

## Research Report

# SOCIO-DEMOGRAPHIC FACTORS AND LIFE EVENTS ASSOCIATED WITH HIGH SUICIDAL INTENT IN YOUTH WITH INTENTIONAL SELF-HARM: A CROSS-SECTIONAL STUDY AT A TERTIARY CARE CENTRE IN KERALA, INDIA

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### Abstract

**Background:** There is a steady increase in the number of suicide deaths throughout the life span, particularly among youth compared with other age groups. The youth are naturally vulnerable to mental health problems, especially during their adolescent years. Our study aimed to estimate the proportion of youth with high suicidal intent and to assess the association of socio-demographic and clinical factors, including stressful life events, with suicidal intent in youth with intentional self-harm (ISH). **Methods:** This cross-sectional, descriptive study was done at the Department of Psychiatry, Government Medical College, Thrissur, Kerala, from December 2019 to May 2021 after getting approval from the Institutional Ethics Committee. The study sample consisted of 97 consecutive inpatients aged 15 to 24 years with ISH referred from various departments to the Psychiatry Department, who satisfied the inclusion and exclusion criteria. All the participants were enrolled after getting written informed consent/assent from the guardian and/or the patient. The suicide intent was assessed using Beck's Suicide Intent scale. A specially designed proforma was used to assess the socio-demographic details and precipitating factors. The stressful life events were assessed using the Presumptive Stressful Life Events Scale. **Results:** 18.5% of youth with ISH had high suicidal intent. Past history of suicide attempts ( $p = 0.03$ ) and life events ( $p = 0.002$ ) were significantly associated with high suicidal intent. **Conclusions:** Past history of suicide attempts had a significant association with high suicide intent. Early recognition and correction of the risk factors can help to prevent further suicide attempts.

**Keywords:** Suicide attempt, youth, life events, precipitating factors

### Introduction

Globally, suicide accounts for more than one in every 100 deaths, and for each completed suicide, there are more than 20 suicide

attempts. In 2019, an estimated 7 million people across all ages (or 9 per 100,000 population) lost their lives to suicide.<sup>1</sup>

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A total of 1,64,033 suicides were reported in India during 2021, with a suicide rate of 12 per one lakh population.<sup>2</sup> Around 10,730 suicide deaths were among those below 18 years of age, and 52.7% were females in this group. The state of Kerala had 9549 suicide deaths in 2021 and ranks fifth in the suicide rate with 26.9 per one lakh population.<sup>2</sup> Intentional self-harm (ISH) is defined as an “act of intentional self-poisoning or injury, irrespective of apparent purposes of the act.”<sup>3</sup> Non-fatal and fatal ISH are considered major public health issues globally. ISH is associated with an increased risk of repeated self-harm, and in addition, non-fatal self-harm is a major risk factor for completed suicide.<sup>3,4</sup> A previous ISH is the single most important risk factor for suicide in the general population. Suicide is a leading cause of death across all age groups and is the second leading cause of death among 15 to 29-year-olds globally and the fourth leading cause of death among 15 to 19-year-old adolescents.<sup>5</sup> Suicide is a serious public health problem and is preventable with prompt, evidence-based, and often low-cost interventions. The definition of youth in terms of straight age ranges and varies by country and over time. The United Nations defines ‘youth’ as those persons between the ages of 15 and 24 years.<sup>6</sup> Young people are naturally vulnerable to mental health problems, especially during their adolescent years. Suicide is defined as a fatal self-injurious act with some evidence of intent to die.<sup>7</sup> Suicide intent is a subjective expectation and desire for self-destructive acts to end in death. Assessing suicidal intent is an important component of determining suicidal risk. The presence or absence of suicidal intent distinguishes suicidal behavior and non-suicidal self-injury. In some cases, suicidal intent may be kept hidden or denied, whereby the only reasonable intention that can be inferred is suicide.<sup>8,9</sup>

The suicidal thoughts and behaviors in youth warrant particular concern for several reasons. There is a steady increase in the number of suicide deaths throughout the life span,

particularly between early adolescence and young adulthood, and compared with other age groups, suicide ranks higher as a cause of death in youth. It is the 10<sup>th</sup> leading cause of death among all age groups. People who ever considered or attempted suicide in their life first did so during their youth, as the lifetime age of onset for suicidal ideation and suicide attempt typically occurs before the mid-20s. Prevention of suicide death in youth presents a key opportunity resulting in many years of life potentially saved.<sup>10,11</sup> Also, the use of new methods of suicide is associated with an epidemic increase in overall suicide rates. Such a complex problem requires a coordinated, comprehensive, and integrated approach among several sectors of society to be efficiently prevented. The health sector and education at all levels, labor, business, law, politics, and media all play a crucial role in preventing suicides and suicide attempts at the population, sub-population, and individual levels.

Self-harm is a critical issue affecting many young people and can result in adverse outcomes. More researches are needed to find out the risk factors, socio-demographic profile, and techniques that young people find helpful to deal with urges to self-harm. Also, necessary steps shall be taken to improve the coping skills of youth and their ability to regulate emotions, which can serve as a protective factor against suicide. The published literature about the same in Kerala is scanty.

Our study aimed to estimate the proportion of youth with high suicidal intent among inpatients in the age group of 15 to 24 years with ISH referred from other departments to the Department of Psychiatry for consultation-liaison services and to assess the association of socio-demographic and clinical factors, including stressful life events, with suicidal intent in youth with ISH.

### **Materials and Methods**

The study was a cross-sectional descriptive study done at the Department of Psychiatry

Table 1: Clinical and socio-demographic profile of youth suicide attempters

Variables		Frequency (%) (n= 97)
Age groups (in years)	15-20	47 (48.5%)
	21-24	50 (51.5%)
Gender	Males	40 (41.2%)
	Females	57 (58.8%)
Marital status	Unmarried	80 (82.5%)
	Married	17 (17.5%)
Religion	Christian	5 (5.2%)
	Hinduism	81 (83.5%)
	Islam	11 (11.3%)
Education	< 10 <sup>th</sup> Class	73 (75.3%)
	>10 <sup>th</sup> Class	24 (24.7%)
Occupation	Employed	29 (29.9%)
	Unemployed	68 (70.1%)
Family type	Extended	13 (13.4%)
	Joint	5 (5.2%)
	Nuclear	79 (81.4%)
Past h/o ISH	Yes	20 (20.6%)
	No	77 (79.4%)
Family h/o ISH	Yes	14 (14.4%)
	No	83 (85.6%)
H/o MI	Yes	21 (21.7%)
	No	76 (78.3%)
Family h/o MI	Yes	11 (11.3%)
	No	86 (88.7%)

H/o - History of, ISH - Intentional self-harm, MI - Mental illness

Government Medical College, Thrissur, Kerala, from December 2019 to May 2021. The study population constituted inpatients aged 15 to 24 years with ISH referred from other departments to the Department of Psychiatry to avail consultation-liaison services. Patients who gave informed consent or assent in the age group of 15 to 24 years admitted with ISH were included in the study. Patients with mental retardation were excluded. All consecutive subjects meeting the study criteria during the study period were recruited.

The sample size was calculated using the formula  $N = 4PQ/d^2$ , where P = Proportion of individuals with high suicidal intent, Q = 100-P, and d = Allowable error (10% of P). In a

previous Indian study related to suicide/self-harm among youth, the proportion of individuals with high suicidal intent was found to be 82%.<sup>12</sup> Hence, the sample size was calculated to be 88. Assuming a non-response rate of 10%, the final sample size was calculated to be 97.

The authors confirm that all the procedures contributing to this study comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008. All the procedures involving human subjects were approved by the Institutional Ethics Committee (No. B6-155/2019), and written informed consent was obtained from all subjects above 18 years in the regional language. Written assent in the regional language was obtained from all subjects aged 15 to 18, and informed consent from their parents. Confidentiality and privacy were maintained.

### **Study Variables and Tools**

#### *Socio-demographic and clinical proforma*

The socio-demographic factors, precipitating factors, past history of suicide attempts, family history of suicide, and history of substance abuse were assessed using specially prepared proforma.

#### *Beck's Suicide Intent Scale*

Beck's Suicide Intent Scale was used to assess the level of suicidal intent. It is a semi-structured, interviewer-administered assessment scale with good internal consistency (Cronbach's  $\alpha = 0.90$ ), reliability ( $r = 0.76$ ), and validity.<sup>13,14</sup> The scale consists of 2 sections, the first of which is objective (15 items), and in the second section, subjective characteristics (5 items) of the suicide attempt are evaluated. Each item is rated using three alternative statements graded in intensity from 0 to 2. The scoring pattern is as follows: a total score below 10 indicates low intent, 10-15 is medium intent, and above 15 is high intent.

Table 2. Association between the clinical variables and high suicidal intent in youth suicide attempters

Variables		Suicide intent		P value
		High n1 = 18	Medium/Low n2 = 79	
*†Past history of intentional self-harm	Yes	7 (38.8%)	13(16.4%)	0.03
	No	11 (61.2%)	66(83.6%)	
†Past history of mental illness	Yes	1 (5.56%)	20(25.32%)	0.07
	No	17 (94.4%)	59(74.7%)	
†Family history of mental illness	Yes	2 (11.1%)	9(11.4 %)	0.97
	No	16 (88.8 %)	70(88.6%)	
†Family history of intentional self-harm	Yes	2 (11.1%)	12(15.2%)	0.66
	No	16 (88.9%)	67(84.8%)	
†Alcohol use	Dependence	0 (0.0)	1(1.3%)	0.30
	Harmful	1 (5.5%)	5(6.3%)	
	Occasional	8 (44.5%)	17(21.5%)	
	Nil	9 (50.0%)	56(70.9%)	

\* - Chi-square test, † - Fisher's exact test, ‡ - P value < 0.05

### *Presumptive Stressful Life Events Scale (PSLES)*

The scale items are divided into desirable, undesirable, and ambiguous categories, as well as personal and impersonal categories. A statistically significant difference was observed between the desirable and undesirable items, with the latter perceived as more stressful. It was calculated that individuals in Indian society might experience an average of two stressful life events during the previous year and ten events in a lifetime without suffering adverse physical or psychological disturbance.<sup>15</sup> The validated scale is translated into the regional language – Malayalam. The experts in the field checked face validity and content validity. A language expert back-translated the translated version to see that the meaning had not changed by translation.

### **Study Procedure**

In our study, 97 consecutive inpatients aged 15 to 24 years with ISH referred from various departments to the Psychiatry Department for consultation-liaison services during the study period, satisfying the inclusion and exclusion criteria, were included. The patient was first seen by a junior resident, and the case was discussed with the consultant. The diagnosis was made by the consultant after seeing and

evaluating the patient. Before enrolment into the study, the nature of the study was explained to the patients and caregivers, and written informed consent/assent from the guardian (if the subject was below 18 years) and/or the patient in regional language was obtained from those satisfying the eligibility criteria and a personal interview was conducted. The patients' self-reports were also collected. The suicide intent was evaluated using Beck's Suicide Intent Scale. A specially designed proforma was used to assess the socio-demographic details and the precipitating factors for intentional self-harm. The stressful life events were assessed using the PSLES.

Data was analyzed using R Software version 4.3.0 for Windows, a freely available statistical analysis software. Results were described using the mean and standard deviation (SD) for quantitative variables and frequency and proportion for categorical variables. The suicide intent was categorized and presented as percentage with 95 % Confidence intervals (CI). The factors associated with ISH were identified using the Chi-square/Fisher's exact test and the Mann-Whitney U test.

### **Results**

The mean age of the participants was 20.4 years

(SD = 2.9). The majority of youth suicide attempters were unmarried (82.5%), females (58.8%), in the age group 21-24 years (51.5%), and belonged to Hindu Religion (83.5%). Further, the majority of the attempters had less than 10th-class education (75.3%), were unemployed (70.1%), and were from nuclear families (81.4%). The clinical and socio-demographic profile of the participants are depicted in Table 1.

Out of the 97 participants, 18 (18.5%, 95% CI = 10.8-26.2%) youth with ISH had high suicidal intent. Forty-five (46.4%, 95% CI = 36.5-56.3%) had medium intent, and 34 (35.1%, 95% CI = 25.6-44.6%) had low suicidal intent. Among the 18 individuals with high suicidal intent, 7 (38.8%) had a past history of suicide attempts. The odds ratio for a past history of suicide attempts was 3.2 (95% CI = 2.1-4.3), and this observed association was found to be significant ( $p = 0.03$ ). The association between the clinical variables and high suicidal intent in youth suicide attempters is given in Table 2.

Among those with high suicide intent, the life events ranged from 3 to 8 with a mean score of 5.6 (SD = 1.46) and a median score of 5 (interquartile range, IQR = 4.75-7). The score of life events in individuals with low/medium suicidal intent was in the range of 1-10, with a mean value of 4.27 (SD = 1.69) and a median score of 4 (IQR = 3-5). As these values were not normally distributed, the comparison was done using a non-parametric test, the Mann-Whitney U test. The observed difference was statistically significant ( $z$  value = 3.126;  $P$  value = 0.002).

## Discussion

The findings of our study are similar to the findings of data of the National Crime Records Bureau on suicides, 2021.<sup>2</sup> In our study, we found that the majority (46.4%) of youth suicide attempters had medium suicide intent. 35.1% had low suicide intent, and 18.5% had high suicide intent. A study by Gordon and Melvin (2014) showed that the risk-taking behavior of adolescents and young adults is one

of the explanations for suicide attempts with low intent.<sup>16</sup> Risk-taking behaviors in adolescents and youth can occur due to mental illness but can also present in adolescents without a mental illness. The normal psychosocial tasks of adolescence related to separation-individuation, shaping of identity, and sensation-seeking can manifest as defiance towards authority figures and increased risk-taking. Another related study by Woo et al. (2018) indicated that individuals with high suicide intent were significantly older and that the strength of suicidal intent increases with age.<sup>17</sup> A hospital-based study on suicide attempters in India found high suicide intent (81.5%) among suicide attempters in the age group of 15-34 years.<sup>12</sup> The intention of suicide attempts in adolescents and young adults was less serious and lethal compared to older adults. Another Indian study found that among young people, suicidal behavior is increasing and found to be associated with female gender, unmarried status, low level of education, unemployment, and nuclear families.<sup>10</sup>

In our study, it was found that 20.6% of the study population had a past history of suicide attempts. In the study population, those with high suicide intent, 38.8% had a past history of suicide attempts, and this association was found to be statistically significant. A study on consecutive self-harm presentations showed that repeated self-harm risk is increased with the number of previous self-harm episodes.<sup>18</sup> A study by Chandrasekaran and Gnanaselane (2008) found that the repetition rate of suicide attempts within two years of their previous attempt was 23%.<sup>19</sup> It was also reported that repeaters had a higher level of suicidal intent. Another Indian study also demonstrated that repeated suicide attempters have high levels of hopelessness.<sup>20</sup>

Badrinarayana (1980) found a positive and significant correlation between depressive illness and suicidal ideation with early parental deprivation, recent bereavement, and a positive family history of suicide.<sup>21</sup> Our study has not

found any significant association between suicidal intent, family history of suicide, and alcohol use. This could be because only a small number of study participants had a family history of ISH, and only seven participants had harmful use of alcohol. An Indian study revealed a strong association with alcohol use, which was reported in 10.42% of suicide attempters.<sup>22</sup> These changes indicate a changing trend in suicidal attempts among the youth.

A population-based study on suicide attempts showed that stressful life events are positively associated with subsequent suicide.<sup>23</sup> Studies that measured stressful life events found that approximately 90% of suicide attempters reported negative life events in the previous 6-month to 1-year period.<sup>12</sup>

This study was conducted in a tertiary care level hospital and could have given rise to a Berksonian bias as only referred cases were studied. The study was conducted during COVID-19, which could have affected the results. Further research on a large sample with a control group can give more valid results.

### Conclusions

In youth with intentional self-harm, the majority had medium suicide intent (46.4%), and 18.5% had high suicide intent. The majority of youth suicide attempters were females, unmarried, comes under the age group 21-24 years. Past history of suicide attempt had a significant association with high suicide intent. It is understood that there are various risk factors for youth intentional self-harm. Early recognition and correction of risk factors can help to prevent further suicide attempts. In developing countries like India, further research is needed to find out the socio-demographic profile as well as risk and protective factors for intentional self-harm in youth, and necessary steps should be taken to improve the coping skills of youth and their ability to regulate emotions. Further, follow-up is essential for individuals who attempt self-harm in youth because suicidal ideation and

attempt are themselves risk factors for evolving mental illness.

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