

## ORIGINAL ARTICLE

## A Cross-Sectional Study on The Role and Comparative Impact of Stressful Life Events in Suicide and Suicide Attempts

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### ABSTRACT

**Background:** Suicide and suicide attempts represent significant global public health concerns, particularly in developing countries like India. Stressful life events (SLEs) are recognized as critical risk factors for suicidal behavior (SB), yet limited research in India has directly compared the impact of SLEs between completed suicides and suicide attempts.

**Objectives:** This study aimed to examine the role and comparative impact of SLEs in individuals who died by suicide versus those who attempted suicide in Khammam, Telangana.

**Methods:** A cross-sectional study was conducted at the Government General Hospital, Khammam, from 2024 to 2025. Out of 624 individuals with documented SB, 186 participants were randomly selected 154 with suicide attempts and 32 with completed suicides. Data on socio-demographics and SLEs were collected via hospital records, structured interviews, and a culturally adapted Life Events Questionnaire. Statistical analyses, including logistic regression, were conducted to identify predictors of suicide.

**Results:** Completed suicides were predominantly male (71.9%) and in the 26–40-year age group, whereas suicide attempts were more common in younger individuals (10–25 years) and females. The mean SLE score was significantly higher in suicides ( $552 \pm 23.75$ ) than in attempts ( $447 \pm 27.06$ ;

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$p=0.001$ ). Financial problems (OR=11.9), early marriage (OR=4.97), and family conflicts (OR=2.53) were the strongest predictors of completed suicide. Higher income, self-employment, and exposure to new environments also independently increased suicide risk.

**Conclusion:** SLEs are strongly associated with increased suicide risk, particularly financial distress, early marriage, and family conflicts. Targeted interventions addressing these stressors, alongside socio-cultural factors, are imperative for suicide prevention strategies in rural and semi-urban Indian settings.

## KEYWORDS

- Suicide • Suicide Attempts • Stressful Life Events • Risk Factors • India • Cross-Sectional Study

## INTRODUCTION

Suicide is defined as the deliberate act of ending one's own life, resulting in either fatal or non-fatal outcomes<sup>1</sup>. Globally, it ranks as the tenth leading cause of death<sup>2</sup>. Studies indicate that suicide attempt (SA) rates range from 2.6 to 1,100 per 100,000 individuals annually, while the suicide mortality rate is approximately 14.5 deaths per 100,000 people per year<sup>3</sup>. Additionally, 10–18% of the general population reports suicidal ideation, with 3–5% having a history of SA at some point in their lives.<sup>4</sup> Although traditionally viewed as a major concern in developed nations, suicide rates are rising alarmingly in developing countries.<sup>5</sup> For example, in the United States, SA rates range between 0.3% and 4.6%.<sup>6</sup>

In India, a developing nation, suicide rates have increased over the past two decades, averaging 9.9 deaths per 100,000 people annually.<sup>7</sup> The country records 200 years of life lost (YLL) per 100,000 individuals due to suicide-related behaviors (SBs) and self-inflicted violence. Hanging is the most common suicide method, with rates peaking in early summer (35.2%, approximately 13% higher than other seasons).<sup>8</sup> Women are significantly more prone to SA, while urban populations exhibit higher SA rates than rural counterparts.<sup>9</sup> Emerging research suggests a link between natural disasters and suicide, likely due to associated psychological distress.<sup>10</sup>

Stressful life events (SLEs) are key risk factors for SBs, often triggering impulsive suicide attempts.<sup>11</sup> Individuals with prior suicide attempts or suicidal tendencies face a higher lifetime risk of SLEs.<sup>12</sup> Factors such as family disputes, sudden bereavement,

early marriage, and severe financial crises are increasingly prevalent in India and globally, strongly correlating with suicide and SA.<sup>13</sup> Studies highlight that over 40% of rural Indian girls marry before 18, exacerbating familial and social stressors.<sup>13</sup> Despite some research linking SLEs to mental health disorders, there remains a lack of focused studies on SLEs and suicide prevention in developing nations, particularly India.<sup>14</sup>

### Aims and Objectives:

**Aim:** To examine the role of stressful life events in influencing suicide and suicide attempts within the Khammam district of Telangana, India.

### Objectives:

1. To identify and analyze the specific stressful life events associated with suicide and suicide attempts in the study population.
2. To compare demographic and psychosocial characteristics between individuals who attempted suicide and those who completed it.
3. To investigate regional and contextual factors contributing to suicidal behavior in Khammam district.
4. To contribute data that can inform suicide prevention strategies tailored to socio-cultural dynamics in rural Indian settings.

Previous research exploring the link between stressful life events (SLEs) and suicidal behaviors either attempts or completed suicides remains limited, particularly in non-Western settings (Vijayakumar, 2010; Wasserman, 2016).<sup>16,17</sup> Most existing literature

focuses primarily on how SLEs relate to suicide attempts rather than actual suicide deaths (Beautrais, 2000).<sup>18</sup> In response to this gap, the present study investigates the impact of SLEs on both suicide and suicide attempts, with a focus on factors unique to the Khammam district in Telangana. From a pool of 624 individuals with a documented history of suicidal behavior, a randomly selected quota sample of 186 participants was chosen. Of these, 32 had died by suicide, while 154 had survived suicide attempts. Those who either did not live in the study area or declined to take part were excluded from the study.

## METHODOLOGY

### Study Design

This cross-sectional study was conducted at the Government General Hospital in Khammam, Telangana, over a one-year period from 2024 to 2025. The study aimed to investigate the association between stressful life events (SLEs) and suicidal behaviors (SBs), including both suicide and suicide attempts. From a total of 624 individuals who presented with a history of SBs, a sample of 186 cases was selected using a random quota sampling technique. The selection was proportionally based on the frequency distribution of suicide and suicide attempts recorded during the study period. Of the 186 selected cases, 154 individuals had engaged in non-fatal suicide attempts (SAs), while 32 cases had resulted in completed suicides.

Eligibility criteria included individuals with confirmed suicidal behavior who resided within the defined geographical area of the study. Those who either did not live in the target region or declined to provide informed consent were excluded from participation.

### Data Collection

Primary data were collected from hospital records using a standardized data extraction checklist designed for this study. Additional information related to SLEs was gathered through direct interviews and validated psychological instruments.

The Life Events Questionnaire (LEQ), originally developed by Holmes and Rahe (1967)<sup>19</sup>, was used to assess the presence and impact of SLEs. A culturally adapted version of the LEQ, which demonstrated acceptable internal consistency (Cronbach's  $\alpha = 0.76$ ), was

employed for this purpose. The questionnaire includes 43 predefined stressful life events, such as:

- Death of a close family member or friend
- Domestic and interpersonal conflicts, including family disputes
- Marital issues, such as separation or divorce
- Prolonged unemployment lasting over six months
- Severe financial hardships
- Early marriage (defined as marriage before the age of 18)
- Experiences related to migration or refugee status

Interviews were conducted within 24 hours following the suicidal behavior event. Each session lasted approximately 30 minutes and was carried out by trained clinical psychologists. For cases that resulted in death, proxy interviews were conducted with close family members or community health workers who were familiar with the deceased individual's background and circumstances.

### Data Analysis

Collected data were subjected to both descriptive and inferential statistical analysis. Descriptive statistics were used to summarize the socio-demographic characteristics of the participants, as well as the frequency and types of reported SLEs. Inferential analyses, including chi-square tests and logistic regression models, were performed to identify statistically significant associations between specific SLEs and suicidal behaviors. All analyses were conducted using SPSS and STATA statistical software packages, with a significance level set at  $p < 0.05$ .

## RESULTS

This study analyzed a total of 186 cases of suicidal behavior (SB), consisting of 154 suicide attempts (SAs) and 32 completed suicides. The results highlight distinct demographic patterns and significant associations between suicidal behavior and stressful life events (SLEs).

### Socio-Demographic Characteristics

Table 1a presents the distribution of gender and age among the participants. A significant gender difference was observed, with females constituting 64.3% of suicide attempts, whereas

males made up 71.9% of completed suicides ( $p = 0.001$ ). This suggests that gender plays a critical role in the lethality of suicidal behavior.

Regarding age, the 10–25 year age group had the highest frequency of suicide attempts (61.7%), while the 26–40 year age group accounted for the majority of completed suicides (56.3%) ( $p = 0.003$ ). This age disparity highlights the increasing lethality of suicide with age.

Further analysis (Table 1b) revealed that income levels were significantly associated with suicide outcomes. Those earning more than ₹20,000/month were more likely to die by suicide compared to those with lower incomes ( $p = 0.006$ ). This finding suggests that higher income might correlate with increased suicide risk, possibly due to greater social pressures, lifestyle expectations, or access to lethal means.

**Table 1a:** Socio-Demographic Characteristics

Variable	Suicide Attempts (N=154)	Completed Suicide (N=32)	P-value
<b>Gender</b>			
Female	99 (64.3%)	9 (28.1%)	0.001
Male	55 (35.7%)	23 (71.9%)	
<b>Age Group (years)</b>			
10–25	95 (61.7%)	9 (28.1%)	0.003
26–40	45 (29.2%)	18 (56.3%)	
>40	14 (9.1%)	5 (15.6%)	
<b>Occupation</b>			
Student	34 (22.1%)	7 (21.9%)	
Farmer/Related Jobs	4 (2.6%)	2 (6.3%)	0.001
Housewife	102 (66.3%)	5 (15.6%)	
Others	14 (9.1%)	18 (56.3%)	
<b>Marital Status</b>			
Single	26 (16.9%)	10 (31.3%)	0.028
Married	115 (74.7%)	21 (65.6%)	
Widowed/Divorced	13 (8.5%)	1 (3.1%)	
<b>Educational Level</b>			
Primary School	52 (33.8%)	10 (31.3%)	0.247
Secondary School	80 (52.0%)	19 (59.4%)	
High School	22 (14.3%)	3 (9.4%)	

### Stressful Life Events and Suicide

As shown in Table 2, stressful life events (SLEs) were significantly associated with suicidal behavior. Specifically, financial

problems were reported in 46.9% of suicide cases, compared to only 6.5% of suicide attempts ( $p < 0.001$ ). Early marriage was also more prevalent among individuals who died by suicide (31.3%) than those who attempted suicide (13%) ( $p = 0.011$ ).

Other SLEs, such as family conflicts ( $p = 0.001$ ), marital disagreements ( $p = 0.028$ ), and emotional problems ( $p = 0.003$ ), were more frequently associated with suicides compared to attempts. These results suggest that socioeconomic and familial stressors, particularly financial strain and early marriage, play a substantial role in increasing suicide risk.

**Table 2:** Stressful Life Events

Variable	Suicide Attempts (N=154)	Suicides (N=32)	P-value
<b>Stressful Life Events Score</b>	447 ± 27.06	552 ± 23.75	0.001b
<b>Family Conflicts</b>			
Yes	38 (24.7%)	19 (59.4%)	0.001
No	116 (75.3%)	13 (40.6%)	
<b>Marital Disagreement</b>			
Yes	59 (38.3%)	19 (59.4%)	0.028
No	95 (61.7%)	13 (40.6%)	
<b>Loss of Loved Ones</b>			
Yes	31 (20.1%)	4 (12.5%)	0.0295
No	123 (79.9%)	28 (87.5%)	
<b>Financial Problems</b>			
Yes	10 (6.5%)	15 (46.9%)	<0.001
No	144 (93.5%)	17 (53.1%)	
<b>Life Failures</b>			
Yes	7 (4.5%)	2 (6.2%)	0.653
No	147 (95.5%)	30 (93.8%)	
<b>Emotional Problems</b>			
Yes	9 (5.8%)	8 (25%)	0.003
No	145 (94.2%)	24 (75%)	
<b>Exposure to New Conditions</b>			
Yes	3 (1.95%)	3 (9.4%)	0.064
No	151 (98.1%)	29 (90.6%)	
<b>Early Marriage</b>			
Yes	20 (12.95%)	10 (31.3%)	0.011c
No	134 (87%)	22 (68.8%)	
<b>Unemployment for &gt;6 Months</b>			
Yes	22 (14.3%)	8 (25%)	0.134
No	132 (85.6%)	24 (75%)	

## SLE Scores and Correlation

The SLE scores were significantly higher among those who completed suicide compared to those who attempted suicide, as shown in Table 3. The mean score for suicides was  $552 \pm 23.75$ , whereas for suicide attempts it was  $447 \pm 27.06$ , with a strong positive correlation ( $r = 0.739$ ,  $p = 0.001$ ). This suggests that a higher cumulative exposure to stressful life events is closely associated with an increased risk of suicide.

**Table 3:** SLE Scores and Correlation

Variable	Values	r	P Value
<b>Stressful Life Events</b>			
Suicide	$552 \pm 23.75$	0.739	0.001
Suicide Attempt	$447 \pm 27.06$		

## Predictors of Suicide: Logistic Regression Analysis

Multiple logistic regression analysis identified several key demographic predictors of suicide, as detailed in Table 4. Individuals aged 26–40 years were more than six times more likely to die by suicide ( $OR = 6.34$ ), and males were 3.5 times more likely than females to die by suicide ( $OR = 3.48$ ). Additionally, higher income and self-employment were associated with a greater risk of suicide.

**Table 4:** Logistic Regression of Demographic Factors

Factor	Adjusted OR (95% CI)	P-value
Male Gender	3.48 (1.32–9.24)	0.012
Income >₹20,000	9.50 (1.49–60.29)	0.017

## Adjusted Odds Ratios for SLEs

Adjusted odds ratios for specific stressful life events (SLEs) are presented in Table 5. Financial problems were found to be the strongest predictor of suicide ( $OR = 11.9$ ), significantly increasing the odds of suicide by nearly 12 times. Other key contributors included early marriage ( $OR = 4.97$ ) and family conflicts ( $OR = 2.53$ ).

**Table 5:** Adjusted ORs for SLEs

SLE Factor	Adjusted OR (95% CI)	P-value
Financial Problems	11.9 (4.00–35.85)	<0.001
Early Marriage	4.97 (1.68–14.65)	0.004
Family Conflicts	2.53 (1.23–6.53)	0.013

These results emphasize the strong

association between certain stressors especially financial instability and early marriage with suicide risk. Addressing these underlying causes through targeted interventions and policies could help reduce suicide rates in similar populations.

## DISCUSSION

This study investigated the association between stressful life events (SLEs) and suicidal behaviors (SBs) in Khammam, Telangana. Our findings demonstrated a strong link between SLEs and increased suicide risk, with stressful events serving as significant predictors for both suicide attempts (SAs) and completed suicides. Importantly, individuals who died by suicide exhibited significantly higher SLE scores, underscoring the cumulative psychological burden these events can impose. This result is consistent with previous research that shows how multiple life stressors can exacerbate the risk of suicide (Joiner, 2005; Zalsman *et al.*, 2016).<sup>20,21</sup>

This research adds to the limited literature in India on the connection between SLEs and suicide. While international studies in countries such as China, Denmark, and the United States have explored these relationships, most have focused on suicide attempts alone. In contrast, our study included both attempted and completed suicides, providing a broader understanding of how life stressors impact suicidal behavior. These findings are consistent with Western studies and meta-analyses that have identified a positive correlation between SLEs and suicidal outcomes (Van Orden *et al.*, 2010; Knipe *et al.*, 2017).<sup>22,23</sup>

One of the most notable findings was the significant role of financial stress. Table 7 shows that financial problems increased the odds of suicide nearly twelvefold (adjusted  $OR = 11.9$ ,  $p < 0.001$ ), making it the strongest predictor among all SLEs evaluated. While individuals with monthly incomes below \$20,000 experienced a higher rate of suicide attempts, completed suicides were more frequent among higher-income individuals (Table 6). This paradox suggests that greater financial responsibility, expectations, or access to lethal means among higher earners may elevate the risk of fatal outcomes. Previous studies have also emphasized the role of financial stress in suicide, indicating that economic strain can be a powerful precipitating factor in both

developed and developing countries (Zhang et al., 2012; Beautrais, 2003).<sup>24,25</sup>

In addition, marital conflict and family disputes were found to be critical contributors to suicide, particularly in the context of early marriages. Early marriage increased the odds of suicide nearly fivefold (adjusted OR = 4.97, p = 0.004, Table 7). These individuals often lack life skills, autonomy, and support systems, increasing their vulnerability. Previous Indian studies have similarly linked early or forced marriages to higher suicide risk due to social isolation, educational disruption, and emotional distress (Sharma et al., 2017; Ganeshan et al., 2019).<sup>26,27</sup>

As shown in Table 6, demographic predictors were also significant. Individuals aged 26–40 years were more than six times as likely to complete suicide compared to those aged 10–25 (adjusted OR = 6.34, p = 0.001). Males had a significantly higher risk than females (adjusted OR = 3.48, p = 0.012), which is consistent with broader epidemiological trends (Nock et al., 2008). Occupation also played a role self-employed individuals had significantly elevated suicide risk (adjusted OR = 6.88, p = 0.006), whereas housewives were less likely to complete suicide compared to students (adjusted OR = 0.20, p = 0.032). Occupation has been previously shown to influence suicide risk, with self-employed individuals often

facing greater pressures, social isolation, and lack of support compared to others (Duncan et al., 2017).<sup>28</sup>

Additional stressors such as exposure to new environments due to migration, relocation, or employment changes were also associated with higher suicide risk (adjusted OR = 8.79, p = 0.028, Table 7). These findings are supported by research across Asian countries that highlight how rapid life changes and instability can increase psychological distress (Pirkis et al., 2006; Chang et al., 2013)<sup>29,30</sup>. Migration, particularly in rural-to-urban transitions, has been linked to increased suicide risk due to the strain of adaptation and isolation (Gupta et al., 2017)<sup>31</sup>.

Despite the robustness of our findings, the study has limitations. Data for individuals who completed suicide were obtained through proxy interviews with family members, which may introduce reporting bias. As previous studies have noted, proxy reporting can lead to misinterpretation of the events surrounding suicide due to the emotional state and subjective perspectives of the informants (Cavanagh et al., 2003)<sup>32</sup>. Additionally, the rarity of certain stressors led to wide confidence intervals in the regression models. However, we used a validated tool to measure SLEs across both groups, improving the reliability of our results (Rahe et al., 1970)<sup>33</sup>.

**Table 6:** Association Between Suicide and Selected Demographic Characteristics by Multiple Logistic Regression Analysis

Variable	Suicide Attempts (N=154)	Suicides (N=32)	Crude OR (95% CI)	Adjusted OR (95% CI)
<b>Age</b>				
10–25	95 (61.67%)	9 (28.13%)	-	-
26–40	45 (29.22%)	18 (56.25%)	4.22 (1.75–10.15)	6.34 (2.10–19.15)
<b>P value</b>			<b>0.001</b>	<b>0.001</b>
>40	14 (9.1%)	5 (15.63%)	3.76 (1.11–12.92)	4.92 (0.8–30.57)
<b>P value</b>			<b>0.035</b>	<b>0.088</b>
<b>Gender</b>				
Female	99 (64.26%)	9 (28.12%)	-	-
Male	55 (35.73%)	23 (72.1%)	4.60 (1.99–10.63)	3.48 (1.32–9.24)
<b>P value</b>			<b>0.001</b>	<b>0.012</b>
<b>Occupation</b>				
Student	34 (22.08%)	7 (21.87%)	-	-
Farmer	4 (2.6%)	2 (6.25%)	2.42 (0.36–16.03)	2.49 (0.14–45.00)
<b>P value</b>			<b>0.357</b>	<b>0.535</b>
Housewife	102 (66.24%)	5 (15.63%)	0.23 (0.07–0.80)	0.20 (0.05–0.86)
<b>P value</b>			<b>0.021</b>	<b>0.032</b>
Self-employed	8 (5.17%)	7 (21.88%)	6.24 (2.13–18.29)	6.88 (1.73–27.51)
<b>P value</b>			<b>0.001</b>	<b>0.006</b>

**Table 7:** Crude and Adjusted ORs and 95% CIs of the Association Between Suicide and Stressful Life Events by Multiple Logistic Regression Analysis

Variable	Suicide Attempts (N=154)	Suicides (N=32)	Crude OR (95% CI)	Adjusted OR (95% CI) <sup>b</sup>
<b>Family Conflicts</b>				
Yes	38 (24.65%)	19 (59.36%)	4.46 (2.01–9.90)	2.53 (1.23–6.53)
No	116 (75.35%)	13 (40.61%)		
<b>P value</b>			<b>0.001</b>	<b>0.041</b>
<b>Financial Problems</b>				
Yes	10 (6.50%)	15 (46.86%)	12.7 (4.92–32.71)	11.9 (4.00–35.85)
No	144 (93.50%)	17 (53.12%)		
<b>P value</b>			<b>0.001</b>	<b>0.0001</b>
<b>Exposure to New Conditions</b>				
Yes	3 (1.95%)	3 (9.37%)	5.20 (1.00–27.20)	8.79 (1.31–59.22)
No	151 (98.03%)	29 (90.62%)		
<b>P value</b>			<b>0.050</b>	<b>0.028</b>
<b>Early Marriage</b>				
Yes	20 (12.97%)	10 (31.24%)	3.04 (1.25–7.38)	4.97 (1.68–14.65)
No	134 (87.01%)	22 (68.72%)		
<b>P value</b>			<b>0.014</b>	<b>0.004</b>

Based on our findings, it is crucial for health systems to consider implementing interventions aimed at managing SLEs to prevent suicidal behaviors. Prevention strategies should include discouraging early marriages, providing marital skills training, and developing effective coping mechanisms for managing negative life events and crises, particularly among high-risk populations. Similar recommendations have been made in prior studies, which emphasize the need for culturally sensitive interventions to address the underlying causes of suicidal behavior (Turecki et al., 2016; Hawton et al., 2013).<sup>34,35</sup> Additionally, we recommend longitudinal and holistic studies to further understand the long-term effects of SLEs on suicidal behavior and to assess the efficacy of suicide prevention programs integrated into primary healthcare systems. By addressing the root causes of SLEs and providing adequate support, we can mitigate the risk of suicide in vulnerable communities.

## CONCLUSION

This study underscores the significant role of stressful life events (SLEs) in influencing suicidal behavior, with a clear distinction between completed suicides and suicide attempts. Financial distress, early marriage,

family conflicts, and exposure to new life conditions emerged as the most powerful predictors of suicide. The findings reveal that individuals who completed suicide experienced higher cumulative SLE scores, particularly in the 26–40 age group and among males, highlighting the compounded vulnerability posed by socio-economic and psychosocial stressors.

Given these insights, suicide prevention strategies in rural and semi-urban Indian settings must prioritize the identification and mitigation of key life stressors through targeted, culturally sensitive interventions. Policies addressing financial insecurity, delaying early marriages, strengthening family support systems, and enhancing coping mechanisms are imperative. Additionally, integrating mental health services within primary care and conducting longitudinal research will be crucial to developing sustainable, evidence-based approaches for reducing suicide risk in similar socio-cultural contexts.

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