

Risk Factors Associated with Female Suicide Attempts: A Cross-sectional Study

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ABSTRACT

Introduction: Attempted suicide, both fatal and non fatal, is a challenging public health issue. In India, suicide attempts are more frequent in females than in males. Gender-related vulnerability to psychopathology and psychosocial stressors pose women with increased vulnerability to suicidal behaviour. Studies suggest that each prior attempt among women increased risk of future suicide threefold. More is known about differences in males and females in conditions like depression and schizophrenia than suicide. Remarkably few studies have focused upon suicidal behaviour in women or attempted to explore the complex relationships between various risk factors and suicidal behaviour in women. Such studies can provide useful information for understanding the risk factors associated with female suicide attempts and can help in developing suicide prevention strategies catering to the needs of women.

Aim: To study the risk factors associated with female suicide attempts in patients admitted in a medical college hospital in South India.

Materials and Methods: This descriptive cross-sectional study was conducted in the Department of Psychiatry, Stanley Medical College Hospital, Chennai, Tamil Nadu, India, from October 2021 to March 2022. Based on convenience sampling method, 170 female patients admitted for attempted suicide above 18 years of age who were referred for psychiatric counselling services to the Outpatient unit were considered for the study. Data on socio-demographic details including age, education status, marital and employment status, type of family and socio-economic status was collected. In addition, data on clinical variables like suicide and mental illness in the family, mode of attempt, number of past suicide attempts, co-morbid physical illness were collected from the participants. Beck's suicide intent scale was used to assess the severity of suicide intent. Presumptive Stressful Life Events

Scale (PSLES) was used to assess the stressful life events. For analysing the factors associated with severity of suicide intent, inferential statistics (Pearson's Chi-square test) was used.

Results: Of the 170 women who attempted suicide, 79 (46.5%) were between age group 18 and 25 years. A total of 71 (41.8%) participants were employed and 111 (65.3%) were married. A total of 48 (28.2%) participants had co-morbid physical illness. Suicide ideation in the past 30 days were reported by 43 participants. The most common method of suicide attempt was self-poisoning (91.8%). A total of 65 participants (38.2%) had a current diagnosis of depression, 25 (14.7%) participants had one or two suicide attempts in the past, 99 (58.2%) women who attempted suicide had medium suicidal intent and in 30 participants (17.7%) the severity of suicide was high. The most common stressful life event was marital conflict. The severity of suicide intent was associated with age, past history of suicide attempt, suicide ideation in the past 30 days and current psychiatric diagnosis. Suicide intent was high in older age group patients and in those who had suicide ideation in the previous 30 days. Among the psychiatric diagnosis patients with diagnosis of depressive disorder had higher suicide intent. The mean±Standard Deviation (SD) stressful life event score was 115.93±36.50 in patients with high suicide intent.

Conclusion: The study highlights the various risk factors associated with female suicide attempts. The association between suicide intent and underlying psychiatric disorder in female suicide attempted patients insist the need for prompt diagnosis and management of psychiatric illness in preventing suicide behaviours in women. Suicide prevention programs should incorporate women-specific strategies. Multisectoral collaboration is needed to empower women with a good family, social support and foster socio-emotional life skills in women.

Keywords: Attempted suicide, Beck's suicide intent scale, Psychiatric counselling

INTRODUCTION

Attempted suicide, both fatal and non fatal, is a challenging public health issue [1]. According to Diagnostic and Statistical Manual of Mental Disorders (DSM-5), suicide attempt is defined as a self-initiated sequence of behaviours by an individual who, at the time of initiation, expected that the set of actions would lead to his or her own death [2]. The rate of suicide attempts is estimated to be 20 times higher than that of suicides [3]. Despite growing attention and efforts at preventive intervention suicide continues to rise in number and rate. As per National Crime Records Bureau (NCRB) reports, a total of 1,64,033 suicides were reported in India and the rate of suicide was 12.0 per one lakh population during the year 2021. Majority of suicides were reported in Maharashtra, India followed by Tamil Nadu, Madhya Pradesh, West Bengal and Karnataka. These five states together accounted for 50.4% of the total suicides reported in the country [4].

Suicidal behaviour occurs in response to interactions between biological, psychological, and socio-environmental risk factors [5]. A number of studies from Indian background have reported existence of psychiatric disorder in suicide attempters. Evidence also supports an excess of life events, especially in the month before the suicide attempt. Many patients consider that their problems are insolvable, they often cannot think of any other way out of their situation at the time and self-harm becomes an immediate response [6].

In India, suicide attempts are more frequent in females than in males [7]. The reasons are multiple either single or combination. Family problems and illness, divorce, dowry, love affairs, cancellation or the inability to get married (according to the system of arranged marriages in India), extramarital affairs, and such conflicts relating to the issue of marriage, play a crucial role in suicidal behaviours, particularly in women [6]. Gender-related vulnerability to psychopathology and psychosocial stressors pose women with increased vulnerability to

suicidal behaviour [8]. Studies suggest higher stability of suicidal behaviour in females than in males. This would be confirmed by data showing higher rates of previous suicide attempts in females presenting with a recent suicide attempt [7]. One prior study finding stated that, each prior attempt among women increased risk of future suicide threefold [9].

More is known about differences in males and females in conditions like depression and schizophrenia than suicide. Remarkably few studies have focused upon suicidal behaviour in women or attempted to explore the complex relationships between various risk factors and suicidal behaviour in women [8]. Such studies can provide useful information for understanding the risk factors associated with female suicide attempts and can help in developing suicide prevention strategies catering to the needs of women. The current study was aimed to study the risk factors associated with female suicide attempts in patients admitted in a medical college hospital in South India. The primary objective is to evaluate socio-demographic variables, clinical variables, method of attempt and severity of suicide intent in female patients with attempted suicide. The secondary objective is to study the association between severity of suicide intent and the various risk factors.

MATERIALS AND METHODS

The present study was a descriptive cross-sectional study conducted in the Department of Psychiatry, Stanley Medical College Hospital, Chennai, Tamil Nadu, India, from October 2021 to March 2022 among female patients, who attempted suicide and were referred to Psychiatric counselling services. The present study protocol was reviewed and approved by the Institutional Review Boards (Reg. No. 20211029). All participants received written and oral explanations regarding the study and provided written informed consent.

Sample size calculation: Sample size for the current cross-sectional study was calculated using the following formula:

$$n = Z^2 pq / d^2$$

Based on the study done by Lövestad S et al., proportion of women who have attempted suicide (p) is calculated to be 72% [10].

$q = 100 - p$, i.e., $q = 28\%$

relative precision (d) is set at 10%,

On substituting in the above formula and including 10% non response rate, total sample size was calculated to be 170. Based on convenience sampling method, female patients admitted for attempted suicide, who were referred for psychiatric counselling service to the outpatient unit during the study period were considered for the study.

Inclusion criteria: Patients of age 18 years and above, and those who gave consent to participate in the study were included in the study.

Exclusion criteria: Patients with accidental injuries, those with severe medical illness were excluded from the study.

Study Procedure

Patients who were admitted for self-harm behaviour or attempted suicide were provided emergency medical or surgical care, as needed in emergency wards. After treatment they were referred to Psychiatric Outpatient unit for counselling services. A total of 170 female patients with attempted suicide, who fulfilled the above inclusion criteria were included in the study. The purpose of the interview was explained to each patient and informed written consent was obtained. The interview was carried out by trained psychiatrist. Data on socio-demographic details including age, education status, marital and employment status, type of family and socio-economic status was collected using a semi-structured questionnaire. In addition, data on suicide and mental illness in the family, mode of attempt, procurement of the poison, if the mode

of attempt involved poisoning/ intoxication and the number of past suicide attempts, co-morbid physical illness and the nature of physical illness were collected from the participants. Suicide ideation in the past 30 days were assessed by asking the participants, if they had any contemplations, wishes, and preoccupations with death and suicide in the previous 30 days. The patients were interviewed for underlying psychopathology and current psychiatric diagnosis was made based on the International Classification of Diseases-10 (ICD-10) classification of mental and behavioural disorders [11].

Beck's suicide intent scale [12]: The severity of suicide intent was assessed using Beck's suicide intent scale. The scale consists of 20 items, each item is rated on an ordinal scale of 0, 1 and 2. The scale consists of two sections: Section 1 contains items dealing with the objective circumstances related to the suicide attempt, items 1 to 9 such as whether others were nearby or could possibly intervene, whether there were acts in preparation for the attempt, and whether there was communication of intent. Section 2 contains items based on the patient's self-report of their internal concept of intent (items 9 through 15), and includes items that rate the expectation of fatality, seriousness of attempt, and attitude toward dying. It takes 3 to 5 minutes to complete the self-report part of the questionnaire by the patient. The inter-rater reliability of the scale has been reported to be $r = 0.95$. The first 15-items are used to assess the severity by adding their score with total score ranging from 0 to 30. Suicide severity is divided into three categories based on the overall score: low intent (scores of 15-19), medium intent (scores of 20-28), and high intent (scores of 29+).

Presumptive Stressful Life Events Scale (PSLES) [13]: This scale was developed by Singh G et al., based on the Holme and Rahe Social Readjustment rating schedule [13]. The items were reconstructed for the Indian population to assess the stressful life events. This 51-item (yes/no) self-rated scale takes about five minutes to complete. It includes both positive and negative life events like death of spouse, marital conflict, getting married or engaged and questions related. Each individual item is assigned scores varying from 0 to 100 and then ranked according to the perceived stress of each event. The most stressful event, death of spouse is assigned stress score of 95 and the least stressful event, going on a pleasure trip or pilgrimage is assigned stress score of 20. The participants were asked to tick the appropriate item of life events they faced in the last one year. In the present study, the Presumptive Stressful Life Events Scale (PSLES) was used to assess the number of stressful life events in the past one year period prior to the current suicide attempt. The total score is used as stressful life event score.

To ensure an even distribution of participants by age group, the participants were divided into six groups with a 10-year gap between each group. Depending on their employment status, the participants were divided into two groups, employed and unemployed. The modified Kuppuswamy scale was used to categorise the participants into five groups, upper class, upper middle class, lower middle class, upper lower and lower socio-economic class [14]. Based on the modified Kuppuswamy scale, the participants' levels of education were divided into illiterate/no education, college graduates, diploma holders, intermediate school graduates, high school, middle school and primary school graduates.

STATISTICAL ANALYSIS

Statistical analysis was done using International Business Machines Statistical Package for the Social Sciences (IBM SPSS) software version 23.0. Descriptive statistics was used to describe the sample socio-demographic and clinical characteristics. For analysing the factors associated with severity of suicide intent, inferential statistics (Pearson's Chi-square test) was used. The p-value ≤ 0.05 was considered statistically significant.

RESULTS

Socio-demographic details: Of the 170 women, who attempted suicide, 79 (46.5%) were between the ages 18 and 25 years and 41 (24.1%) were between the ages of 26 and 35 years. About 41 (24.1%) participants had completed college and 32 (18.8%) had completed high school. A total of 71 (41.8%) participants were employed and 111 (65.3%) were married. Majority of them, 148 (87.1%) participants belonged to a nuclear family. A total of 92 (54.1%) were from urban areas and 91 (53.5%) participants were from the upper lower socio-economic class [Table/Fig-1].

Socio-demographic profile		Frequency (n)	Percentage (%)
Age group	18-25 years	79	46.5
	26-35 years	41	24.1
	36-45 years	32	18.8
	46-55 years	12	7.1
	56-65 years	5	2.9
	66-75 years	1	0.6
Education	No education/illiterate	29	17.1
	Primary school	11	6.5
	Middle school	17	10.0
	High school	32	18.8
	Intermediate school	30	17.6
	Diploma	10	5.9
	College Graduate	41	24.1
Employment	Employed	71	41.8
	Unemployed	99	58.2
Marital status	Unmarried/single	46	27.1
	Married	111	65.3
	Widowed	7	4.1
	Separated/divorced	6	3.5
Family type	Nuclear	148	87.1
	Joint	22	12.9
Region	Urban	92	54.1
	Rural	78	45.9
Socio-economic status	Upper	0	0
	Upper middle	4	2.4
	Lower middle	72	42.4
	Upper lower	91	53.5
	Lower	3	1.8

[Table/Fig-1]: Socio-demographic profile of the study participants (N=170).

Clinical variables: A total of 48 (28.2%) participants had co-morbid physical illness, of which 23 (47.9%) reported having chronic pain. Only 8 (4.7%) and 22 (12.9%) had a family history of mental illness and suicide, respectively. Suicide ideation in the past 30 days was reported by 43 participants. The most common method of suicide attempt was self-poisoning (91.8%), followed by hanging (7.6%). A total of 65 participants (38.2%) had a current diagnosis of depression and 44 (25.9%) had a diagnosis of adjustment disorder. A total of 25 (14.7%) participants had one or two suicide attempts in the past [Table/Fig-2].

Suicide severity is divided into three categories based on the overall score obtained in the Beck's suicide intent scale: low intent (scores of 15-19), medium intent (scores of 20-28), and high intent (scores of 29+). A total of 99 women who attempted suicide (58.2%) had medium suicidal intent, whereas 41 (24.1%) had low suicidal intent. In 30 participants, the severity of suicide intent was high [Table/Fig-3]. The mean score on PSLES was 80, the maximum score was 202 and the minimum score was 38. The most common stressful life event was marital conflict followed by excessive alcohol or drug use by family member, major personal illness or injury and family conflict.

Clinical characteristics		Frequency (n)	Percentage (%)
Co-morbid physical illness	Present	48	28.2
	Absent	122	71.8
Family history of mental illness	Present	8	4.7
	Absent	162	95.3
Family history of suicide	Present	22	12.9
	Absent	148	87.1
Suicidal ideation in the past 30 days	Present	43	25.3
	Absent	127	74.7
Mode of suicide attempt	Self-poisoning	156	91.8
	Hanging	13	7.6
	Sharp or blunt objects	1	0.6
Procurement	Home	125	73.5
	Shop	45	26.5
Current psychiatric diagnosis	Nil	20	11.8
	Schizophrenia	2	1.2
	Depression	65	38.2
	Adjustment disorder	44	25.9
Number of previous suicide attempts	Personality disorders	39	22.9
	None	140	82.4
	One or two	25	14.7
	Three or more	5	2.9

[Table/Fig-2]: Clinical characteristics.

Severity of suicide intent	Frequency (n)	Percentage (%)
Low intent	41	24.1
Medium intent	99	58.2
High intent	30	17.7

[Table/Fig-3]: Severity of suicide intent.

Among the socio-demographic variables, only age was associated with severity of suicide intent with p-value=0.004 (df=25.50). Other variables like education, employment status, marital status, family type, socio-economic status were not associated with severity of suicide intent [Table/Fig-4].

Socio-demographic profile		Low intent	Medium intent	High intent	p-value
Age group	18-25 years	29	39	11	0.004
	26-35 years	7	29	5	
	36-45 years	3	23	6	
	46-55 years	2	5	5	
	56-65 years	0	2	3	
	66-75 years	0	1	0	
Education	No education/illiterate	2	19	8	0.52
	Primary school	3	4	4	
	Middle school	3	12	2	
	High school	8	21	3	
	Intermediate school	10	18	2	
	Diploma	4	2	4	
	College Graduate	11	23	7	
Employment	Employed	16	39	16	0.36
	Unemployed	25	60	14	
Marital status	Unmarried/single	17	22	7	0.24
	Married	24	68	19	
	Widowed	0	5	2	
	Separated/divorced	0	4	2	
Family type	Nuclear	37	85	26	0.78
	Joint	4	14	4	

Region	Urban	20	52	20	0.29
	Rural	21	47	10	
Socio-economic status	Upper	0	0	0	0.30
	Upper middle	0	4	0	
	Lower middle	16	45	11	
	Upper lower	25	47	19	
	Lower	0	3	0	

[Table/Fig-4]: Association between severity of suicide intent and socio-demographic variables. Values presented as numbers (n).

Pearson's Chi-square test used. p-value <0.05 considered significant

Among the clinical variables, severity of suicide intent was associated with number of previous suicide attempts (p-value=0.05, df=9.440), suicide ideation in the past 30 days (p-value=0.0005, df=28.39) and current psychiatric diagnosis (p-value=0.0005, df=80.48). Other clinical variables like family history of mental illness, family history of suicide, co-morbid medical illness and method of suicide attempt were not associated with severity of suicide intent. The mean±SD stressful life event score was high (115.93±36.50) in patients with high suicide intent [Table/Fig-5].

Clinical characteristics		Low intent	Medium intent	High intent	p-value
Co-morbid physical illness	Present	8	32	8	0.30
	Absent	33	67	22	
Family history of mental illness	Present	2	3	3	0.28
	Absent	39	96	27	
Family history of suicide	Present	3	14	5	0.43
	Absent	38	85	25	
Suicidal ideation in the past 30 days	Present	2	23	18	0.0005
	Absent	39	76	12	
Mode of suicide attempt	Self-poisoning	40	91	25	0.09
	Hanging	1	8	4	
	Sharp or blunt objects	0	0	1	
Procurement	Home	29	76	20	0.49
	Shop	12	23	10	
Current psychiatric diagnosis	Nil	16	4	0	0.0005
	Schizophrenia	0	1	1	
	Depression	0	44	21	
	Adjustment disorder	6	30	8	
	Personality disorders	19	20	0	
Number of previous suicide attempts	None	38	80	22	0.05
	One or two	3	17	5	
	Three or more	0	2	3	
Mean±SD stressful life event score	Stress score	51.27±	80.64±	115.93±	
		13.53	35.01	36.50	

[Table/Fig-5]: Association between severity of suicide intent and clinical variables. Values presented as numbers (n).

Pearson's Chi-square test used. p-value <0.05 considered significant

DISCUSSION

This study analysed the socio-demographic, suicide-related, clinical characteristics and suicide intent of 170 female patients admitted with attempted suicide in a Medical College Hospital in South India. The results regarding the characteristics of individuals who had attempted suicide could serve as a foundation for the development of effective suicide prevention strategies. Nearly half of the study population belonged to the age group of 18-25 years. In comparison to younger age groups, the intensity of suicide intent increased with age. This is similar to the findings of previous studies in which older people's scores on suicidal intent scales were higher than those observed in younger people [15].

Almost half of the study population was unemployed. This is comparable to past studies in which the majority of suicide attempters were unemployed [16]. Unemployed women had to rely on their spouses or other family members for financial support. Unemployment is a proven risk factor for suicide attempts. Similar to previous study findings, majority of 111 (65.3%) female patients were married [16]. Marital conflict, excessive alcohol use by the spouse and family conflicts were the most commonly reported stressful life events that put married women at risk of suicide.

Majority of the female patients with attempted suicide came from urban background. There is a transfer of the rural population to the urban community in pursuit of work, and the stress connected with it, as well as access to healthcare facilities, all of which contribute to higher rates of suicide recorded from the urban population. Similar to previous studies, most of the patients belonged to the upper lower socio-economic class [16]. In the fast-changing economic scenario, those in the lower socio-economic class are highly stressed, which probably makes them the most vulnerable to suicide attempts [10].

A total of 43 (25.3%) patients had suicidal thoughts in the last 30 days, and there was a significant association between the severity of suicidal intent and suicidal ideation in the past 30 days. This is consistent with the findings of a previous study, which discovered that the likelihood of suicide attempt was highest in patients, who had suicidal ideation in the previous 30 days, and it was significantly higher in women [16].

More than 80% of female patients who attempted suicide had psychiatric problems. A total of 65 (38.2%) patients were diagnosed with depression, whereas 44 (25.9%) patients were diagnosed with adjustment disorder. This is in accordance with the previous study findings in which 82% of the suicide attempters were diagnosed to have psychiatric disorder [6]. Patients with depression showed higher suicide intent, which is consistent with studies that report depression as a major risk factor for the severity of intent in attempted suicide [15,17]. Patients with mood disorder were more vulnerable than others considering planned attempts of high potential [16]. Majority of the patients reported life events prior to the attempt. Stressful life events like marital conflicts, major illness and family conflict precede the depressive episode or milder emotional disturbances such as the adjustment disorder with anxious or depressive emotions. Many patients consider that their problems are insolvable, they often cannot think of any other way out of their situation at the time and self-harm becomes an immediate response. Personality disorders were diagnosed in 39 (23%) individuals and their intent to attempt suicide was lower than that of patients with other mental disorders. This is similar to the findings of various studies, which report that the mean Suicide Intention Score (SIS) was significantly lower among patients with personality disorders compared with patients with other psychiatric diagnoses [18,19]. Patients with personality disorders experience stress from interpersonal disputes and are more likely to act impulsively, experience depression and anxiety.

Self-poisoning accounted for 91.8% of all suicide attempts in this study. In accordance with this finding, another study report intoxication to be the most common method of suicide [7]. The most likely reason is the unrestricted use of insecticides and rodenticides in Indian households for domestic usage. There was no significant association between methods of suicide and severity of suicidal intent. A total of 48 patients had a co-existing physical illness, of which 13.5% had chronic pain. Type and number of physical health conditions have been suggested to be associated with an increased risk of suicidal ideation and suicide attempts. Studies exploring physical health conditions co-occurring with mental health conditions have similarly suggested an increased likelihood of suicidal thoughts and behaviours, but not above the independent risk of mental ill-health alone [20]. Characteristics of most of the associated physical illnesses were chronic, non remitting pain,

restriction of occupational and recreational endeavours, physical mobility leading to depression.

Only 4.7% patients had family history of mental illness and family history of suicide was present in only 12.9% of the sample. This is in agreement with previous study findings, which reported 14.9% of the suicide attempters had a family history of suicide attempt [21]. Studies have reported on the aetiology of the familial transmission of suicidal behaviour. The effects of family history are mediated through both shared biologic vulnerability and family environmental conditions. A 17.6% had previous history of suicide attempts, of whom 14.7% had one or two previous attempts and 2.9% had three or more suicide attempts. The intent of suicide was significantly high in those patients, who had three or more suicide attempts in the past. A suicide attempt is the best predictor of a future suicide attempt. Identifying repeaters is important as their rate and probability of death by suicide are significantly higher.

The most common presumptive stressful life event was marital conflict followed by excessive alcohol or drug use by family member, major personal illness or injury, family conflict. The mean±SD stressful life event score was 115.93±36.50 in patients with high suicide intent. While patients with low suicide intent had lower stressful life event score (mean±SD score: 51.27±13.53), compared to those with high suicide intent. Literature suggests that recent adverse life events contribute to the increased risk and intent of suicide or suicide attempts. In general, marriage appears to be less protective against suicide for women than for men. The life and marital circumstances of these women may make them vulnerable to suicidal behaviour. Stresses may include arranged and early marriage, young motherhood, low social status, domestic violence, and economic dependence [8].

Limitation(s)

The study being a cross-sectional descriptive study lacks the advantage of comparing female and male suicidal behaviours. Other factors like hopelessness, personality traits, impulsivity associated with suicide attempts could have been studied using validated scales.

CONCLUSION(S)

The present study highlights the various risk factors associated with female suicide attempts. Poisoning was the most common method of suicide attempt. Thus, restricting the availability of pesticides may be helpful in lowering the rate of suicidal attempts. The association between suicide intent and underlying psychiatric disorder in female suicide attempted patients insist the need for prompt diagnosis and management of psychiatric illness in preventing suicide behaviours in women. Suicide prevention programs should incorporate women-specific strategies. Multisectoral collaboration is needed to empower

women with a good family, social support and foster socio-emotional life skills in women.

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PLAGIARISM CHECKING METHODS: [Jain H et al.]

- Plagiarism X-checker: Oct 31, 2022
- Manual Googling: Mar 17, 2023
- iThenticate Software: Apr 10, 2023 (10%)

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