

Psychosocial Factors Associated With Attempted Suicide Among Elderly and Non-Elderly Patients At A Rural Tertiary Care Hospital in India

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Abstract

Introduction: Attempted suicide is a major public health problem shaped by psychological vulnerability, psychiatric illness, and social adversity. In India, attempts are closely linked to poverty, family conflict, alcohol use, and limited access to mental health care, particularly in rural areas. Age strongly influences suicidal behaviour: older adults typically show higher intent and use more lethal methods, while younger individuals more often act impulsively after acute crises. Indian studies directly comparing the psychosocial profiles of elderly and non-elderly suicide attempters remain scarce, especially from rural settings. This study compared the sociodemographic, clinical, and psychosocial factors associated with attempted suicide among elderly and non-elderly patients and assessed the severity and predictors of suicide intent.

Methods: This cross-sectional comparative study enrolled 300 consecutive adults admitted following a suicide attempt to Adichunchanagiri Hospital and Research Centre, a rural tertiary care facility, over 18 months (May 2024 to October 2025). Participants were categorized as non-elderly (18-59 years) or elderly (60 years and above). Data were collected using a semi-structured proforma and standardized instruments, including the Beck Suicide Intent Scale, the Risk-Rescue Rating Scale, the modified Kuppaswamy Socioeconomic Status Scale, the Presumptive Stressful Life Events Scale, the Alcohol Use Disorders Identification Test (AUDIT), International Classification of Diseases, 11th Revision (ICD-11) diagnostic guidelines, and the Mini-Mental State Examination (MMSE) in patients aged 65 years and above. Categorical variables were compared using the chi-square or Fisher's exact test, continuous variables using Student's t-test, and independent predictors were identified using multivariable logistic regression ($p < 0.05$ considered significant).

Results: Of 300 participants, 213 (71.0%) were non-elderly and 87 (29.0%) were elderly (mean age 48.8 ± 18.5 years); 52.3% were male, 76.7% resided in rural areas, and 75.0% belonged to lower or upper-lower socioeconomic strata. Current or past psychiatric illness was present in 34.7% and alcohol use in 39.7% of participants; 23.0% had a prior suicide attempt, and poisoning was the predominant method (65.3%). Elderly attempters had significantly higher rates of chronic physical illness (69.0% vs 25.8%), functional impairment (66.7% vs 13.1%), and social isolation (48.3% vs 17.8%), whereas non-elderly attempters more often reported unemployment (38.5% vs 13.8%), financial strain (54.0% vs 25.3%), and marital discord (37.6% vs 11.5%) (all $p < 0.001$). On multivariable analysis, chronic physical illness (adjusted odds ratio (AOR) 6.50), functional impairment (AOR 5.10), and social isolation (AOR 4.10) independently predicted membership in the elderly group, while unemployment (AOR 0.32) and marital conflict (AOR 0.30) independently predicted the non-elderly group. Clinically significant suicide intent was present in 28.0% of participants; lower socioeconomic status and the presence of a suicide note were the only independent predictors of higher intent, while age, gender, psychiatric diagnosis, alcohol use, prior attempts, and method of attempt were not.

Conclusions: Attempted suicide in this rural population was driven predominantly by socioeconomic deprivation and cumulative psychosocial stress, with distinct age-specific patterns: health deterioration and social disconnection predominated among elderly patients, while acute financial and interpersonal crises predominated among non-elderly patients. Suicide intent was better predicted by behavioural markers and socioeconomic adversity than by demographic variables. These findings support the need for age-tailored, psychosocially integrated suicide prevention strategies in rural clinical settings.

Categories: Psychiatry, Public Health, Geriatrics

Keywords: attempted suicide, suicide intent, elderly, psychosocial factors, rural india, socioeconomic status, stressful life events, deliberate self-harm, alcohol use, suicide risk assessment

Introduction

Attempted suicide is a serious public health problem linked to a wide range of psychosocial and medical factors [1]. It is a complex, multifactorial phenomenon that arises from the interaction of psychological vulnerability, biological predisposition, and social and environmental pressures [2]. Suicidal behaviour rarely has a single cause; rather, it reflects the cumulative impact of adverse life experiences, mental illness, physical disease, and sociocultural forces. A previous suicide attempt is among the strongest predictors of subsequent attempts and completed suicide, making survivors of suicide attempts a critical target group for early detection and preventive intervention [3].

Suicide is a leading cause of death worldwide. According to the World Health Organization (WHO), approximately 703,000 people die by suicide every year [4]. Global health data show that suicide mortality remains persistently high, with a disproportionate share occurring in low- and middle-income countries [5,6]. This highlights the need for region-specific research and prevention efforts that address the distinct social, economic, and health-system barriers faced by these communities. Marked variation in suicide rates across countries and cultures points to a strong influence of sociocultural factors, including family structure, stigma toward mental illness, and societal attitudes toward ageing [2,7]. Because the sociocultural landscape of India differs considerably from that of Western countries, where most existing suicide research originates, it remains unclear whether risk factors identified in Western populations are directly applicable to the Indian context [7].

Indian studies have shown that although some risk factors overlap with those reported in Western literature, several determinants, particularly those related to family relationships, socioeconomic pressure, and cultural expectations, are context-dependent [7,8]. Analyses of National Crime Records Bureau (NCRB) data show substantial regional variation in suicide rates across Indian states, with rural areas accounting for a considerable share of the national burden [9]. These observations underscore the need for regionally focused research, particularly in rural settings where access to mental health services is limited and sociocultural stressors may be pronounced.

Age is a key factor shaping suicidal behaviour. Suicide rates generally rise with age, and older adulthood has been recognized as a life stage associated with elevated suicide risk [10]. Older individuals often face distinctive stressors, including social isolation, bereavement, retirement-related role change, economic dependence, and declining physical health, which, together with psychiatric illness, substantially increase vulnerability to suicidal behaviour [10,11]. By contrast, non-elderly individuals who attempt suicide are more typically influenced by psychosocial stressors such as relationship conflict, occupational strain, unemployment, financial difficulty, and substance misuse [2,12]. Stressful life events have been identified as important triggers of suicide attempts across all age groups, with Indian research highlighting the contribution of both acute and chronic stressors [13,14]. Differences in intent, method, and lethality between older and younger attempters further support the need for age-specific analysis and tailored prevention strategies [15].

Given projected growth in the elderly population worldwide, the absolute number of suicides among older adults is expected to rise even if age-adjusted rates remain stable [5,6]. In rural areas, this risk may be compounded by limited specialist mental health resources, stigma, and weaker social support networks. Despite this, Indian studies directly comparing psychosocial profiles between elderly and non-elderly suicide attempters remain limited, particularly in rural, hospital-based populations. This study aimed to compare the sociodemographic, clinical, and psychosocial factors associated with attempted suicide between elderly and non-elderly patients admitted to a rural tertiary care hospital, and to assess the severity and independent predictors of suicide intent in this population.

Materials And Methods

Study Design, Setting, and Duration

This was a cross-sectional comparative study conducted in the Department of Psychiatry at Adichunchanagiri Hospital and Research Centre (AHRC), B.G. Nagara, Mandya district, a rural tertiary care hospital in Karnataka, India. The study was conducted over 18 months, from May 2024 to October 2025. Institutional Ethics Committee clearance was obtained prior to initiation (IEC number AIMS/IEC/044/2024), and written informed consent was obtained from all participants after their general condition had stabilized.

Study Population

All 300 consecutive patients admitted to AHRC with a history of a suicide attempt during the study period were enrolled.

Participants were categorized into two groups based on age at the time of the attempt: non-elderly (18-59 years) and elderly (60 years and above).

Inclusion and Exclusion Criteria

Patients aged 18 years and above of either gender who were admitted with a history of attempted suicide and who provided written informed consent were included. Patients with intellectual developmental disorder or severe medical illness precluding assessment, and elderly patients with cognitive impairment (MMSE score of 25 or below), were excluded.

Instruments and Data Collection

Data were collected through a one-on-one interview using a specially designed semi-structured proforma, supplemented by the following standardized instruments: the modified Kuppuswamy Socioeconomic Status Scale, used to classify socioeconomic status based on education, occupation, and per-capita monthly income [16]; the Beck Suicide Intent Scale (SIS), a 15-item scale combining objective circumstances of the attempt and self-reported cognitions, scored 0-2 per item, with higher scores reflecting greater intent [17]; the Risk-Rescue Rating Scale, which quantifies lethality using five risk and five rescue factors, each scored 1-3, combined as risk factor score divided by the sum of risk and rescue factor scores, multiplied by 100 [18]; the Alcohol Use Disorders Identification Test (AUDIT), a 10-item WHO screening tool for hazardous and harmful alcohol use [19]; the Gurmeet Singh Presumptive Stressful Life Events Scale (PSLES), a culturally validated 51-item instrument developed for the Indian population to quantify stressful life events over the preceding year and lifetime [20]; ICD-11 diagnostic guidelines, used to screen for psychiatric comorbidity; and the Mini-Mental State Examination (MMSE), an 11-item, 30-point instrument administered to patients aged 65 years and above to screen for cognitive impairment, with scores of 23 or below indicating impairment [21].

Statistical Analysis

Data were analysed using appropriate statistical methods. Categorical variables were compared using the chi-square test or Fisher's exact test, as appropriate, and continuous variables were compared using Student's t-test. Multivariable logistic regression was performed to identify independent predictors distinguishing elderly from non-elderly attempters, and separately, independent predictors of suicide intent. A p-value of less than 0.05 was considered statistically significant.

Results

Sociodemographic Characteristics

Of 300 participants, 213 (71.0%) were aged 18-59 years and 87 (29.0%) were aged 60 years or above, with an overall mean age of 48.8 ± 18.5 years. Gender distribution was nearly balanced (52.3% male, 47.7% female). Most participants resided in rural areas (76.7%), identified as Hindu (78.7%), and belonged to nuclear families (54.7%). Regarding education, 40.3% had secondary education, 32.3% primary education, and 19.3% were illiterate. Daily wage work (38.3%) and unemployment (25.3%) were the most common occupational categories. More than half (57.3%) were married. Half of the participants (50.3%) belonged to the upper-lower socioeconomic class and 24.7% to the lower-middle class, together accounting for 75.0% of the sample. Table 1 summarizes the sociodemographic profile of the study population.

Table 1: Sociodemographic characteristics of study participants (N = 300)

Variable	Category	n (%)
Age group (years)	18-59	213 (71.0)
	≥60	87 (29.0)
Gender	Male	157 (52.3)
	Female	143 (47.7)
Residence	Rural	230 (76.7)
	Semi-rural	46 (15.3)
	Urban	24 (8.0)

Variable	Category	n (%)
Family type	Nuclear	164 (54.7)
	Joint	95 (31.7)
	Extended	41 (13.7)
Education	Secondary	121 (40.3)
	Primary	97 (32.3)
	Illiterate	58 (19.3)
	Graduate	24 (8.0)
Occupation	Daily wage worker	115 (38.3)
	Unemployed	76 (25.3)
	Self-employed	69 (23.0)
	Government	40 (13.3)
Marital status	Married	172 (57.3)
	Unmarried	51 (17.0)
	Separated	43 (14.3)
	Widowed	34 (11.3)
Socioeconomic status	Upper-lower	151 (50.3)
	Lower-middle	74 (24.7)
	Upper-middle	36 (12.0)
	Lower	28 (9.3)
	Upper	11 (3.7)

Clinical, Psychosocial, and Behavioural Characteristics

Current psychiatric illness was present in 34.7% of participants and past psychiatric illness in 32.0%; a family history of psychiatric illness was reported by 19.7% and a family history of suicide by 7.3%. Physical illness was present in 28.7%, and alcohol use was reported by 39.7%. A history of a previous suicide attempt was present in 23.0% of participants. Poisoning was the predominant method of the index attempt (65.3%), followed by hanging (22.7%) and drug overdose (6.7%); a suicide note was present in only 2.0% of cases, and 81.3% of attempts occurred at home.

On the Presumptive Stressful Life Events Scale, the most frequently endorsed stressors were financial loss or problems (46.7%), family conflict (41.0%), illness of a family member (36.3%), marital conflict (31.0%), unemployment of self or a family member (27.3%), and major personal illness or injury (27.0%), reflecting a high cumulative burden of psychosocial stress across the study population.

Clinically significant suicide intent, assessed using the Beck Suicide Intent Scale, was present in 84 participants (28.0%); mean intent score was 9.61 ± 3.87 . On cognitive screening with the MMSE, 90.0% of participants had normal cognition and 10.0% had mild cognitive impairment (mean score 26.35 ± 2.7). Suicide risk stratification using the Risk-Rescue Rating Scale showed that 57.0% of participants fell into the high or high-moderate risk categories. On the AUDIT, 39.4% of participants showed hazardous, harmful, or dependent drinking patterns, including 14.7% with possible alcohol dependence.

Comparison Between Elderly and Non-Elderly Attempters

Significant age-related differences were observed across multiple psychosocial domains (Table 2). Non-elderly participants more frequently reported financial difficulties, unemployment, debt burden, family and marital conflict, and alcohol use, while elderly participants showed significantly higher rates of financial dependency, retirement-related stress, living alone, social isolation, recent bereavement, chronic physical illness, chronic pain, and functional impairment ($p < 0.001$ for most comparisons).

Table 2: Comparison of selected psychosocial factors between elderly (≥ 60 years) and non-elderly (18-59 years) suicide attempters (N = 300)

Variable	Non-elderly, n (%) (n = 213)	Elderly, n (%) (n = 87)	p-value
Financial difficulties	115 (54.0)	22 (25.3)	<0.001
Unemployment/job loss	82 (38.5)	12 (13.8)	<0.001
Financial dependency	65 (30.5)	55 (63.2)	<0.001
Retirement-related stress	10 (4.7)	48 (55.2)	<0.001
Family conflict	100 (46.9)	20 (23.0)	<0.001
Marital conflict	80 (37.6)	10 (11.5)	<0.001
Living alone	20 (9.4)	35 (40.2)	<0.001
Social isolation/loneliness	38 (17.8)	42 (48.3)	<0.001
Recent bereavement	15 (7.0)	28 (32.2)	<0.001
Chronic physical illness	55 (25.8)	60 (69.0)	<0.001
Functional impairment	28 (13.1)	58 (66.7)	<0.001
Alcohol use	95 (44.6)	22 (25.3)	0.003
Previous suicide attempt	58 (27.2)	12 (13.8)	0.013

On multivariable logistic regression (Table 3), chronic physical illness (adjusted odds ratio (AOR) 6.50, 95% CI 3.40-12.40), functional impairment (AOR 5.10, 95% CI 2.60-9.90), social isolation (AOR 4.10, 95% CI 2.10-8.00), recent bereavement (AOR 3.85, 95% CI 1.80-8.20), and financial dependency (AOR 3.40, 95% CI 1.85-6.25) independently predicted membership in the elderly group. Conversely, unemployment (AOR 0.32, 95% CI 0.15-0.69), marital conflict (AOR 0.30, 95% CI 0.14-0.65), financial difficulties (AOR 0.48, 95% CI 0.26-0.87), family conflict (AOR 0.52, 95% CI 0.29-0.95), and alcohol use (AOR 0.55, 95% CI 0.30-0.99) independently predicted membership in the non-elderly group. Past psychiatric illness and previous suicide attempts were significant on univariate analysis but did not retain independent significance after adjustment.

Table 3: Multivariable logistic regression for factors independently associated with elderly (reference: non-elderly) suicide attempters (N = 300). AOR > 1 favours the elderly group; AOR < 1 favours the non-elderly group.

Variable	AOR	95% CI	p-value
Chronic physical illness	6.50	3.40-12.40	<0.001
Functional impairment	5.10	2.60-9.90	<0.001
Social isolation	4.10	2.10-8.00	<0.001
Recent bereavement	3.85	1.80-8.20	<0.001
Financial dependency	3.40	1.85-6.25	<0.001

Variable	AOR	95% CI	p-value
Alcohol use	0.55	0.30-0.99	0.047
Family conflict	0.52	0.29-0.95	0.034
Financial difficulties	0.48	0.26-0.87	0.016
Unemployment	0.32	0.15-0.69	0.003
Marital conflict	0.30	0.14-0.65	0.002

Predictors of Suicide Intent

Among sociodemographic variables, only socioeconomic status was significantly associated with suicide intent on bivariate analysis ($p = 0.008$); individuals with intent were disproportionately represented in the upper-lower class (64.3% vs 44.9%). Age, gender, residence, religion, family type, education, occupation, and marital status were not significantly associated with intent. Among clinical and behavioural variables, only the presence of a suicide note was significantly associated with intent (6.0% among those with intent vs 0.5% among those without, $p = 0.002$); physical illness, psychiatric illness, family history, alcohol use, previous attempts, and mode or place of attempt showed no significant association.

On multivariable logistic regression (Table 4), the presence of a suicide note (adjusted OR 0.09, 95% CI 0.01-0.84, $p = 0.035$) and lower socioeconomic status, particularly the lower-middle class (adjusted OR 3.00, 95% CI 1.07-8.43, $p = 0.037$), remained independently associated with suicide intent. Poison consumption as the method of attempt was also independently associated with intent relative to the reference category (adjusted OR 0.44, 95% CI 0.21-0.93, $p = 0.031$). Age, gender, previous suicide attempts, and education did not reach statistical significance in the adjusted model.

Table 4: Binary logistic regression analysis for predictors of suicide intent (N = 300)

Predictor	Category (Reference)	Adjusted OR	95% CI	p-value
Suicide note	Present vs absent	0.09	0.01-0.84	0.035
Mode of attempt	Poison consumption	0.44	0.21-0.93	0.031
Socioeconomic status	Lower-middle class	3.00	1.07-8.43	0.037
Socioeconomic status	Lower class	5.06	0.99-25.80	0.051
Previous suicide attempt	Yes vs no	0.77	0.41-1.42	0.398
Gender	Male vs female	1.64	0.94-2.84	0.081

Discussion

This study compared the psychosocial and clinical profiles of elderly and non-elderly patients admitted following a suicide attempt to a rural tertiary care hospital and identified independent predictors of suicide intent. The cohort was predominantly composed of working-age adults, consistent with national data showing that most suicide attempts in India occur during economically active years, when occupational, financial, and family responsibilities accumulate [22,23]. Age itself was not associated with intent severity, suggesting that age shapes exposure to risk rather than the severity of intent once an attempt occurs.

Gender distribution was nearly balanced with a slight male predominance, consistent with Indian evidence that although completed suicide is more common among men, non-fatal attempts occur at comparable rates across genders [24,7]. The predominance of rural residence, lower educational attainment, daily wage or unemployed occupational status, and lower socioeconomic strata reflects well-documented structural risk factors for suicidal behaviour in India, including limited access to mental health services and cumulative socioeconomic strain [25,26]. Notably, socioeconomic status was the only sociodemographic variable independently associated with suicide intent, reinforcing evidence that economic deprivation is a

central driver of both suicidal behaviour and its severity in the Indian setting [23,26].

A clear age-specific pattern emerged in the psychosocial drivers of attempted suicide. Non-elderly participants were more often exposed to acute socioeconomic stressors, including financial strain, unemployment, marital discord, and alcohol use, consistent with the role of role-related and relationship stress in precipitating impulsive suicidal acts in this age group [12,15]. Elderly attempters, by contrast, showed markedly higher rates of chronic physical illness, functional impairment, social isolation, bereavement, and financial dependency. Chronic medical illness emerged as the strongest independent predictor separating the two age groups, consistent with international literature describing the cumulative effect of physical comorbidity, functional decline, and social disconnection on suicide risk in late life [10,27]. Financial dependency was also markedly higher among elderly participants, likely reflecting reduced earning capacity and increased reliance on family, which may contribute to feelings of burdensomeness [28].

Approximately one-quarter of participants had a history of a previous suicide attempt, a well-established marker of long-term suicide risk; however, this did not predict intent severity in the index episode, consistent with evidence that repeat attempts often reflect impulsive responses to acute psychosocial crises rather than escalating premeditation [22,29]. Poisoning was the most common method, occurring predominantly at home, reflecting the ready availability of household and agricultural poisons in rural India rather than intent severity per se [30,31]. Alcohol use, reported by nearly 40% of participants, is consistent with its recognized role as a disinhibiting and precipitating factor in suicidal behaviour in Indian populations [29]; however, alcohol use itself did not predict intent, suggesting that its contribution operates through increased impulsivity rather than through greater premeditation.

Suicide notes were uncommon (2.0%) but showed a strong and independent association with intent, consistent with prior work identifying note-writing as a marker of planning and decision clarity in suicidal acts [32]. Similarly, the independent association between lower socioeconomic status and higher intent aligns with national data identifying poverty and economic insecurity as leading correlates of suicide outcomes in India [26]. Cognitive screening showed that the large majority of participants had normal cognition, suggesting that suicidal behaviour in this predominantly working-age, rural population was driven more by psychosocial stress and emotional dysregulation than by cognitive decline, in contrast to patterns described in some elderly populations in high-income settings [33,34]. Suicide risk stratification indicated that more than half of participants fell into high or high-moderate risk categories, underscoring the substantial clinical burden requiring close monitoring in this setting [29].

Strengths and Limitations

This study directly compared psychosocial determinants between elderly and non-elderly suicide attempters using validated, India-specific instruments and adjusted multivariable models, with meaningful representation of both age groups among 300 consecutive cases. Several limitations should be considered. The hospital-based sample may limit generalizability to community settings or to individuals who do not seek medical care after an attempt. The cross-sectional design precludes causal inference. Data on stressful life events, alcohol use, and psychiatric history were self-reported and subject to recall or stigma-related bias. Elderly patients with cognitive impairment were excluded, potentially underestimating risk in this vulnerable subgroup. Finally, findings reflect a single rural sociocultural context and may not generalize directly to urban or culturally distinct populations.

Conclusions

This study identified distinct age-specific psychosocial patterns underlying attempted suicide in a rural Indian tertiary care setting. Non-elderly attempters were predominantly driven by acute socioeconomic pressures, including financial hardship, unemployment, and marital conflict, whereas elderly attempters were more strongly associated with chronic medical illness, functional decline, social disconnection, and financial dependency. Approximately one-third of participants demonstrated clinically significant suicide intent, which was independently predicted by lower socioeconomic status and the presence of a suicide note rather than by demographic or diagnostic variables. These findings support the development of age-tailored suicide prevention strategies that integrate psychosocial support, socioeconomic assistance, and structured intent assessment with clinical care, particularly in resource-limited rural settings where such comprehensive approaches are most needed.

Additional Information

Disclosures

Human subjects: Consent was obtained or waived by all participants in this study. Institutional Ethics Committee, Adichunchanagiri Institute of Medical Sciences issued approval AIMS/IEC/044/2024.

Animal subjects: This study did not involve animal subjects or tissue.

Conflicts of interest: In compliance with the ICMJE uniform disclosure form, all authors declare no relevant financial or non-financial relationships that could be perceived as a conflict of interest with respect to this manuscript.

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