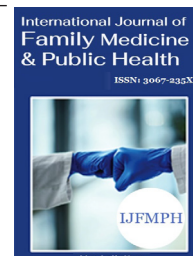


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## Unravelling the Patterns of Suicidal Ideation and Attempts: Insights from Sociodemographic Factors, Triggers, and Psychiatric Comorbidities.

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### ABSTRACT

**Background:** Suicide is a significant public health issue, contributing to the global burden of the disease. According to the World Health Organization (WHO), one person dies by suicide every 40 seconds, with over 800,000 deaths annually. In India, suicide rates have reached an all-time high, with more than 100,000 deaths reported in 2021. Despite the increasing awareness and destigmatization efforts, suicidal ideation and attempts remain underreported, posing a significant challenge to the healthcare system.

**Objectives:** This study aims to assess the sociodemographic, psychological, and clinical factors influencing suicidal ideation and attempts in individuals presenting to a tertiary care centre.

**Methods:** A hospital-based cross-sectional study was conducted on individuals presenting with suicidal ideation or attempts. Data on sociodemographic characteristics, psychiatric comorbidities, psychosocial stressors, and personality traits were collected and analyzed. Standardized suicide risk assessment tools were used to classify the severity of ideation and the likelihood of transition to suicidal behavior.

**Results:** Preliminary findings indicate a rising trend in suicide attempts, particularly among younger individuals, females, and those with psychiatric comorbidities such as depression, substance use disorders, and impulse control disorders. Sociodemographic determinants, stressful life events, and personality traits play a crucial role in suicide risk. Findings suggest that a significant proportion of individuals experiencing suicidal ideation transition to attempts within the first year of onset.

**Conclusion:** Understanding the psychosocial and clinical determinants of suicidality is essential for targeted interventions and suicide prevention strategies. This study highlights the urgent need for comprehensive mental health screening, early intervention, and policy-driven approaches to suicide prevention in India.

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### Introduction

Suicide remains a pressing public health concern in India, which accounts for the highest number of suicide deaths globally. The suicide mortality rate in India was 16.5 per 100,000 populations in 2016, surpassing the global average of 10.5 per 100,000. Notably, suicide is the leading cause of death among individuals aged 15–29 years [1–3].

Mental health disorders, particularly depression and substance use disorders, are well-established risk factors for suicide. However, a myriad of psychosocial factors also contributes significantly. A study conducted in Karnataka

identified associations between suicidality and factors such as familial or peer suicide attempts, anxiety, trust issues, gender and sexual identity concerns, and relationship problems among youth [4]. Additionally, data from the National Crime Records Bureau (NCRB) indicated that mental illness accounted for 21.1% of suicides in 2020, with other contributing factors including family problems, illness, and substance abuse [5].

In response to the escalating suicide rates, India enacted the Mental Healthcare Act in 2017, which decriminalized suicide attempts and emphasized the provision of mental health care. Building upon this, the National Suicide Prevention Strategy was introduced in 2022, aiming to reduce suicide mortality by 10% by 2030 through targeted

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interventions addressing biological, psychosocial, and cultural risk factors [6].

Despite these policy advancements, there remains a paucity of data regarding the clinical and psychosocial profiles of individuals presenting with suicidal ideation and attempts in tertiary care settings. Understanding these profiles is crucial for developing effective, targeted interventions. This study seeks to fill this gap by examining the demographic and clinical characteristics of such individuals, thereby informing future suicide prevention strategies.

## Materials and Methods

**Study Design and Setting:** This analytical cross-sectional study was conducted over a period of 22 months, from February 2021 to December 2022, at the Departments of Psychiatry of Alluri Sitarama Raju Academy of Medical Sciences (ASRAM), Eluru, located in the West Godavari district of Andhra Pradesh, India. The study focused on patients presenting with suicidal ideations and/or a recent history of suicide attempts.

**Study Population and Criteria:** The study included individuals aged 15 years and above who exhibited suicidal ideation or had a recent suicide attempt. Patients with a previously diagnosed psychiatric disorder were also considered for inclusion. Specifically, the suicidal ideation group comprised patients reporting suicidal thoughts and those with a history of non-suicidal self-injury (NSSI). The suicide attempt group included patients who had undergone treatment for suicide attempts; those who were critically ill and admitted to the ICU were included after recovering from the acute phase. Patients who were unwilling or unable to provide informed consent, as well as those who succumbed to their condition during hospital treatment, were excluded from the study. A total of 67 subjects were enrolled using a consecutive sampling technique.

**Data Collection and Study Tools:** Data collection was carried out using a structured proforma that captured socio-demographic information (age, gender, marital status, family type, education, occupation, locality, socioeconomic status) and clinical details, including duration of illness, substance dependence, current psychiatric diagnosis, medical comorbidities, past and family history of mental illness, and history of suicidal behavior, including method and lethality of suicide attempts.

To assess socioeconomic status, the study used the Modified Kuppuswamy Scale (2022 updated by Sood & Bindra), which classifies individuals into five socioeconomic categories based on education, occupation, and income [7]. Psychiatric diagnoses were established using the ICD-10 Classification of Mental and Behavioral Disorders, an internationally recognized diagnostic system developed by the World Health Organization [8]. Personality disorders were screened using the International Personality Disorder Examination (IPDE), a semi-structured interview tool that aligns with both ICD-10 [9].

Suicidal ideation was measured using the Modified Scale for Suicidal Ideation (MSSI), a validated 18-item tool

with scores ranging from 0 to 54. Based on their scores, individuals were categorized into severe suicidal ideation (MSSI > 20), mild to moderate suicidal ideation (MSSI 9-20), and low suicidal ideation (MSSI 0-8). Stress levels were assessed using the Presumptive Stressful Life Events Scale (PSLES), which includes 51 stressful life events ranked by severity. Based on cumulative scores, stress levels were categorized as mild (41-99), moderate (100-199), and severe (>200).

**Study Procedure:** Ethical approval for the study was obtained from the Institutional Ethical Committee (IEC) of ASRAM. Permission was also secured from the Departments of Psychiatry before commencing the study. Eligible participants were briefed about the study, and written informed consent was obtained. Data was collected through face-to-face interviews using standardized assessment tools. Confidentiality and ethical guidelines were strictly maintained throughout the study.

**Statistical Analysis:** Data entry was carried out using Microsoft Excel (Mac, version 16.4), and statistical analyses were conducted using IBM SPSS 25.0. Descriptive statistics such as mean, standard deviation, and percentages were presented in tabular and graphical formats. Categorical data were analyzed using the chi-square test, while continuous data were examined using independent t-tests. A p-value of less than 0.05 was considered statistically significant.

## Results

A total of 67 participants were included in the study. The mean age was  $31.12 \pm 11.24$  years (range: 18–65 years). Males comprised 58.2% (n=39) of the sample, and females 41.8% (n=28). Most participants were married (53.7%, n=36), and a majority belonged to a rural background (61.2%, n=41). Regarding education, 47.8% (n=32) had secondary school education, followed by 29.9% (n=20) with primary education, and 17.9% (n=12) who were illiterate. The majority of participants were unemployed (61.2%, n=41). There were no statistically significant differences in socio-demographic variables between participants with suicidal ideation and those with suicide attempts (Table 1).

According to ICD-10 diagnostic criteria, depressive disorder was the most common diagnosis (44.8%, n=30), followed by adjustment disorder (19.4%, n=13), and alcohol dependence syndrome (17.9%, n=12). Other diagnoses included schizophrenia (6%, n=4), bipolar affective disorder (3%, n=2), and anxiety disorders (9%, n=6) (Table 2).

A history of previous suicide attempts was reported in 34.3% (n=23) of participants. Among them, 26.8% (n=18) had a single past attempt, and 7.5% (n=5) had made two or more attempts (Table 3).

A positive family history of mental illness was present in 17.9% (n=12) of participants (Table 4). The most commonly reported mental illness in family members was depression (n=7), followed by alcohol dependence syndrome (n=3) and schizophrenia (n=2) (Table 5).

Regarding the methods adopted for suicide attempts, self-poisoning with insecticide was the most common method

**Table 1: Demographic Data of the study subjects.**

Parameter	Group (No. of Case)		Total
	Suicidal Attempt	Suicidal Ideation	
<b>1. Age</b>	30.71 + 17.57 Yrs	34.30 + 14.28 Yrs	33.01± 15.01 * Not Significant
<b>2. Sex</b>	8 (33.3)	21 (48.8)	29 (43.3)
Male	16 (66.7)	22 ( 52.9)	38 (56.7)
Females	24 (35.8)	43 (64.2)	67
<b>3. Education</b>			
High School	4 (16.67)	10 (23.25)	14 (20.89)
Inter	7 (29.17)	13 (30.23)	20 (29.85)
Primary School	2 (8.33)	6 (13.95)	8 (11.94)
Under Graduate	11 (45.83)	14 (32.55)	25 (67.31)
<b>4. Family Type</b>			
Joint Family	4 (16.67)	6 (13.95)	10 (12.98)
Joint Extended	1 (4.17)	0	1 (1.29)
Nuclear	18 (75)	33 (76.74)	51 (66.23)
Nuclear Extended	1 (3.70)	4 (9.30)	5 (7.46)
<b>5. Marital Status</b>			
Married	10 (41.67)	22 (51.16)	32 (47.76)
Separated	0	2 (4.65)	2 (2.98)
Single	12 (50)	16 (37.20)	28 (41.79)
Widowed	2 (8.33)	3(6.97)	5 (7.46)
<b>6. Socio Economic Status</b>			
<b>Lower</b>	0	2 (4.65)	2 (2.99)
Lower Middle	12 (50)	14 (32.55)	26 (38.80)
Middle	5 (20.83)	19 (44.18)	24 (35.82)
Upper	1 (4.16)	0	1 (1.49)
Upper Middle	6 (25)	8 (18.60)	14 (20.89)

**Note:** The values in parentheses are percentages

**Table 2: Distribution based on Current ICD-10 diagnoses in study population.**

Disorders of Participants		Group		Total
		Suicidal Attempt	Suicidal Ideation	
	Acute Stress Reaction	1(4.16)	3 (75)	4 (5.97)
	Adjustment Disorder	7 (29.16)	2 (4.65)	9 (13.4)
	Adjustment Disorders, Dissociative Disorders	1(4.16)	0	1 (1.49)
	Bipolar Affective Disorder	1(4.16)	7 (16.27)	8 (11.94)
	Depressive Episode	5 (20.8)	18(41.86)	23 (34.32)
	Dissociative Disorders	0	2 (4.65)	2 (20.98)
	Generalized Anxiety Disorder	1(4.16)	4 (9.30)	5 (7.46)
	Mental and Behavioural disorders due to multiple drug use	0	1 (2.32)	1 (1.49)
	Mixed Anxiety Depressive Disorder	0	2(4.65)	2 (2.98)
	Obsessive Compulsive Disorder	1(4.16)	1(2.32)	2 (2.98)
	Paranoid Schizophrenia	0	1(2.32)	1 (1.49)
	Planned Suicide Attempt with Depressive Symptoms	1(4.16)	0	1 (1.49)
	Recurrent Depressive Disorder	3(12.5)	0	3 (4.47)
	Schizophrenia	0	1(2.32)	1 (1.49)
	Severe Depressive Episode	1(4.16)	0	1 (1.49)
	Specific Personality Disorder	2(8.3)	1(2.32)	3 (4.47)

**Note:** The values in parentheses are percentages

**Table 3: History of previous attempts of suicide of the study population.**

Group	Past History of Suicide Attempt	No Past History of Suicide Attempts	Total
Suicide Attempt	18 (35.2)	6 (37.5)	24 (35.8)
Suicide Ideation	33 (64.7)	10 (62.5)	43 (64.17)
	51(76.1)	16 (23.8)	67

**Note:** The values in parentheses are percentages

**Table 4: Family History of Mental Illness of the study subjects.**

Group	Suicidal Attempt	Suicidal Ideation	Total
Family History of Mental Illness	4 (16.6)	8 (18.6)	12 (17.9)
No Family History of Mental Illness	20 (83.3)	35 (81.3)	55 (82.08)

**Note:** The values in parentheses are percentages

(52.9%, n=18), followed by self-inflicted injury (23.5%, n=8), hanging (14.7%, n=5), and drug overdose (8.8%, n=3) (Table 6).

The mean Modified Scale for Suicidal Ideation (MSSI) score was  $21.49 \pm 9.87$ . Participants with suicide attempts had a significantly higher mean MSSI score ( $26.14 \pm 9.59$ ) compared to those with suicidal ideation alone ( $16.77 \pm 7.71$ ), and this difference was statistically significant ( $p < 0.001$ ) (Table 7).

**Table 5: Details of participants with family history for mental illness.**

Type of Mental Illness	Suicidal Attempt	Suicidal Ideation	Total
Attempted Suicide	1 (100)	0	1
Attempted SuicideBipolar Affective Disorder	0	2 (100)	2
Bipolar AffectiveDisorder	1 (33.3)	2 (66.67)	3
Completed Suicide	0	1 (100)	1
Completed Suicide,Psychosis, Schizophrenia, Depression	0	1 (100)	1
Depression, Alcohol Dependence Syndrome, Bipolar Affective Disorder	1 (100)	0	1
Psychosis	0	1 (100)	1
Severe Depression	24 (35.8)	43 (64.17)	67

**Note:** The values in parentheses are percentages

**Table 6: Methods Adopted for Suicide Attempted.**

Method used for suicide Attempt	No. of Cases	Percentage (%)
Benzodiazepine Overdose	1	4.20
Fungicide Poisoning	1	4.20
Hanging	4	16.70
Kerosene Oil	1	4.20
Melatonin Overdose	1	4.20
Nail Polish	1	4.20
OPC Poisoning	5	20.80
Overdose	1	4.20
Overdose alprazolam	1	4.20
Paraquat Poison	2	8.30
Phenyl	1	4.20
Tablet Overdose, Insecticide, Poison	1	4.20
Tablet Overdose	4	16.70
Total	24	100.00

**Table 7: MSSI Score of the study subjects.**

Group	No. of Subjects	MSSI Score
Suicide Attempt	24	$22.96 \pm 8.21$
Suicide Ideation	43	$12.56 \pm 6.96$

## Discussion

This study provides valuable insights into the demographic and clinical profiles of individuals presenting with suicidal ideation and suicide attempts in a tertiary care setting in India. The mean age of participants was  $33.01 \pm 15.01$  years, with a higher representation of females (56.7%). This aligns with national data indicating that young adults, particularly females, are increasingly vulnerable to suicidal behaviors in India [10].

Depressive episodes were the most prevalent diagnosis among participants (34.32%), followed by adjustment disorders (13.4%) and bipolar affective disorder (11.94%). These findings are consistent with existing literature highlighting depression as a significant risk factor for suicide [10,11]. A recent cross-sectional study from Kerala reported

a similar high prevalence of depressive disorders among young adults presenting with intentional self-harm [11]. Additionally, a systematic review and meta-analysis reported that individuals with psychosis and bipolar disorder in South Asia have pooled suicide attempt rates of 22% and suicidal ideation rates of 38%, underscoring the importance of targeted interventions [12].

A notable finding was the significantly higher Modified Scale for Suicidal Ideation (MSSI) scores among individuals who had attempted suicide ( $22.96 \pm 8.21$ ) compared to those with suicidal ideation alone ( $12.56 \pm 6.96$ ). This suggests that the MSSI is a valuable tool for assessing the severity of suicidal intent and identifying individuals at higher risk, supporting prior research emphasizing the utility of structured intent assessment in preventing future attempts [12,13].

Family history of mental illness was reported in 17.9% of participants, predominantly depression. This aligns with global and Indian studies suggesting a genetic predisposition to mood disorders and suicidal behaviors [14]. Recent qualitative research by Muralidharan *et al.* (2021) has illuminated the dynamic processes through which individuals with serious mental illness navigate illness self-management and health behavior change, underscoring the profound psychosocial challenges these individuals face — challenges that may intersect with familial and genetic vulnerabilities to increase suicide risk in affected populations [15].

Regarding methods of suicide attempts, poisoning was the most common, particularly with organophosphorus compounds (20.8%), reflecting the accessibility of these agents in rural and agrarian settings. This pattern mirrors national trends, with hanging and insecticide poisoning consistently reported among the top suicide methods in India [16]. A recent analysis of suicide patterns between 2014 and 2021 revealed a rise in hanging and persistent use of pesticides as methods of suicide, reinforcing the need for public health measures like pesticide access regulation and community education [16].

The Mental Healthcare Act, 2017, which decriminalized suicide attempts in India, represents a progressive shift towards a more compassionate, health-centered approach to mental health crises. This legislative reform is crucial in removing the legal stigma associated with suicide and encouraging help-seeking behaviors [17].

## Conclusion

This study highlights the predominance of depressive disorders among individuals with suicidal behaviors and underscores the importance of comprehensive mental health evaluations. The significant difference in MSSI scores between suicide attempters and those with ideation alone indicates the tool's potential utility in clinical risk stratification. Family history remains an important factor, warranting thorough psychiatric assessments and follow-up. Community education programs, stricter control of hazardous substances like pesticides, and early identification of at-risk individuals, especially those with depression and a family history of mental illness are essential preventive strategies. Legislative reforms like the Mental Healthcare Act, 2017, should be complemented with accessible mental health services to address this critical public health issue.



**Conflict of Interest:** None to declare.

**Ethical Consideration:** None

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