



# Sociodemographic Profile and Psychological Factors Influencing Deliberate Self Harm in a Tertiary Rural Health Care Setup: A Cross-sectional Study

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## ARTICLE INFO

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### Dates:

Received: 25-05-2023

Accepted: 31-08-2023

Published: 08-11-2023

### Keywords:

Deliberate Self-harm, Psychosocial factors, Farmers, Organophosphorus compounds, Adjustment disorder.

### How to Cite:

Pawar G, Mishra KK, Reshamvala A. Socio-demographic Profile and Psychological Factors Influencing Deliberate Self Harm in A Tertiary Rural Health Care Setup: A Cross-sectional Study. *Indian Journal of Clinical Psychiatry*. 2023;3(2): 9-14.  
doi: 10.54169/ijocp.v3i02.71

## Abstract

**Introduction:** There has been a rising trend of deliberate self-harm (DSH) in India recently. The tendency to harm oneself is associated to female sex, younger age, stressful life events and mental illnesses such as depression. Knowledge of socio-demographic factors and psychiatric morbidities in patients having self-harming behavior can be helpful in planning suicide prevention strategies.

**Methods:** This was a hospital-based descriptive, observational, cross-sectional study. The data was collected from 150 consecutive referrals DSH to the psychiatry OPD in Rural Tertiary Care Centre. Corresponding validated psychometric scales quantified severity of depression, and suicide intent.

**Results:** Most of the study population belonged to 18 to 29 years age group and most were males (n = 105, 70%). Poisoning was the most common mode of DSH (n = 133, 88.7%). Diagnosable psychiatric illnesses were found in 52 (34.6%) patients, most common being adjustment disorder (n = 25, 16.6%).

**Conclusion:** Our study highlights the socio-demographic, psychosocial and clinical factors present in individuals attempting self-harm.

## INTRODUCTION

Deliberate self-harm (DSH) is defined as self-poisoning, injury or attempted suicide irrespective of the purpose of the act according to ICD-10.<sup>1</sup> Deliberate self-harm incorporates actions with no suicidal intent (but with the intent to communicate distress or relieve tension) through to suicide.<sup>2</sup> The term “deliberate self-harm” is preferred to “attempted suicide” or “parasuicide” because there are many non-suicidal intentions among the range of motives or causes for this act of self-harm.<sup>2</sup> A suicide attempt is a behavior that the individual has undertaken with at least some intent to die. The behavior might or might not lead to injury or serious medical consequences. Several factors can influence the medical consequences of the suicide attempt, including poor planning, lack of knowledge about the lethality of the method chosen, low intentionality or ambivalence, or chance intervention by others after the behavior has been initiated.<sup>3</sup> Suicide attempts are a common clinical problem prevalent in general hospitals and are 10–40 times more frequent than completed suicides.<sup>4</sup> The

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majority of suicide attempters are in young, married males and hail from rural backgrounds.<sup>5</sup>

Out of the several modes of suicide attempts viz. organophosphorus poisoning, drug overdose, drowning, jumping from heights, hanging, etc., was most common in Central and Eastern Rural India.<sup>6,7</sup> In recent times, an increasing trend in the use of organophosphorus compounds as a method of DSH has been seen due to their easy availability as household and agricultural chemicals.<sup>7</sup>

Farmers have shown a higher prevalence of DSH compared to people working in the private or public sectors.<sup>8</sup> Several studies report that DSH is associated with high suicide intent and depression. Family cohesion and expressiveness directly and indirectly affect suicidal ideations, hopelessness, and depression.<sup>9</sup>

Knowledge of socio-demographic and psychological factors of self-harm behavior can help in improving our understanding of the behavior which may further aid in self-harm prevention.

## METHODOLOGY

This was a cross-sectional, observational, descriptive study conducted at a rural tertiary health care centre in central India which receives patients from eastern Maharashtra, Chhattisgarh, Madhya Pradesh and Telangana. The study commenced after obtaining the approval of the Institutional Ethics Committee and data was collected between July 2020 and December 2021 using consecutive sampling. The patients brought to the hospital with a history of DSH were first admitted to medicine department and subsequently referred to the psychiatry department after medical stabilization for evaluation. Informed consent mentioning all the study related information and the right to withdraw from the study was taken from all the participants. The consent also included the clauses of confidentiality and use of data for scientific purposes which was explained to the participants in their local language. All adult patients with history of DSH were included in the study after taking the informed consent. Those unable to cooperate due to acute physical or mental illness and those unwilling to participate were excluded from the study.

## Tools

### ***Socio-demographic proforma***

The information about socio-demographic parameters (age, sex, religion, education, occupation, mode and reasons for attempt) was collected using a pre-designed format.

### ***Beck's suicidal intent scale<sup>10</sup>***

This is a 21-item self-report Likert-type scale which measures the desire of death, preparation of suicide attempt and actual suicide desire within past seven days. Each item has minimum score of zero and maximum score of two. The scale has high internal consistency (Cronbach alpha 0.87 to 0.97). The patient's mental state just before the attempt was enquired using this scale.

### ***Beck's depression inventory<sup>11</sup>***

It is a 21-item self-report questionnaire commonly used to assess the severity of depression. A value of zero to three is assigned to each item in the order of increasing severity. The standard cut-off scores available in the manual were used for analysis in the present study as follows: 0–18 minimal depression; 18–30 mild depression; 19–29 moderate depression; 30–63 severe depression.

## Statistical Analysis

Data entry and cleaning was done using MS Excel software. The final data was analyzed using EPI INFO software. The categorical data was expressed in frequencies and percentages, and the continuous data was expressed in mean with standard deviation. The Pearson correlation test was used to assess the correlation between the quantitative variables. All inferential statistics were carried out at a confidence level of 95% with a *p-value* less than 0.05 being significant.

## RESULTS

A total of 158 cases of attempted suicide were referred for psychiatric assessment and management during the study period, of which 8 declined to participate giving us a sample of 150 participants. The socio-demographic factors are represented

in Table 1. The mean age of the sample was 32.37  $\pm$  10.81 years (Range = 18–63 years) of which 46% were between 18 to 29 years of age and 30.7% were between 30 to 39 years of age. There was a male preponderance of self-harm with male to female ratio of 2.3:1. Most common religion was Hindu (90.7%) followed by Buddhist (6.7%) among the study sample. About 39% of the participants achieved high school certification and 26.7% had a secondary school certification, while only 6% were illiterate. 58% of the participants were married, 38.7% were unmarried and almost 3% were separated, divorced or widowed. Farmers and farm laborers contributed 54% of the participants followed by homemakers (18%), 15% were students and 13% patients owned business. About 93% of the participants resided in a rural area and rest in urban area. Most of the study sample lived in a nuclear family setup (76.7%) while 23.3% belonged to a joint family. Most of the patients belonged to lower middle class of socioeconomic status (38.67%), and 20.6% of patients belonged to low of socioeconomic status.

Table 2 shows the clinical variables of the DSH patients. Most participants attempted self-harm by consuming poison (88.7%), of which 71% of the patients consumed insecticide poison, and 12% consumed rodenticide poison (12%). Drug overdose was found in 6% of the patients. About 11% of the study population attempted self-harm by cutting wrist, hanging, and drowning. The most common reason for attempt of self-harm was altercation with spouse (30%) followed by not able to repay the money form the money lender (29%), altercation with family members (18%), a small proportion had broken love affair, job-related stress, failure in examination and other reasons for self-harm. 65% of the study population were not diagnosed with any psychiatric illness. About 16.6% of patients were diagnosed with adjustment disorder, severe depression (10%), or moderate depression (8%).

Table 3 shows the severity of suicidal intent: 71.3% of the participants had low suicidal intent, 18% had medium suicidal intent and 10% had high suicidal intent.

The correlation of the severity of suicidal intent and depression is shown in Table 4. A significant positive correlation was found on correlating suicide

**Table 1:** Socio-demographic variables (n = 150)

Variables	n(%)	
Age Group (years)	18–29 years	69 (46)
	30–39 years	46 (30.7)
	40–49 years	21 (14)
	50–59 years	10 (6.7)
	$\geq$ 60 years	4 (2.7)
Gender	Male	105 (70)
	Female	45 (30)
Religion	Hindu	136 (90.7)
	Buddhist	10 (6.7)
	Muslim	4 (2.7)
Education	Illiterate	9 (6)
	Primary	9 (6)
	Middle	20 (13.3)
	10 <sup>th</sup>	40 (26.7)
	12 <sup>th</sup>	59 (39.3)
	Graduation	12 (8)
Marital Status	PG	1 (0.7)
	Unmarried	58 (38.7)
	Married	87 (58)
	Separated	2 (1.3)
	Widow	2 (1.3)
Occupation	Divorced	1 (0.7)
	Farm labourer	45 (30)
	Farmer	36 (24)
	Homemaker	27(18)
	Self employed	20 (13.33)
	Student	15 (10)
Living Area	Employed	7 (4.67)
	Rural	140 (93.33)
Type of family	Urban	10 (6.67)
	Nuclear	115 (76.7)
	Joint	35 (23.4)
Socioeconomic status As per B.G. Prasad scale	Upper class	4 (2.67)
	Upper middle class	25 (16.67)
	Middle class	32 (21.33)
	Lower middle class	58 (38.67)
	Lower class	31 (20.67)

**Table 2:** Clinical variables (n = 150)

Variables	n(%)	
Mode of self-harm	107 (71.33)	
Poisoning (88.7%)	Insecticide	18 (12)
	Rodenticide	5 (3.33)
	Phenol	1 (0.67)
	Turpentine	2 (1.33)
	Salicylic Acid	9 (6)
	Drug Overdose	2 (1.33)
	Cutting	5 (3.33)
	Hanging	1 (0.67)
	Drowning	45 (29.9)
	Reasons for attempt	44 (29.33)
Altercation with spouse	Demand of money from the lender	27 (18)
	Altercation with family member	17 (11.3)
	Broken Love affair	4 (2.67)
	Job-related stress	2 (1.33)
	Failure in exam	11 (7.33)
	Other	14 (9.3)
	Family history of DSH	136 (90.6)
	Substance use	Yes
No		122 (81.3)
Psychiatric Diagnosis	Not diagnosed with psychiatric illness	98 (65.33)
	Adjustment disorder	25 (16.67)
	Moderate Depression	12 (8)
	Severe Depression	15 (10)

**Table 3:** Suicidal intent among the participants (n = 150)

Beck suicide intent scale	Male n (%)	Female n (%)	Total n (%)
Low	77 (51.33)	30 (20)	107 (71.33)
Medium	22 (14.67)	6 (4)	28 (18.67)
High	6 (4)	9 (6)	15 (10)

intent score with Beck's depression inventory score also depicted in Figure 1.

## DISCUSSION

The present study aimed at identifying the socio-demographic and psychosocial factors of DSH. Most

**Table 4:** Correlation of suicide intent with depression

Variables (Mean ± SD)	R	BSI Score (20.35 ± 6.87)
BDI Score (14.84 ± 9.67)	P	0.0001*

Pearson Correlation used; \* $p < 0.05$ , R= Pearson's correlation coefficient,

of the participants were in the young age group of 18 to 39 years (76.7%) which matched the findings of Badrinarayana *et al.* (2007) and Singh P *et al.* (2016), where the majority of the DSH attempters were under the age group of 30 years.<sup>12,13</sup>

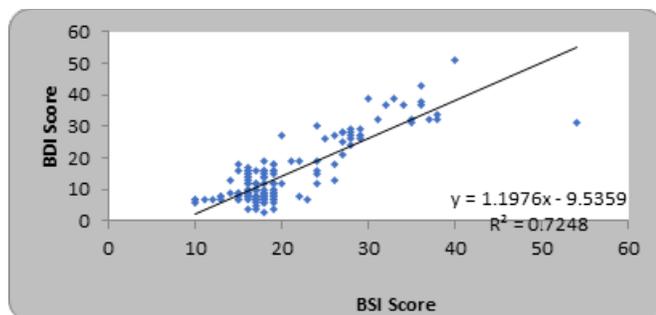
The majority of the participants in our study were males (70%), and the male: female ratio was 2.3:1. In a research conducted by Narang *et al.* (2000), the ratio was 1.7:1, which is comparable to the present study.<sup>6</sup>

A higher proportion of married participants (58%) than unmarried (38%) were found in the present study which is consistent with the findings of Sudhir Kumar *et al.* (2006), who found that about 70.4% of suicide victims were married.<sup>14</sup> In contrast to the current study findings, Srivastava A *et al.* (2005) and Narang *et al.* (2000), found singles (unmarried, widowed, divorced) are more likely to attempt suicide than married people.<sup>6,15</sup> In the Indian subcontinent, getting married earlier might be a reflection of tradition and culture. It may be crucial to examine the variations in stress that married people experience, particularly in terms of marital conflicts.

In the present study, most participants had higher secondary certificates (39.3%), comparable to the Latha KS *et al.* (1996) study, which found that 54% of suicide attempters had completed high school.<sup>5</sup> Ray S *et al.* (2019), reported higher prevalence of attempted suicide among the people who completed 10<sup>th</sup> or 12<sup>th</sup> grade.<sup>16</sup>

The current study showed that more than half of the study population were farm laborers and farmers (54%) followed by homemakers (18%), 15% were students, and 13% owned businesses. Similarly, study done by Mishra *et al.* (2015) found suicide attempt rates were higher than average in the Vidarbha region of Maharashtra, which is home to the majority of India's cotton farmers.<sup>17</sup>

Most of the population lived in a nuclear family (76%) and was in rural areas (93%). According to a study by Mishra *et al.* (2015), living alone was found to be a significant risk factor for self harm.<sup>17</sup> Similar



**Figure 1:** Correlation of beck suicide intent score and beck depression inventory score

results were reported by Ebenezer and Joge (2016), who conducted research in a rural area of Madhya Pradesh and found that 69% of patients from rural agricultural households, compared to 31% of patients had urban or semi-urban upbringings.<sup>18</sup> Index study found a majority (58.6%) of the patients belonged to the lower middle-class or lower class of socioeconomic status which is comparable to the study done by Niaz U *et al.* (2006), in which they found that the majority of the people in their study were from lower socioeconomic background and unemployed.<sup>19</sup> People with low levels of education, employment opportunities, and income are more likely to experience financial stress and a sense of insecurity, which can lead to suicidal behavior.

Consumption of pesticide was found to be the most common mode of self-harm the present study which is comparable to the studies done by Sharma *et al.* (1998), Srivastava *et al.* (2004) & Gunnell *et al.* (2007), highlighting that easy accessibility and relative low-cost of pesticides make it a preferred mode of suicide attempt.<sup>20-22</sup>

In the present study, 65.33% of the population had No diagnosable psychiatric illness. Only 34.67% of the patients had a diagnosable psychiatric illness. 16.6% of patients were diagnosed with adjustment disorder, moderate depression (8%), and severe depression (10%). In a study done by Srivastava *et al.* A *et al.* (2005), the prevalence of depressive illness was 16.6%.<sup>15</sup> A positive correlation between depression severity and suicide attempt was found in the present study, similar to a study by Srivastava S *et al.* (2000).<sup>23</sup> The most common precipitating factor for self-harm was an altercation with a spouse (29.9%) or with family members (18%), followed by a demand for money from the money lender (29%), a

broken love affair (11%), failure in examination (1.3%) and job-related stress (2.6%). These findings are comparable with the study by Ghimire *et al.* (2014) who found interpersonal and marital conflicts most commonly precipitate DSH.<sup>24</sup> The most frequent cause of DSH was conflict with the spouse. In a stress-vulnerability model, Rich and Bonner *et al.* (1987) observed that stress accounted for 30% of the variation in suicidal thoughts because Indian society is socio-centric, and interpersonal ties are valued highly.<sup>25</sup> Therefore, interpersonal conflict is expected to be the leading cause of suicide in males.

The index study revealed that a significant number of the agrarian population from this rural area of Maharashtra attempt suicide due to financial constraints and interpersonal conflict in the family. According to a study by Mishra *et al.* (2015), the cotton producer community of Maharashtra was at a high risk of committing suicide due to associated debt and a decline in economic status in that region. The financial burden and family conflicts resulting from debt in the farming community after crop failure were the main causes of suicide attempts among the study population.<sup>17</sup>

Although majority of the people did not have psychiatric diagnosis (65%), DSH might be viewed as a maladaptive coping method culminating in impulsive acts this was observed in a study done by Bhattacharya AK *et al.* (2011).<sup>26</sup>

Suicide intent and depression had a positive correlation in the present study. Similar findings were reported by Thompson *et al.* (2005). The current study's findings support earlier research that showed a strong link between depression and suicide conduct.<sup>27</sup>

## CONCLUSION

Deliberate self-harm was higher in younger males due to interpersonal problems and inability to pay back the loan in time. In rural agrarian populations, easy availability of organophosphorus poisoning made it the major mode of DSH. Government regulations and control policies for pesticides from sale to storage could help curb this problem. The majority of the study population did not have a diagnosable psychiatric illness, hence DSH might be viewed as a maladaptive coping method. Promoting healthy

coping mechanisms and reduction in stressors might be beneficial in preventing self-harm. Our study emphasizes the need for a complete psychiatric evaluation in every case of self-harm and appropriate management based on the nature of the issues.

## LIMITATIONS

A small sample size, hospital setting limit the generalizability of the findings of present study.

## CONFLICTS OF INTEREST

None.

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