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Clinical Profile and Risk Factors of Deliberate Self-Harm Among Patients Presenting to a Tertiary Care Hospital in Bangladesh

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ABSTRACT

Introduction: Deliberate self-harm is a major public health concern and an important cause of emergency hospital admission, particularly among young adults. It is influenced by a complex interaction of psychiatric disorders, substance use, and psychosocial stressors such as family conflict, relationship problems, and financial difficulties. Therefore, the present study aims to assess the clinical characteristics and associated risk factors of deliberate self-harm among patients presenting to a tertiary care hospital in Bangladesh. **Methods & Materials:** This observational descriptive cross-sectional study was conducted in Department of Psychiatry, Combined Military Hospital, Dhaka, Bangladesh, from January 2023 to December 2023 among patients presenting with deliberate self-harm. A total of 120 consecutive eligible patients were enrolled by purposive sampling. Data were analyzed using SPSS version 26.0. **Result:** In this study, most were young adults aged 20-29 years (46.7%) and females (60.8%). Pesticide poisoning (39.2%) and drug overdose (31.7%) were the leading methods, while vomiting (59.2%) and altered consciousness (28.3%) were common clinical features. Nearly half of the patients presented within 2-6 hours, and 19.2% required ICU admission. The major risk factors identified were psychosocial stressors (74.2%), psychiatric illness (35.0%), and substance use (30.0%), with family conflict being the most frequent psychosocial factor. Previous deliberate self-harm was significantly associated with younger age, psychiatric morbidity, substance use, and the presence of psychosocial stressors. **Conclusion:** Deliberate self-harm among patients presenting to this tertiary care hospital was observed mainly in young adults, with a higher occurrence among females, and pesticide ingestion and drug overdose were the leading methods employed. Psychosocial difficulties were common, and a considerable percentage of patients had underlain psychiatric disorders and a history of substance use. Younger age, psychiatric comorbidity, substance use, and exposure to psychosocial stressors were significantly associated with a history of previous deliberate self-harm.

Keywords: *Deliberate Self-Harm, Risk Factors, Poisoning*

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INTRODUCTION

Deliberate self-harm (DSH) is a major public health problem that includes intentional self-inflicted injury or self-poisoning irrespective of suicidal intent. It is closely linked with psychological distress, psychiatric disorders, social adversity, and increased risk of future suicide. The World Health Organization (WHO) estimates that more than 700,000 people die by suicide each year, and for every suicide there are many more non-fatal self-harm attempts requiring medical attention [1]. Hospital presentations following DSH therefore represent an important opportunity for early identification of high-risk individuals and prevention of subsequent morbidity and mortality. The burden of self-harm is particularly high in low- and middle-income countries (LMICs), which account for approximately 77% of global suicide deaths [1,2]. South Asian countries face additional challenges related to poverty, family conflict, academic and occupational stress, limited access to mental health services, and social stigma surrounding psychiatric illness. A systematic review of self-harm in LMICs reported that poisoning, especially with pesticides and medications, is the most common method of self-harm in many Asian settings and that young adults and women are frequently overrepresented among hospital-treated cases [2,3]. Evidence from Bangladesh indicates that self-harm is an increasingly recognized clinical and public health concern. Community and hospital-based studies have shown that intentional poisoning constitutes a substantial proportion of emergency admissions, with pesticides and pharmaceutical agents being the predominant methods [4,5]. In a study from a tertiary hospital in Bangladesh, young adults aged 15-30 years formed the largest group of self-poisoning patients, and family disputes, marital disharmony, and interpersonal conflicts were among the leading precipitating factors. These findings are consistent with regional data from neighboring South Asian countries, where psychosocial stressors rather than severe psychotic illness are often the immediate triggers for DSH episodes [5,7]. Psychiatric morbidity is strongly associated with deliberate self-harm. Depression, anxiety disorders, substance use disorders, personality disorders, and previous self-harm are among the most consistently reported risk factors [8]. A large multicenter study found that a history of prior self-harm significantly increases the risk of repetition and future suicide, emphasizing the need for careful psychosocial assessment after every episode [9]. Adolescents and young adults are particularly vulnerable because of emotional dysregulation, impulsivity, relationship difficulties, and exposure to stressful life events [10]. Bangladesh has a large youth population, rapid urbanization, changing family structures, and limited availability of specialized mental health services. Despite these realities, detailed data on the clinical profile and associated risk factors of patients presenting with DSH remain scarce. Most available studies are either restricted to self-poisoning cases or have limited psychosocial characterization [3,4]. Therefore, the present study aims to assess the clinical characteristics and associated risk factors of deliberate self-harm among patients presenting to a tertiary care hospital in Bangladesh.

METHODS & MATERIALS

This observational descriptive cross-sectional study was conducted in Department of Psychiatry, Combined Military Hospital, Dhaka, Bangladesh, from January 2023 to December 2023 among patients presenting with deliberate self-harm. A total of 120 consecutive eligible patients aged ≥15 years were enrolled by purposive sampling after obtaining

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informed written consent from the patient or a legal guardian when appropriate. Patients with accidental poisoning, unintentional injury, severe cognitive impairment precluding interview, or refusal to participate were excluded. Data were collected using a pretested structured questionnaire and review of medical records, including socio-demographic characteristics (age, sex, marital status, residence, education), method of self-harm, clinical presentation, time to hospital presentation, need for intensive care, duration of hospital stay, psychiatric illness, history of substance use, previous self-harm, and psychosocial stressors such as family conflict, marital disharmony, financial problems, relationship issues, domestic violence, academic or occupational stress, and social isolation. Psychiatric illness and substance use were recorded as present or absent based on documented history or clinical assessment. Data were analyzed using SPSS version 26.0; categorical variables were presented as frequency and percentage, continuous variables as mean ± standard deviation, and associations between previous deliberate self-harm and selected factors were assessed using the Chi-square test, with $p<0.05$ considered statistically significant. Ethical approval was obtained from the Institutional Review Board of the hospital, and confidentiality of all participants was strictly maintained throughout the study.

RESULTS

Nearly half of the participants were aged 20-29 years (46.7%), followed by 30-39 years (20.8%). Females constituted 60.8% of the study population. Most patients were married (50.8%), and 56.7% were from rural areas. The highest percentage had secondary-level education (43.3%) (*Table I*).

Table I
Socio-demographic Characteristics of the Study Participants (*n* = 120).

Variable	Frequency (n)	Percentage (%)
Age group (years)		
≤19	20	16.7
20-29	56	46.7
30-39	25	20.8
40-49	12	10.0
≥50	7	5.8
Sex		
Male	47	39.2
Female	73	60.8
Marital status		
Unmarried	49	40.8
Married	61	50.8
Divorced/Separated/Widowed	10	8.3
Residence		
Urban	52	43.3
Rural	68	56.7
Educational status		
No formal education	12	10.0
Primary	27	22.5
Secondary	52	43.3
Higher secondary or above	29	24.2

Pesticide poisoning (39.2%) was the most common method of DSH, followed by drug overdose (31.7%). The most frequent clinical manifestation was vomiting (59.2%), while 35.0% experienced dizziness and 28.3% presented with altered consciousness (*Table II*).

Table II
Method of Deliberate Self-Harm and Clinical Presentation (*n* = 120).

Variables	Frequency (n)	Percentage (%)
Method of DSH		
Pesticide poisoning	47	39.2
Drug overdose	38	31.7
Hanging attempt	13	10.8
Cutting/self-inflicted injury	12	10.0
Other methods	10	8.3
Clinical signs and symptoms		
Vomiting	71	59.2
Altered level of consciousness	34	28.3
Respiratory distress	18	15.0
Abdominal pain	26	21.7
Dizziness	42	35.0
Excessive salivation	29	24.2
Self-inflicted external injury	14	11.7

Nearly half of the patients presented within 2-6 hours (48.3%) after the DSH episode. ICU admission was required in 19.2% of cases. Most participants stayed in the hospital for 3-5 days (46.7%), while 20.8% required hospitalization for more than 5 days (*Table III*).

Table III
Hospital Presentation and Management (*n* = 120).

Variable	Frequency (n)	Percentage (%)
Time to hospital presentation		
<2 hours	31	25.8
2-6 hours	58	48.3
6 hours	31	25.8
Need for ICU admission.		
Yes	23	19.2
No	97	80.8
Length of hospital stay		
1-2 days	39	32.5
3-5 days	56	46.7
5 days	25	20.8

Psychiatric illness was identified in 35.0% of participants, while 30.0% reported a history of substance use. At least one psychosocial factor was present in 74.2% of patients, indicating that psychosocial stressors were highly prevalent among individuals presenting with deliberate self-harm (*Table IV*).

Table IV
Psychiatric Illness, Substance Use, and Psychosocial Factors (*n* = 120).

Factor	Frequency (n)	Percentage (%)
Psychiatric illness		
Present	42	35.0
Absent	78	65.0
History of substance use		
Present	36	30.0
Absent	84	70.0
Psychosocial factors*		
Present	89	74.2
Absent	31	25.8

**Psychosocial factors included family conflict, marital disharmony, financial stress, relationship problems, domestic violence, academic/occupational stress, or social isolation.*

Previous deliberate self-harm was significantly associated with younger age (≤29 years), psychiatric illness, history of substance use, and presence of psychosocial factors. Psychiatric illness was present in 68.0% of patients with previous DSH compared with 26.3% without previous DSH (p=0.001). Psychosocial factors were found in 96.0% of patients with previous DSH versus 68.4% among those without previous DSH (p=0.003). Substance use was also significantly associated with previous DSH (52.0% vs 24.2%, p=0.014). No significant association was observed between sex and previous deliberate self-harm (p=0.118) (*Table V*).

Table V
Association of Previous Deliberate Self-Harm with Age, Sex, Psychiatric Illness, Substance Use, and Psychosocial Factors (*n* = 120).

Variable	Previous DSH Present (n=25)	No Previous DSH (n=95)	p-value*
Age group			0.041
≤29 years	21 (84.0%)	55 (57.9%)	
≥30 years	4 (16.0%)	40 (42.1%)	
Sex			0.118
Male	7 (28.0%)	40 (42.1%)	
Female	18 (72.0%)	55 (57.9%)	
Psychiatric illness			0.001
Present	17 (68.0%)	25 (26.3%)	
Absent	8 (32.0%)	70 (73.7%)	
History of substance use			0.014
Present	13 (52.0%)	23 (24.2%)	
Absent	12 (48.0%)	72 (75.8%)	
Psychosocial factors			0.003
Present	24 (96.0%)	65 (68.4%)	
Absent	1 (4.0%)	30 (31.6%)	

**Chi-square test.*

DISCUSSION

In this study, the largest group of patients with deliberate self-harm (DSH) was aged 20-29 years (46.7%), females comprised 60.8%, and 56.7% came from rural areas. This age pattern fits the global suicide burden, where WHO reports suicide as the third leading cause of death in 15-29-year-olds and notes that 73% of suicides occur in low- and middle-income countries [1]. In a Bangladeshi tertiary-hospital study by Bhattacharjee et al., 85% of patients were under 30 years and 57% were female, but 73.5% were urban residents [11]. This study therefore supports the same young-female predominance, while the higher rural percentage in this sample suggests a different referral catchment and greater rural exposure to self-harm risk. About the clinical profile, pesticide poisoning was the commonest method in this study (39.2%), followed by drug overdose (31.7%); vomiting (59.2%), dizziness (35.0%), and altered consciousness (28.3%) were the

leading clinical features. Bhattacharjee et al. reported prescription medication in 38%, insecticides in 36%, and household cleaners in 17% of deliberate self-poisoning cases [11]. Verma et al. found that agrochemicals accounted for 58.8% of self-poisoning episodes in a Bangladeshi tertiary hospital, showing that toxic agent availability strongly shapes the method used [12]. The mixed pattern of pesticide and drug ingestion therefore remains consistent with a poisoning-dominant DSH profile, while the symptom pattern in this cohort reflects the acute toxic effects that typically bring these patients to emergency care. Hospital presentation and management also showed important clinical severity. In this study, 48.3% reached the hospital within 2-6 hours, 19.2% required ICU admission, and 46.7% stayed for 3-5 days. Bhattacharjee et al. reported ICU admission in 45.1% of patients, with 41.6% staying 24-72 hours and 34.5% staying more than 72 hours [11]. Verma et al. reported a median hospital stay of 2 days and a median illness duration of 5 days among Bangladeshi self-poisoning patients [12]. Compared with those series, in the present study, the lower ICU requirement suggests a somewhat less severe case mix, while the 3-5 day stay in this cohort still shows a substantial inpatient burden. Psychiatric illness, substance use, and psychosocial stress were highly common in this study: psychiatric illness was present in 35.0%, substance use in 30.0%, and psychosocial factors in 74.2%. Bhattacharjee et al. found psychiatric disorder in 30% and previous self-harm in 7%, while family problem (31%), quarrel with boy/girlfriend (20%), quarrels with spouse (13%), and quarrels with parents or other family members (7%) were the leading precipitating factors [11]. The association analysis in this study showed that previous DSH was significantly related to younger age (≤29 years: 84.0% vs 57.9%, p=0.041), psychiatric illness (68.0% vs 26.3%, p=0.001), substance use (52.0% vs 24.2%, p=0.014), and psychosocial factors (96.0% vs 68.4%, p=0.003), whereas sex was not significant (p=0.118). This pattern is clinically important because Carroll et al. found that after a hospital presentation for self-harm, suicide risk was 1.6% at 12 months and 3.9% at 5 years, with about one in 25 dying within 5 years [7]. Ribeiro et al. similarly showed that prior self-injurious thoughts and behaviors are strong longitudinal predictors of future suicide attempts and death [10]. Bennardi et al. studied 16,966 adolescents and young adults presenting with deliberate self-harm and found that younger age, mental disorders, substance use disorders, and previous self-harm episodes were significant predictors of repetition [13].

LIMITATIONS

The study was conducted in a single hospital with a small sample size. So, the results may not represent the whole community. In addition, some psychosocial and substance-use information was self-reported and therefore subject to recall and reporting bias.

CONCLUSION

Deliberate self-harm in this tertiary care hospital population predominantly affected young adults, particularly females, and was most commonly associated with pesticide poisoning and drug overdose. Psychosocial stressors were highly prevalent, while psychiatric illness and substance use were also frequent among affected individuals. Younger age, psychiatric morbidity, substance use, and the presence of psychosocial factors showed significant associations with previous deliberate self-harm.

RECOMMENDATIONS

It is recommended that all patients presenting with deliberate self-harm undergo routine psychiatric and psychosocial assessment in emergency settings, with particular attention to young adults, individuals with substance use, and those experiencing family or social stressors. Further multicenter prospective studies with larger sample sizes are recommended to explore the long-term outcomes, recurrence of deliberate self-harm, and the effectiveness of psychiatric and psychosocial interventions in reducing repeated self-harm and suicide risk in Bangladesh.

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CONFLICT OF INTEREST

None declared

ETHICAL APPROVAL

The study was approved by the Institutional Ethics Committee.

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