retrospective cross-sectional study was undertaken in a tertiary care center in Eastern India. There were 66 subjects in all enrolled in the study between October 2022 to September 2023 after we applied the inclusion and exclusion criteria. We searched the discharged registers from both male and female wards for the period under review. All those who met the inclusion criteria and were discharged had their names compiled and taken to the records units of the hospital for retrieval. The demographic data and clinical data of the patient's data were recorded from the patients' files. The study adopted a census study approach encompassing the entire population of individuals who sought psychiatric care at a Tertiary Hospital, Psychiatry department in Eastern India. Steps were taken to safeguard participant identities and sensitive information obtained during the one-on-one interview. Trained researchers conducted the face-to-face interviews using a standardized script. During these interviews, data on deliberate self-harm behaviour were collected by using a standardized tool, the NSSI. This method was chosen because it allowed for an in-depth exploration of the participant's response.

It's important to note that while the self-report of reasons was the methodological approach we employed, it is just one of several ways to examine the functions of self-harm. Other approaches, such as self-reports of phenomenology and laboratory studies, could reveal additional reasons for self-harming when utilized. Self-report of reasons refers to studies where individuals who engage in self-injury indicate their reasons or motivations for doing so[7]. In this context, 'motivation' and 'reasons' are used interchangeably without any conceptual distinctions. In these studies, participants are typically asked to identify their reasons for self-injuring from a list of potential options or, in some cases, provide their reasons in response to open-ended questions. While participants' insights into

their motivations for self-harm can be valuable in understanding its functions, this approach has significant limitations.

Inclusion criteria

The study includes patients aged 15 to 29 years who received diagnoses of deliberate self-harm during the specified timeframe. This age range was chosen to focus on the adolescent and young adult population, capturing a critical developmental period for mental health concerns. Participant had to hail from one of the administrative districts within Eastern India

Exclusion Criteria

Patients outside the defined age range, those with incomplete records, those with other severe mental health conditions, those who using diagnosed to have been on substance use and individuals who declined participation in the study were excluded.

STATISTICAL ANALYSIS

Statistical analysis was conducted using SPSS version 27, (IBM Corporation, Armonk, USA). Descriptive statistics, frequencies and percentages, were used to summarize the occurrence of self-harm behaviour within each mental health condition. Chi-square test was employed to assess associations between DSH and different functions.

3.0 RESULTS

The demographic characteristics are presented in Table 1. The findings in Table 2 highlight that a significant portion of respondents engage in self-harm primarily as a means of managing overwhelming emotions. For instance, a notable percentage of participants reported self-harming to cope with frustration, uncomfortable feelings, anger, or stress. The high agreement with these statements underscores the critical role that emotional dysregulation plays in self-harm behaviour among the studied population. The chi-square analysis further supports the strong association between difficulties in emotional regulation and the likelihood of self-harm.

Table 3 in contrast reveals that self-harm behaviours are not solely driven by emotional dysregulation. The data shows that self-harm also serves other functions, such as self-punishment, seeking attention, converting emotional pain into physical sensations, and responding to compulsive urges. For example, a significant number of participants reported self-harming as a form of self-punishment, which could be linked to underlying issues such as low self-esteem or unresolved trauma. The findings also indicate that for some individuals, self-harm is a way to externalize their emotional pain, making it more tangible and manageable.

Additionally, the interpersonal aspect of self-harm is evident in the responses related to attention-seeking behaviors. This suggests that some individuals may use self-harm as a means of communicating their distress to others, reflecting unmet emotional needs or a cry for help. The compulsive nature of self-harm, as reported by a portion of the respondents, points to the involvement of impulse control issues, which may require different therapeutic approaches, such as Dialectical Behaviour Therapy (DBT).

While both tables explore motivations for self-harm, the distinction lies in the primary underlying factors. Table 2 focuses on emotional regulation issues, whereas Table 3 delves into a broader range of psychological and social functions. It is important to clarify these distinctions as it will inform interventions. For instance, those who self-harm due to emotional dysregulation may benefit more from therapies focusing on emotion regulation, while those who self-harm for other reasons might require different strategies, such as addressing self-esteem or interpersonal dynamics.

Table 1: Demographic characteristics of respondents

Variables	**Description**	***N* (%)**
Age	16-20	13 (19.7
	21-25	26 (39.4)
	26-29	27 (40.9)
Sex	Male	44 (66.7)
	Female	22 (33.3)
Marital status	Married	9 (13.6)
	Unmarried	57 (86.4)
	Others	0 (0.0)
Education	Intermediate	28 (42.4)
	Graduate	38 (57.6)
Occupation	Employed	6 (9.1)
	Unemployed	60 (90.9)
Family Income	<10,000	1 (1.5)
	10,000-30,000	6 (9.1)
	>30,000	59 (89.4)

Out of 66 respondents in this study, 59 percent of them had, had a documented history of deliberate self-harm with various underlying causes. Majority of the respondents fell within the age group 21 to 29 years with 66.7 percent being males. Among all the respondents 57.6 percent were graduate, with 90.9 percent being unemployed. Eighty-six percent were unmarried with a family income exceeding 30,000 rupees.

Table 2: Responses relating to emotional regulation functions

Functions	**Categories**	**N (%)**			**Chi-square**
		YES	**NO**	**Total**	
To deal with frustration	Strongly Disagree	6 (18.8)	26 (81.2)	32(100)	0.000
	Somewhat Disagree	2 (100)	0 (0)	2 (100)	
	Somewhat Agree	20 (100)	0 (0)	20	
	Strongly Agree	11 (91.7)	1(8.3)	12 (100)	
To cope with uncomfortable feeling	Strongly Disagree	4 (12.9)	27 (87.1)	31 (100)	0.000
	Somewhat Disagree	4 (100)	0 (0)	4(100)	
	Somewhat Agree	23(100)	0(0)	23 (100)	
	Strongly Agree	8(100)	0(0)	8 (100)	
To deal with anger	Strongly Disagree	6 (18.2)	27 (81.8)	33 (100)	0.000
	Somewhat Disagree	4 (100)	0(0)	4 (0)	
	Somewhat Agree	16 (100)	0 (0)	16(0)	
	Strongly Agree	13 (100)	0 (0)	13 (0)	
To relieve stress or pressure	Strongly Disagree	4 (13.3)	26 (86.7)	30 (100)	0.000
	Somewhat Disagree	1(100)	0 (0)	1(100)	
	Somewhat Agree	17 (100)	0(0)	17 (100)	
	Strongly Agree	17 (94.4)	1 (5.6)	18(100)	

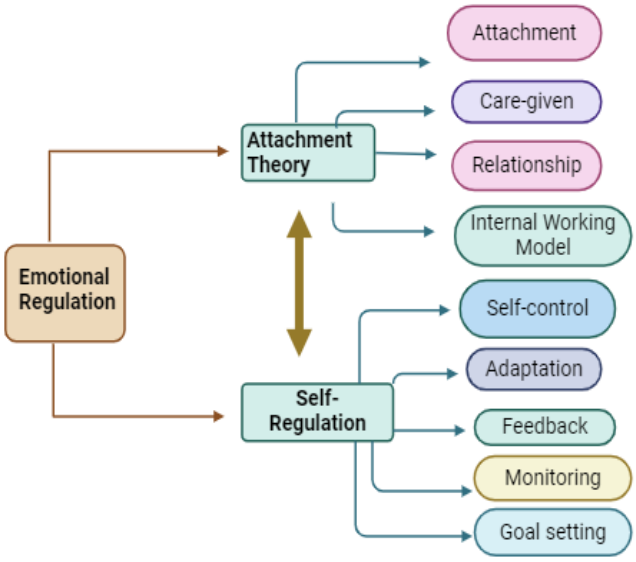
Function	**Category**	**N (%)**
I hurt myself as a self-punishment	Strongly Disagree	32 (48.5)
	Somewhat Disagree	3 (4.5)
	Somewhat Agree	22 (33.3)
	Strongly Agree	9 (13.6)
I hurt myself So that others will pay attention to me	Strongly Disagree	33 (50)
	Somewhat Disagree	5 (7.6)
	Somewhat Agree	16 (24.2)
	Strongly Agree	12 (18.2)
	Strongly Disagree	34 (51.5)

To change my emotional feeling into something physical	Somewhat Disagree	4 (6.1)
	Somewhat Agree	17 (25.8)
	Strongly Agree	11(16.7)
I hurt myself because I get the urge and I cannot stop it	Strongly Disagree	32 (48.5)
	Somewhat Disagree	21 (31.8)
	Somewhat Agree	00 (00)
	Strongly Agree	13 (19.7)

Table 3: Other reasons for self-harming apart from those for emotional regulation

Conceptual framework

Figure 1: A conceptual framework integrating attachment and emotional theories



[Emotional regulation as the central concept with two main theoretical components: attachment theory and self-regulation theory. The attachment theory illustrate key concepts such as attachment styles (secure/insecure), caregiver relationships, and internal working models, emphasizing how early attachment experiences shape individuals' emotional development and influence their capacity for self-regulation. Similarly, the self-regulation theory section depicts essential components such as goal setting, monitoring, feedback, adaptation, and self-control. It highlights how self-regulation skills, including emotion regulation strategies and behavioural self-control, play a critical role in managing emotions effectively. The diagram illustrates the integration of attachment and self-regulation theories, demonstrating how interventions targeting attachment-related issues (e.g., promoting secure attachment relationships, addressing attachment-related trauma) can enhance self-regulation abilities and foster healthier coping strategies among youth with self-harm behaviour. The arrows indicate the reciprocal relationship between attachment experiences and self-regulation processes, showing how improvements in one domain can positively impact the other. Outcomes of the intervention include improved emotional regulation skills, reduced self-harm behaviour, increased resilience, and enhanced well-being among youth.]

4.0 DISCUSSION

Self-harm behaviors often peak during adolescence and early adulthood, particularly between the ages of 15-25, and can persist into adulthood for some individuals [9]. This observation aligns with

a study conducted in Eastern Nepal, which revealed a 76% incidence of self-harm within the same age category [10]. Our data from further supports this trend, showing that 40% of respondents continued engaging in self-harm behaviours into their late twenties. The methods and motivations behind self-harm also appear to vary across different age groups. For example, adolescents are more likely to engage in impulsive self-harm behaviour, often as a response to immediate stress or emotional distress. In contrast, adults may use self-harm as a coping mechanism for managing long-standing emotional difficulties. This shift in motivation underscores the importance of age-specific interventions targeting the different underlying causes of self-harm across the lifespan.

In our study, 44% of the respondents as indicated in Table 1 were male, a finding that aligns with existing literature. Previous studies have consistently shown that males are more likely to engage in lethal methods of self-harm, such as hanging or firearms, while females are more likely to engage in non-lethal methods like cutting or overdosing on medication [9]. This gender difference in self-harm methods may be influenced by societal norms and gender roles, where males might resort to more aggressive or final means due to social pressures to appear strong or decisive. On the other hand, females may choose methods that allow for the possibility of intervention or rescue, reflecting different underlying motivations and social conditioning. Understanding these gender differences is crucial for developing gender-sensitive interventions that address the specific needs of males and females who engage in self-harm.

Educational attainment was another significant factor in our study, with 38 respondents having attained graduate education, while the remaining 28 had intermediate-level education, Table 1. Despite all respondents being literate, the level of education appears to influence self-harm behaviour. Studies have shown a correlation between educational attainment and self-harm, potentially due to increased academic pressure or greater access to information regarding self-harm methods [11]. For instance, individuals with higher education levels might experience heightened stress due to the demands of their academic or professional environments, leading them to engage in self-harm as a way to cope with these pressures. Conversely, those with lower educational attainment might struggle with feelings of inadequacy or limited opportunities, which could also contribute to self-harm behaviour. This suggests that interventions should not only focus on emotional regulation but also address the specific stressors associated with different educational levels.

Marital status is another factor that shows a strong association with self-harm behaviours. Our data indicates that 86% of the respondents were unmarried, a finding consistent with previous research that identifies unmarried individuals as being at higher risk for self-harm [12]. Unmarried individuals may experience higher levels of social isolation, lack of support, or relationship difficulties, which are significant triggers for self-harm behaviours. The absence of a stable partner or family support network can exacerbate feelings of loneliness and despair, making self-harm a more likely coping mechanism. Additionally, the societal pressures and stigma associated with being unmarried, particularly in cultures where marriage is highly valued, may contribute to these individuals' emotional distress. Addressing these underlying social and relational factors is essential for effective intervention and support for unmarried individuals at risk of self-harm.

The prevalence of NSSI and DSH in our study also highlights significant findings. While previous studies in the Indian context report a prevalence of 18.0% for NSSI and 16.1% for DSH [2], our study found a much higher prevalence of 59% for DSH among respondents. This discrepancy may reflect

regional differences or the specific characteristics of the study sample, such as the severity of emotional distress or the availability of coping resources. The high prevalence of DSH in our study underscores the urgent need for targeted interventions and preventive measures to address this growing public health concern. The study also aimed to establish the prevalence rate of DSH among youth visiting a tertiary care center during the study period and to explore the relationship between emotional regulation functions and attachment theory in explaining youth self-harm behaviours.

Emotional regulation theory suggests that individuals who engage in self-harm often do so as a way to manage or regulate overwhelming emotions [13, 14]. In this study, we consolidated the individual variables within the domain of emotional regulation under the umbrella term "emotional regulation functions" to facilitate a comprehensive discussion. This approach allowed us to examine how these functions relate to youth self-harm behaviours. Theoretical, clinical, and empirical evidence consistently points out that self-harm is largely used as an emotional regulatory strategy [13, 14]. For instance, individuals who struggle with regulating negative emotional states, particularly anger, are more vulnerable to engaging in self-harm as a maladaptive coping mechanism [15, 16]. This finding highlights the importance of teaching emotional regulation skills to at-risk youth as a preventive measure.

Attachment theory as indicated in Figure 1, has also been instrumental in understanding how early relationships influence emotional development and behaviour [17 - 20]. According to attachment theory, individuals with secure attachment styles are more likely to develop healthy emotional regulation skills and coping mechanisms, while those with insecure attachment styles are at greater risk of developing maladaptive behaviors, including self-harm. In our study, we found that emotional dysregulation was a significant factor in self-harm behaviours, supporting the notion that insecure attachment may contribute to difficulties in managing emotions. The study's findings suggest that interventions aimed at improving attachment security and emotional regulation could be effective in reducing self-harm behaviors among youth.

For this study as far as we have searched, represents the first exploration into the incidence of DSH among youth in Eastern India, revealing predominant trends that necessitate the implementation of remedial measures to curb this behaviour. The findings indicate that DSH is a significant public health concern with profound implications for individuals, families, and society at large. The high prevalence of self-harm observed in our study, which exceeds international estimates ranging between 11.7% and 46.5% [15], calls for urgent attention to the factors contributing to this behaviour in the region. The study's results also underscore the need for culturally sensitive interventions that take into account the unique socio-cultural dynamics of Eastern India, where stigma surrounding mental health issues and limited access to healthcare services may exacerbate emotional distress among youth.

The socio-cultural context of Eastern India plays a crucial role in shaping the emotional experiences of youth. Cultural norms around family, societal expectations, and stigma surrounding mental health may influence both the development of emotional dysregulation and attachment difficulties. With these cultural factors in mind, our study highlights the need for interventions that are sensitive to the unique pressures faced by youth in this region. For example, interventions must consider how family structures and societal expectations contribute to self-harm behaviors and focus on culturally relevant strategies to foster emotional resilience.

Emotional dysregulation emerged as a central factor in self-harm behaviours, with many respondents reporting self-harm as a way to deal with frustration, cope with uncomfortable feelings, manage anger, and relieve stress or pressure. For instance, our

data from Table 2 indicated that 20 respondents somewhat agreed, and 11 strongly agreed, that they self-harmed to deal with frustration. Similarly, 23 somewhat agreed and 8 strongly agreed that they self-harmed to cope with uncomfortable feelings. The high percentages of emotional dysregulation challenges reported by our respondents suggest that targeted interventions aimed at improving emotional regulation among youth should be designed and implemented. Numerous studies consistently show that individuals who engage in self-harm behaviours have more difficulty controlling their emotions than those who do not [17, 21]. A meta-analysis of 46 studies investigating the functions of NSSI, including emotional regulation, revealed that between 63-78% of participants reported emotional regulation as the primary function of NSSI [21]. The link between emotional dysregulation and self-harm is well-established across various contexts, lending credence to the generalizability of these findings. For example, a systematic review of self-harm and emotional regulation concluded that as many as 80% of adolescents engage in NSSI to regulate negative emotions [13]. In the Indian context, studies have also highlighted the role of emotional dysregulation in self-harm behaviours, particularly among college students [22]. These findings underscore the need for interventions that focus on enhancing emotional regulation skills as a means of preventing self-harm.

In addition to emotional regulation, our study found that self-punishment and the need for attention was significant motivators for self-harm among respondents. Specifically, 46.9% of respondents from Table 3 indicated that they hurt themselves as a form of self-punishment. This finding aligns with existing literature that identifies self-punishment as a common function of self-harm, often linked to feelings of anger or self-derogation [7]. While self-punishment is frequently reported as a motive for self-harm, it is often considered secondary to affect-regulation [8, 23, 24]. In some cases, self-harm may serve as a familiar and ego-syntonic way of coping with emotional distress, particularly for individuals who struggle with self-worth or have a history of trauma. These individuals may view self-harm as a way to atone for perceived failures or to regain a sense of control over their emotions. Understanding the complex interplay between self-punishment and emotional regulation is crucial for developing effective therapeutic interventions that address the underlying psychological needs of individuals who engage in self-harm.

Moreover, 42.4% of respondents admitted to engaging in self-harm to gain attention from others, reflecting the interpersonal function of self-harm identified in previous research [25]. The act of converting emotional pain into physical sensations, reported by 42.5% of participants, underscores the somatic nature of self-harm, where individuals externalize internal distress through physical injury [26]. The inability to resist self-harm urges, acknowledged by 19.7% of respondents, highlights the compulsive aspect of this behaviour, which has been associated with deficits in impulse control [26]. These findings suggest that interventions for self-harm should not only focus on emotional regulation but also address the interpersonal and compulsive dimensions of the behaviour.

Strengths and Limitations

Several previous researchers who delved into similar retrospective studies have focused on the qualitative aspects of deliberate self-harm by taking detailed clinical histories instead of using self-rating scales to pave the way for a clinical interview manual, our approach builds on and enhances this methodology. We not only examined patient records but also administered the NSSI questionnaire to validate our findings. This dual approach of cross-referencing qualitative data with validated quantitative measures ensures

greater accuracy and reliability; this makes our research more in-depth and all-inclusive. Consequently, our study provides a stronger foundation for understanding deliberate self-harm behaviours.

Being a cross-sectional design study, it limits the ability to establish causality between emotional dysregulation, attachment, and self-harm, warranting further longitudinal investigations. Since the sample size is not so large, the results of the study finding should be interpreted with caution as it may not be large enough for generalization to the wider population of youth in Eastern India. This limitation is inherent to the retrospective nature of the study and not a deliberate act by the researchers over the choice of the sample size. We discussed the conceptual framework integrating attachment and emotional theories, however we felt short of empirically testing this framework within our data collection. Specifically, we did not include specific measures of attachment styles and emotional regulation skills. This limitation is acknowledged.

Another limitation of this study is also that, given the availability of several hospitals dotted across the state of eastern India, some other youth might have sought for care in those health centers. This is very likely especially that the health facility for which the study is conducted is a private institution and so cost of hospital services as the case usually is for private health care centers, will be higher compared with the government provided health centers. It is therefore expected that some youth will seek health care from other health centers. Then also, the possibility of some youth presenting themselves at the emergency department of the hospital and not the out-patient department or in-patient department of the psychiatry department cannot be ruled out. We were unable to have the records from the emergency department about self-harm youth who visited that unit.

Clinical implication

There is the need for targeted individual emotional interventions strategies for self-harming youth. Those who have had firsthand experience of such trauma may help serve as focal persons for a focused therapy to help self-harming youth better handle their perceived helplessness. There is also the need for increased awareness of DSH in Eastern India for the general public to be aware of its prevalence. There is also the need for family participation in the treatment process with a particular emphasis on understanding the functions of DSH and providing appropriate support and responses to individuals disclosing self-harm.

To address the high rates of self-harm among youth, a public health approach is essential. This could involve government-backed awareness campaigns to destigmatize mental health issues, making it easier for young people to seek help. School-based programs that teach emotional regulation skills can help adolescents manage stress and frustration before it escalates into self-harm. Additionally, training healthcare professionals, particularly those in general practice and schools, to identify early warning signs of emotional dysregulation could prevent the escalation of self-harm behaviors.

Suggestions for future research

Our study supports the idea of integrated care for youth at risk of self-harm. Interventions should not only focus on emotional regulation and attachment issues but also bring in multi-disciplinary support from psychologists, social workers, and family therapists. Families play a key role in the treatment process, and their involvement should be encouraged to help youth feel supported. Community-based initiatives can offer a more holistic approach, combining mental health support with educational and social interventions that address both emotional and interpersonal difficulties.

Future studies should consider a longitudinal study to enable a tracking of the changes in self-harm behaviours over

time and to be able to establish causality between emotional regulation, attachment style and self-harm especially in culturally diverse contexts like India well come as a welcome effort.

Future studies should consider recruiting participants from multiple centers and diverse settings in other to get a higher sample size for generalization of the research findings to a wider youth population

Incorporate face-to-face interviews and/or anonymous self-report questionnaires to encourage honest disclosure of DSH behaviors.

Future research should consider including validated measures of attachment styles and emotional regulation skills in the data collection process. This would allow for a more comprehensive analysis of how these factors interact and influence deliberate self-harm (DSH) behaviour.

In conclusion, deliberate self-harm is prevalent among the younger population, particularly within the age range of 16-29 years. The study's findings prompt the need for interventions that focus on enhancing emotional regulation skills and fostering secure attachment styles to reduce.

Declaration by Authors

Ethical Approval: Approved

Acknowledgement/Disclaimer/Conflict of Interest

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All authors have disclosed No Conflict of Interest

Informed Consent: Informed Consent was obtained from the Institute Ethics committee Board,

Ref.no/IEC/IMS.SH/SOA/2023/547 and that all participants provided informed consent in the format required the ethics committee.

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