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Original Article

Survivors of deliberate self-harm attempt in the military milieu: An exploratory study of psychiatric morbidity and psychosocial correlates

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ABSTRACT

Background: Deliberate self-harm (DSH) is common in modern society. A million people worldwide die from suicide each year, leading to a large toll on human resources and economy. Research has revealed DSH as an important indicator of eventual suicide worldwide. The present study focused on DSH attempters among Armed Forces personnel and family members with the aim of identifying modifiable factors to provide recommendations for primary prevention in the military milieu.

Methods: Hundred cases of survivors of DSH were evaluated in a case–control study using psychiatry assessment instruments (the Mini-International Neuropsychiatric Interview, Pierce Suicide Intent Scale, Hamilton's Depression and Anxiety Scales and presumptive life event scale) to assess psychiatric morbidity and psychosocial correlates. The findings were compared with those of 100 healthy matched controls. The data were analysed using SPSS software.

Result: The majority of DSH survivors (98%) had concurrent psychiatric morbidity, major depressive disorder (23%) being the commonest diagnosis followed by psychotic disorder and alcohol use disorder. Presence of relationship problems (69%) and financial difficulties (19%) were significant triggering factors in our study. Many DSH attempters had voiced suicidal ideation (66%) before their act and had history of aggression or violence (76%) in the past.

Conclusion: Our findings are discussed in relation with findings in the literature. Recommendations regarding awareness campaign, specific skill development programs and the need for early intervention in individuals with psychiatric morbidity have been proposed to prevent such behaviours.

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Introduction

Deliberate self-harm (DSH) is an acute non-fatal act in which an individual deliberately initiates a non-habitual behaviour, without intervention from others, that will cause self-harm.¹ Different names for this behaviour include self-injurious behaviour and parasuicide.^{1,2} The suicide rate in India is 11.4 per lakh in men and 8.0 per lakh in women.³ In the Army, between 50 and 100 soldiers have committed suicide every year during last 5 years, and the number of attempted DSH is at least 2–3 times the number of completed suicide. Studies from different parts of India have reported the second and third decade of life to be the most vulnerable period among Indian suicides.⁴ A large proportion of subjects (57.4%) had shown unusual changes in behaviour before the act, but only 11.8% had sought treatment for such behaviour.⁵

DSH behaviour is frequently repeated and at times results in completed suicide. Many studies have reported recurrence rates for DSH acts from 6% to 30%.⁶ Recurrence usually occurs early, and the median time is about 72 days.^{7,8} An important facet of DSH research has been to determine the clinical and psychosocial correlates of suicidal behaviour. Some of the correlated findings include younger age, female sex, living alone, poverty, unemployment and chronic physical illness.⁹

Many studies have suggested that stresses of military life can induce psychiatric illness in the Armed Forces personnel and their families. Isolation, frequent moves and differential parenting have been suggested as predisposing factors for the “military family syndrome”. Separation, fear of soldier's safety, ignorance of the place of deployment, miscommunications and rumours have been cited by families as significant stressors.^{10–14} Interpersonal conflict is also considered as an important trigger in suicide attempts, especially among women.¹⁵ In the Indian context, domestic conflicts are usually with the husband and the mother-in-law.¹⁵ Other factors reported in the Indian scenario are psychiatric illness, chronic physical illness, recent bereavement, inability to have children and harassment for dowry.^{15,16} The wives of alcoholics have a higher rate of suicide attempts, as a response to their husbands' maladaptive behaviour.¹⁷

A significant number of hospitalization in service hospitals is related to DSH attempted by Armed Forces personnel and their dependants. DSH is associated with physical, social and organizational consequences. It is also a very important predictor of future self-harm or suicide. There is frequent association of treatable psychiatric disorder and/or modifiable psychosocial factors associated with DSH. A number of studies have been conducted among military personnel in the Indian Armed Forces. In an early study conducted among Indian Armed Forces personnel, Goel concluded that the army milieu did not increase the risk of attempted self-harm among soldiers.¹⁸ Chakraborty found that patients with DSH had a higher incidence of disciplinary problems, poor peer relations, conflicts with male authority figure as compared with patients with other psychiatric illnesses seeking an environmental change.¹⁹ Sarkar et al. identified the need to categorise individuals with self-harm into two groups on the basis of the intensity of intent.²⁰ A study conducted among spouses of military personnel revealed that infertility, alcoholism in the

husband and chronic physical illnesses were the risk factors for DSH in this group.²¹ Chaudhury et al. tried to delineate the service-related factors versus the non-service-related factors in attempted suicide among soldiers. They found that non-service-related factors were the immediate precipitating factors in 72% of the cases.²² Hence, there is a need for evaluation of risk factors in survivors of DSH in the Armed Forces. This will help to understand the severity of the problem and could provide the basis for certain measures for preventive and social interventions for the mental health of military personnel and their family which have great potential to contribute to the morale and efficiency of the organization.

Material and methods

A case-control study was designed to identify and compare the role of modifiable psychosocial factors associated with attempts of DSH. It was conducted in the Department of Psychiatry of a tertiary care hospital of Armed Forces from March 2011 to March 2013. Sampling was carried out using the total consecutive sampling method. A sample size of 100 was taken for the study. Cases comprised serving personnel and their families. All consecutive cases of DSH were recruited from the Out Patient Department (OPD) and the inpatients admitted in psychiatry and other departments.

Inclusion criteria for cases are as follows:

1. Participation was based on informed consent (assent from minors and informed consent from parents).
2. Age at intake > 15 years.
3. Patients who attempted DSH for the first time only (in past 6 months).
4. Ability to read Hindi and English or understand spoken Hindi.

Exclusion criterion for cases is as follows:

1. Mental retardation.

The control group consisted of age-, sex- and education-matched healthy individuals drawn from the same military milieu as the cases.

Inclusion criteria for controls are as follows:

1. Individuals who never attempted suicide.
2. Participation was based on informed consent (assent from minors and informed consent from parents).
3. Age at intake > 15 years.
4. Ability to read Hindi and English or understand spoken Hindi.

Exclusion criteria for controls are as follows:

1. Mental retardation.
2. Persons suffering from psychiatric illness or taking psychiatric medicines.

A pro forma for clinical risk factors was designed for the study. The risk factors studied are as follows: (i) past history of

psychiatric illness, (ii) significant financial difficulties and debts, (iii) interpersonal/relationship problem, (iv) bereavement of significant others (BOS) and voiced suicidal ideation (VSI) to health-care providers/families, (v) history of violence or aggression, (vi) family history of DSH/suicide and substance abuse.

Psychiatric diagnosis was made as per the Mini-International Neuropsychiatric Interview plus 6 (Sheehan et al., 1998). Socioeconomic status was determined using the Kuppuswamy Socioeconomic Status Scale (2007).

Current psychiatric status was assessed using the following scales:

1. Pierce Suicide Intent Scale: This scale is designed to supplement suicide risk assessment. It is to be completed by a psychiatrist after the suicide attempt and includes scores for the severity of the intent based on scores related to the circumstances, self-report and medical risk due to the act.²³
2. Hamilton Depression Scale (HAM-D): This scale is an observer-rated scale to assess the presence and severity of depressive states.²⁴
3. Hamilton Anxiety Scale (HAM-A): The main purpose is to assess the severity of symptoms of anxiety.²⁵ The scale consists of 14 items; each defined by a series of symptoms and measures both psychic anxiety (mental agitation and psychological distress) and somatic anxiety (physical complaints related to anxiety).
3. Presumptive stressful life event scale (Gurmeet Singh et al., 1984): This scale is most useful for the Indian population as it contains stressful life event (LE) items relevant to our culture and has been standardized on the Indian population. This scale shows the kind of life stressors an individual is facing. Depending on their coping skills or the lack thereof, this scale can predict the likelihood that you will fall victim to a stress-related illness. Stressful LEs were measured on the basis of presumptive stressful life scale. LEs within 12 months before the attempt were studied.

Statistical analysis

Statistical analysis was performed using SPSS software, version 18.0. The student's t-test for independent samples and for the categorical value and Chi-square test with Yate's correction factor were applied. For non-parametric data, the Mann–Whitney U-test was used. “P” value < .05 was considered statistically significant. Inferential statistics was carried out using logistic regression.

Results

During these 25 months of study, 112 DSH attempters were approached for the project, of which 12 were excluded because of the following reasons:

- 1) Two refused to give consent.
- 2) Six did not meet the inclusion criteria for age.
- 3) Four were discharged before the assessment could be completed.

Psychiatric morbidity among survivors of DSH

Fig. 1 shows an overview of the distribution of psychiatric morbidity among survivors of DSH attempt. The most common psychiatric morbidity is depressive episode (23%), followed by psychotic disorder and psychotic depression (15%). Alcohol use disorder was present among 12% of DSH survivors.

Demographic correlates

Fig. 2 shows the distribution of the age groups among the DSH attempters. The majority were in the age group of 20–29 years (39%), whereas 30–39 years and 40–49 years age groups represented 30% and 24%, respectively. Eight subjects among the attempters were from 50 to 59 years age group representing 8% of the total size, whereas DSH survivors with an age 19 years or younger made up 6% of the sample size.

Women constituted 31% of the sample size in cases. The two groups were not significantly different from each other in age, gender, domicile, religion and marital, educational, socioeconomic or occupational status.

Psychological correlates

Table 1 shows the distribution of clinical and psychosocial variables among study subjects. Forty-three percent in the case group and 10% in the control have past history of psychiatric illness ($p < 0.001$, odds ratio [OR] 6.78). HAM-D scores were categorised into normal, mild, moderate and severe.²⁶ The majority of cases scored mild on the scale (41%), followed by moderate scores in 34% of cases. OR for depression as a risk factor for attempted DSH is very high ($p < 0.001$, OR 245). HAM-A scores were classified into mild, moderate, severe and very severe categories. The majority of cases scored moderate on the HAM-A scale (33%), followed by mild and severe, 30% each. Moderate to severe anxiety as a risk factor was significant ($p < 0.001$, OR 9.9). Two-third of DSH survivors had VSI before the attempt ($p < 0.001$, OR 25.8). Preponderance of the relationship problem as a triggering factor in the study group was observed. Sixty-nine percent in the case group and 8% in the control group have relationship problems ($p < 0.001$, OR 25.59).

The Suicide Intent Scale (which measures the extent to which a patient has an urge to die) was completed as per the Pierce Suicidal Intent Scale. The classification of scores into low (0–3), medium (4–10) and high (more than 10) intent categories indicated that 40% of suicide attempters had high suicide intent in our study. Similarly, history of violence and aggression was present in 76% of the case population compared with 23% among control ($p < 0.001$, OR 10.6). The groups were also significantly different from each other in the number of life stressors experienced in the previous 12 months. The LEs have been classified into zero event to four events, and the majority of cases have multiple (two or more) LEs (78%; $P < .01$, OR 9.6), which is statistically significant. Apart from preponderance of relationship problem as a triggering factor for DSH act, 19% of cases and 7% of controls have reported financial problems ($p < 0.001$, OR 3.11). Five percent of the case group experienced BOS in the previous 12 months compared with none among controls.

Fig. 1 – Distribution of psychiatric morbidity among survivors of deliberate self-harm (DSH).

Fig. 2 – Distribution of age group among deliberate self-harm (DSH) attempters.

Table 1 – Distribution of clinical and psychosocial variables among cases and controls.

Variable	Cases (n = 100)	Controls (n = 100)	Chi square (χ^2)	P value	Odds Ratio (OR)
Past history of psychiatric illness	43	10	28.0	<.001	6.78
HAM-D (mild to severe depression)	94	6	154.9	<.001	245
HAM-A (moderate to very severe anxiety)	70	19	52.7	<.001	9.9
Voiced suicidal ideation	66	7	75.1	<.001	25.8
Relationship problems	69	8	78.6	<.001	25.59

P value calculated using chi-square test (df = 1). P < 0.05 is considered significant.
HAM-D, Hamilton Depression Scale; HAM-A, Hamilton Anxiety Scale.

Fig. 3 gives insight into the different methods of DSH adopted. The majority used method of poisoning, followed by cut injury, hanging and jumping.

Multivariate logistic regression (with backward Wald elimination) was carried out (Table 2) with all the risk factors as predictor variables and attempt at DSH as a dependent variable. At the last step, the HAM-D scores and VSI remained significant with exp(B) values of 455.4 and .012, respectively.

Discussion

In the present study, psychiatric disorder was detected in all but 2 cases of attempted suicide. When comparing with other Indian studies, the psychiatric morbidity is much higher which may be explained because of sampling characteristics in a tertiary hospital population. The use of MINI plus instrument in the present study can also explain the higher pickup rate of psychiatric disorder as the earlier studies usually had used only clinical judgement for diagnosis. Diagnosis of depressive disorder in the majority of patients matches the existing literature from India.²⁷

In our study, the maximum number of DSH attempters in both the sexes was in the age group of 21–29 years, which is similar to earlier reports.^{17,28,29} In this study, a majority of patients were males, which is also similar to several previous studies by Satyavati et al, 1971; Das et al, 2008; Gouda et al, 2008; Vijayakumar 2010; who had also reported more number of male suicide attempters than female attempters.^{3,29–30,31}

Most of the DSH attempters (71%) in our study were found to be married which is similar to findings reported in several previous studies by Satyavati 1971; Chandrasekar et al, 2003; Das et al, 2008; and Gouda et al., 2008.^{16,29,30,32} They reported this finding to be reflective of marriage as a strong cultural practice in India. They also reported some special stressors encountered by married women such as dowry demands, domestic violence, requirement for hard physical labour (both domestic and in the field) and lack of adequate privacy and recreational practice. They considered these stressors coupled

with inadequate social support as important factors in increasing the vulnerability of DSH among married women.

A low educational status was found among 73% of DSH attempters (4% illiterate and 69% primary pass), which may have influenced the help-seeking and decision-making, and thus, it could be an important risk factor for DSH. Sixty percent of the case group were employed, and the unemployed group made up to 26% of the sample in which housewives were also included. The majority of the DSH attempters (39%) had a household income below 20,000 rupees.

The presence of psychopathology elevates the probability of self-injurious behaviours and thoughts, and self-injury is associated with more symptoms and greater severity of psychopathology among both men and women.²⁷ Among all the risk factors, depression appears to be the sine qua non for an attempt at self-harm with an unusually high OR of 245. One possible explanation for such a high OR on HAM-D scale in our cohort compared with the general population is that the study population is likely to have more resilience and undergo periodic medical checkup in the military milieu (both serving personnel and family members). Hence, mainly decompensated subjects (depressed or other mental illness) are likely to manifest with DSH acts. It is also probably reflected by the presence of psychopathology in almost all cases (98%) in our study, unlike research findings in the general population.

The other significant risk factors for DSH are past history of psychiatric illness, anxiety, VSI and violence and aggression. These results are consistent with the findings reported by Brunner et al., 2007.³³ A logistic regression analysis for finding out the association of risk of DSH with all the explanatory variables included indicates that the likelihood of DSH can be predicted by the HAM-D score and the VSI score. These findings suggest depression and VSI as significant indicators for early identification, screening and psychiatric counselling of such individuals in the community apart from usual administrative or disciplinary action to prevent possible fatal DSH acts in future. Exposure to two or more stressful LEs in recent past was also found to be a risk factor associated with suicide attempts.

Fig. 3 – Different methods adopted by deliberate self-harm (DSH) attempters.

Table 2 – Logistic regression analysis with attempt at DSH as a dependent variable and nine risk factors as independent variables predicting possible attempt at DSH.

Variables in the equation		B	SE	Wald	df	Sig.	Exp(B)
Step 1 ^a	Age	–1.200	.615	3.815	1	.051	.301
	Sex (1)	.991	1.440	.474	1	.491	2.693
	PastH (1)	2.763	1.618	2.916	1	.088	15.840
	HAM-D	6.195	1.834	11.413	1	.001	490.406
	HAM-A	1.113	.747	2.219	1	.136	3.043
	LES	–1.301	.991	1.723	1	.189	.272
	FinProb (1)	.108	2.025	.003	1	.958	1.114
	RelProb (1)	–.782	1.291	.367	1	.545	.457
	VSI(1)	–5.464	1.632	11.203	1	.001	.004
	Constant	–3.481	1.939	3.222	1	.073	.031
Step 7 ^a	Age	–.672	.346	3.759	1	.053	.511
	HAM-D	6.121	1.295	22.353	1	.000	455.391
	VSI(1)	–4.441	1.152	14.863	1	.000	.012
	Constant	–4.663	1.335	12.192	1	.000	.009

PastH, past history of psychiatric illness; HAM-D, Hamilton Depression Scale score; HAM-A, Hamilton Anxiety Scale score; LES, Life event scale; FinProb, Financial problem; RelProb, Relationship problem; VSI, voiced suicidal ideation; SE, standard error.

^a Variable(s) entered on step 1: Age, Sex, PastH, HAM-D, HAM-A, LES, FinProb, RelProb, VSI.

Poisoning was the most common method used for DSH considering both the sexes together (49%), followed by cut injury (30%). The results are in concordance with several reports from various parts of India.

Among the triggering factors that led to DSH, the majority had relationship problems and financial problems. Financial inadequacy and lack of financial management skills were reported as an important contributory factor by the study population.

Limitations

The study reports on a small subset of population reporting to psychiatry OPD/inpatient department with history of deliberate self harm. This does not reflect the universal population that is the Armed Forces personnel and families. The findings and results are relevant only to patients with psychiatry illness. Our study population consisted mainly of referrals to a tertiary care medical centre or self-reported cases from the nearby urban population. Hence, our sample could not be considered as truly representative of the general population, which can be achieved by a community-based study with inclusion of cases reporting to primary care facility. Moreover, a study design with follow-up procedure would provide better understanding of the significance of psychiatric morbidity and psychosocial correlates in the long-term outcome.

Conclusion

Therefore, findings of our study suggest that the majority (98%) of DSH attempters have current psychiatric diagnosis, and a large number (43%) had past history of psychiatric illness. More than two-third of the subjects voiced their suicidal intent and externalized their symptoms through violence and aggression, implying a cry for help. Hence, there is an urgent need for effective awareness campaign among troops, families, trainers, religious teachers, leaders, community health providers and policymakers on early

identification and intervention of individuals with behavioural changes in the community. As relationship and perceived financial problems were found to be predominant triggering factors, facilitation of skills development in these areas along with general adaptive coping skill training are proposed to be an integral part during troops training, family welfare activity, school health promotion, religious teaching and community health promotion activities. Our findings also suggest the need of targeted periodic screening and surveillance of individuals in the Armed Forces community with behavioural changes particularly with features of depression, positive history of violence, aggression or VSI. All these proposed actions would help in prevention of suicidal behaviour.

Conflicts of interest

The authors have none to declare.

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