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Risk Factors for Suicidal Behaviour Among Adolescents - A Tertiary Centre Experience

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A B S T R A C T

Background: Adolescent suicide represents a significant public health challenge in India. Understanding the risk factors and patterns associated with suicidal behavior is crucial for developing effective prevention strategies.

Objectives: To analyze the socio-demographic characteristics, risk factors, and methods of suicide attempts among adolescents presenting to a tertiary care hospital in India.

Methods: A prospective cross-sectional study was undertaken involving adolescents who presented to the hospital with suicide attempts during the period of 15 months from January 2023 to May 2024. Data on sociodemographic variables risk for suicide and suicide pattern were collected and analyzed using descriptive statistics and chi-square tests.

Results: The majority of cases (75%) occurred in the 17-18 year age group (p=0.042). Lower socioeconomic status was significantly associated with suicidal behavior (100%, p=0.001). Significant risk factors included relationship failure (p=0.001), diagnosed psychiatric illness (p=0.004), past suicide attempts (p=0.011), substance abuse (p≤0.001), academic stress (25%, p=0.011), and family history of suicide (p=0.004). Consumption of Tablet/medication overdose was the most common method of attempt (45%).

Conclusion: The study highlights the complex interplay of socio-demographic factors and risk factors in adolescent suicidal behavior. The findings emphasize the need for comprehensive screening, targeted interventions, and the integration of mental health services in school health services to prevent adolescent suicide in India.

Keywords: Adolescent suicide;suicidal behaviour; Academic stressors Socioeconomic status; Mental health.

INTRODUCTION

Adolescent suicide represents one of the most challenging public health crises globally, ranking as the second leading cause of death among young people aged 15-24 years[1]. The World Health Organization reports that approximately 703,000 people die by suicide annually, with a significant proportion being adolescents[2]. This alarming statistic underscores the critical nature of understanding and addressing suicidal behavior in this vulnerable population.As per Indian National Crime Records Bureau (NCRB), the number of suicides in India is reported to be 10%.

The developmental period of adolescence is characterized by significant biological, psychological, and social changes, making it a particularly susceptible time for mental health challenges[3]. During this crucial phase, various risk factors can contribute to suicidal ideation and behavior. These factors often interact in complex ways, creating a web of vulnerability that requires careful consideration and analysis[4].

Recent epidemiological studies have demonstrated a concerning upward trend in adolescent suicide rates over the past decade. The global suicide rate among adolescents is estimated at 10.5 per 100,000 population, with significant variations across different regions and socioeconomic contexts[5]. This trend has been further exacerbated by the COVID-19 pandemic, which introduced additional stressors and disrupted traditional support systems for young people[6].

The multifaceted nature of suicidal behavior necessitates a comprehensive understanding of its risk factors. These include, but are not limited to, psychiatric disorders (particularly depression and anxiety), substance abuse, academic pressure, family dysfunction, and social isolation[7]. Research has shown that approximately 90% of adolescents who die by suicide have at least one diagnosable psychiatric comorbidities at the time of death[8].

The identification of risk factors is crucial for developing effective prevention strategies. Early recognition of warning signs and timely intervention can significantly reduce suicide attempts and completions. However, the challenge lies in accurately identifying at-risk individuals, as many adolescents may not openly express their suicidal thoughts or seek help[9]. This emphasizes the need for comprehensive screening tools and assessment protocols in healthcare settings.
Contemporary research has highlighted the role of societal and environmental factors in adolescent suicide risk. Social media influence, cyberbullying, academic pressure, and changing family dynamics have emerged as significant contemporary challenges that may contribute to suicidal behavior[10]. Understanding these modern contextual factors is essential for developing targeted prevention strategies that address current societal challenges.

AIMS AND OBJECTIVES

The primary aim of this study was to investigate the risk factors associated with suicidal behavior among adolescents presenting to tertiary care hospital. The specific objectives were to identify and analyze the demographic patterns, precipitating factors, methods employed in suicide attempts, and temporal characteristics of suicidal behavior among adolescents aged 10-18 years.

MATERIALS AND METHODS

Study Design and Setting

This Prospective study was conducted in the Department of Pediatrics at a Tertiary care Hospital , Bangalore, between January 2023 and May 2024. The study protocol was approved by the Institutional Ethics Committee prior to data collection.

Study Population

The study included all adolescents between 10-18 years of age who presented to the hospital with suicide attempts or suicidal ideation during the study period. A total of 40 cases were evaluated, comprising 24 females and 16 males. The diagnosis of suicide attempt was established based on the International Classification of Diseases (ICD-10) criteria.

Inclusion Criteria

The study included adolescents aged 10-18 years who were admitted with suicide attempts or suicidal ideation,those whose parents or legal guardians provided written informed consent . Both medically serious and non-serious suicide attempts were included in the study population.
Exclusion Criteria
The study excluded adolescents, if the patient or guardian refused consent for participation.

Data Collection and Analysis

Data was collected from the study participants related to sociodemographic including emergency department records, methods of suicide attempt, precipitating factors, presence of psychiatric comorbidities, and temporal patterns of the attempts.

Study Variables

The study examined multiple variables including age, gender, socioeconomic status, educational status, family structure, presence of psychiatric disorders, academic performance, relationship issues, and method of suicide attempt. The timing of suicide attempts was also recorded to identify any temporal patterns. Risk factors were categorised into academic difficulties in studies, family stressors, relationship failure, diagnosed psychiatric illness, chronic illness, past history of suicide attempt, substance abuse, alcohol abuse, stress of academic performance, bullying at school, disturbing situations, history of suicide in family,history of psychiatric illness in family, chronic illness in family.

Statistical Analysis
Data analysis was performed using SPSS version 25.0. Descriptive statistics were calculated for demographic variables. Chi-square tests were used to analyze categorical variables, and Student's t-test was employed for continuous variables. A p-value of less than 0.05 was considered statistically significant.

RESULTS
The study analyzed data from 40 adolescents who presented with suicidal behavior during the study period. The socio-demographic characteristics (Table 1) revealed a statistically significant age distribution pattern (p=0.042), with the majority of cases (75%) occurring in the 17-18 years age group. The 14-16 years age group accounted for 17.5% of cases, while the 10-13 years age group represented 7.5% of the study population. Although females comprised a larger proportion of the sample (67.5%) compared to males (32.5%), the gender distribution did not reach statistical significance (p=0.527). The socioeconomic status of the participants showed a significant distribution (p=0.001), with 70% belonging to the upper lower category and 30% to the lower middle category.

Maternal occupation exhibited a significant distribution (p=0.001), with 62.5% engaged in unskilled/shop/farmer occupations and 37.5% in skilled/professional roles. Paternal occupation did not show a statistically significant difference (p=0.248), with 65% in unskilled/shop/farmer occupations and 35% in skilled/professional categories.

The education status of the patients (Table 3) revealed a significant distribution (p=0.011), with 85% being school-going and 15% being dropouts. The family structure did not show a statistically significant difference (p=0.206), with 97.5% of participants belonging to nuclear families and only 2.5% to joint families.

The analysis of risk factors (Table 4) identified several statistically significant associations. Relationship failure (p=0.001), diagnosed psychiatric illness (p=0.004), chronic illness (p=0.001), past history of suicide attempt (p=0.011), substance abuse (p=0.001), alcohol use (p=0.001), stress of academics performance (p=0.011), bullying at school (p=0.001), disturbing situations (p=0.002), history of suicide in family (p=0.004), history of psychiatric illness in family (p=0.029), and chronic illness in family (p=0.001) all showed significant associations with suicidal behavior. However, academic difficulties in studies(p=0.366) and family stressors (p=0.752) did not demonstrate statistically significant relationships.

The mode of suicide attempt (Table 5) showed that consumption of tablet/medication overdose, was the most common method (45%). The most common tablets consumed were Acetaminophen, consumed by 7 adolescents and others have taken multiple tablets which were available at home which included multivitamins, antibiotics & oral contraceptives.The next common method followed poison/chemical ingestion (40%), pesticide/insecticide consumption (12.5%), and self-inflicted injury (2.5%).

These findings highlight the complex interplay of socio-demographic factors, parental characteristics, patient education, and various risk factors in the occurrence of suicidal behavior among adolescents. The results underscore the need for targeted interventions and screening strategies to identify and address these risk factors effectively.

Table 1: Socio-demographic Characteristics (N=40)

Characteristic	Number (n)	Percentage (%)	p-value
AGE (years)			0.042*
10-13	3	7.5	
14-16	7	17.5	
17-18	30	75.0	
Gender			0.527
Female	27	67.5	
Male	13	32.5	
Socioeconomic Status			0.001*
Lower Middle	12	30.0	
Upper Lower	28	70.0	

***Statistically significant (p<0.05)**

Table 2: Parental Education and Occupation (N=40)

Characteristic	Number (n)	Percentage (%)	p-value
Maternal Education			0.001*
Graduate	3	7.5	
Diploma	1	2.5	
High School	17	42.5	
Middle School	9	22.5	
Primary School	10	25.0	
Paternal Education			0.008*
Graduate	1	2.5	
Diploma	4	10.0	
High School	13	32.5	
Middle School	5	12.5	
Primary School	17	42.5	
Maternal Occupation			0.001*
Skilled/Professional	15	37.5	
Unskilled/Shop/Farmer	25	62.5	
Paternal Occupation			0.248
Skilled/Professional	14	35.0	
Unskilled/Shop/Farmer	26	65.0	

*Statistically significant (p<0.05)

Table 3: Patient Education and Family Structure (N=40)

Characteristic	Number (n)	Percentage (%)	p-value
Education Status			0.011*
School-going	34	85.0	
Dropout	6	15.0	
Family Type			0.206
Joint	1	2.5	
Nuclear	39	97.5	

*Statistically significant (p<0.05)

Table 4: Risk Factors (N=40)

Risk Factor	Yes (n)	Yes (%)	p-value
Academic Difficulties in studies	17	42.5	0.366
Family Stressors	21	52.5	0.752
Relationship Failure	5	12.5	0.001*
Diagnosed Psychiatric Illness	7	17.5	0.004*
Chronic Illness	5	12.5	0.001*
Past History of Suicide Attempt	10	25.0	0.011*
Substance Abuse	2	5.0	0.001*
Alcohol Use	3	7.5	0.001*
Stress of Academic performance	10	25.0	0.011*
Bullying at School	1	2.5	0.001*
Disturbing Situations	8	20.0	0.002*
History of Suicide in Family	9	22.5	0.004*

Risk Factor	Yes (n)	Yes (%)	p-value
History of Psychiatric Illness in Family	11	27.5	0.029*
Chronic Illness in Family	5	12.5	0.001*

*Statistically significant (p<0.05)

Table 5: Mode of Suicide Attempt (N=40)

Method	Number (n)	Percentage (%)
Tablet/Medication Overdose	18	45.0
Poison/Chemical Ingestion	16	40.0
Pesticide/Insecticide	5	12.5
Self-inflicted Injury	1	2.5

DISCUSSION

This study sheds light on the complex interplay of risk factors and patterns associated with suicidal behavior among adolescents presenting to a tertiary care hospital in India. The findings reveal significant associations between socio-demographic factors, parental characteristics, patient education, and various risk factors in the occurrence of suicidal behavior.

The predominance of the 17-18 year age group (75%, p=0.042) aligns with epidemiological data from the National Crime Records Bureau of India, which reports the highest suicide rates among individuals aged 15-29 years[11]. Kumar et al.'s study of adolescent suicide attempters in India also found a peak in the 16-18 year range (62.5%, p<0.05)[12].

Though females comprised a larger proportion in this study (67.5%), the gender difference was not statistically significant (p=0.527). This contrasts with global trends showing higher rates of suicide attempts among females[13]. This may however be difficult to compare with the global records due to small study sample in our study.Kar et al.'s study of suicidal ideation among Indian adolescents found no significant gender difference (p=0.21)[14], suggesting cultural variations in gender patterns of suicidal behavior.

The significant association of lower socioeconomic status (100%, p=0.001) corroborates findings from Arya et al.'s systematic review, which identified low socioeconomic status as a key risk factor for suicide in India (OR=2.16, 95% CI 1.26-3.68)[15]. Parental education levels also showed significant disparities, with Nath et al.'s study reporting similar patterns of predominantly primary and high school education among parents of adolescent suicide attempters (p<0.001)[16].

Among risk factors, relationship failure (p=0.001), diagnosed psychiatric illness (p=0.004), past suicide attempts (p=0.011), substance abuse (p≤0.001), and family history of suicide (p=0.004) emerged as significant associations. These findings parallel Jayanthi et al.'s study, which identified relationship issues (64.5%, p<0.05), psychiatric disorders (43%, p<0.01), and previous attempts (38%, p<0.01) as major risk factors among Indian adolescents[17].

The prominence of academic stress (25%, p=0.011) resonates with Jain et al.'s findings, where academic pressure was reported by 48.9% of adolescent suicide attempters (p<0.001)[18]. However, this study did not find a significant association with academic difficulties in studies (p=0.366), unlike Kumar et al., who reported academic problems in 43.7% of attempters (p<0.05)[12].

Tablet/medication overdose emerged as the most common method (45%), aligning with Ramdurg et al.'s study, which found self-poisoning in 73.8% of Indian adolescents attempting suicide[19]. However, the lower rate of pesticide ingestion (12.5%) contrasts with rural studies like Bhola et al., where pesticides were used by 39.1% of adolescent attempters[20]. This may be due to the fact that most of our study population was from urban setup, whereas the rural population who are more involved in farming may have ready accessibility to pesticides at home.

These findings underscore the multifaceted nature of adolescent suicidal behavior and the need for culturally relevant prevention strategies. Strengths of this study include the comprehensive examination of risk factors and the focus on an acute hospital setting. Limitations include single-center scope, and potential recall bias.

Future research should explore protective factors, sociocultural influences, and longitudinal outcomes to inform targeted interventions. Integrating mental health screening into general healthcare settings, enhancing parental awareness, and improving access to support services are crucial steps toward preventing adolescent suicide.

CONCLUSION

This study provides significant insights into the patterns and risk factors associated with suicidal behavior among adolescents admitted at a tertiary care hospital in India. The findings highlight the complex interplay of socio-demographic factors, parental characteristics, patient education, and various risk factors in the occurrence of suicidal behavior.

The predominance of the 17-18 year age group (75%, p=0.042), lower socioeconomic status (100%, p=0.001), and significant disparities in parental education levels underscore the role of social determinants in adolescent suicidal behavior. The identification of key risk factors such as relationship failure (p=0.001), diagnosed psychiatric illness (p=0.004), past suicide attempts (p=0.011), substance abuse (p≤0.001), academic stress (25%, p=0.011), and family history of suicide (p=0.004) provides crucial targets for intervention and prevention strategies.

The findings emphasize the need for comprehensive screening protocols, particularly for high-risk groups, and the integration of mental health services into school health education programmes . Strengthening support systems, promoting mental health literacy among parents and educators, and addressing sociocultural factors contributing to suicidal behavior are essential steps towards reducing the burden of adolescent suicide in India.

Future research should focus on exploring protective factors, investigating the long-term outcomes of suicide attempts, and developing culturally sensitive prevention programs. Collaborative efforts involving healthcare providers, educators, policymakers, and community stakeholders are necessary to create a supportive environment that promotes the mental well-being of children and adolescents and prevents suicidal behavior.

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