

To study the personal, social, and psychological risk factors associated with suicidal behavior in adolescents of 10-18 years age group

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Introduction: Suicide is the leading cause of death among adolescents worldwide and in India. The various personal, social, and psychological risk factors are associated with suicidal behavior in adolescents. The study of these risk factors helps the early identification of vulnerable populations to prevent suicide and suicidal behavior. **Method:** This is a cross-sectional study conducted over a period of 1 year in PICU and pediatric wards of DR. BRAMH Raipur, Chhattisgarh, India. A total of 80 admitted patients of age group 10 to 18 years, who have attempted suicide, were included except those who were comatose or died. Psychiatric assessment using Beck's suicide intent scale was also done to assess the level of the intent and risk of the future suicide attempt. **Results:** Out of 80 adolescents, who were attempted suicide, 66.25% are females, most of are 16-18 year of age group. Poisoning (90%) and hanging (10%) were the frequently used method. Major risk factors were dysfunction in the family (71.25%), poor-academic performance (57.5%), domestic violence (52.5%), disturbed relationships (45%), addiction in family members (35%) and others were bullying/ragging (15%), substance abuse (11.25%), mental disorder (8.75%), and previous suicide attempts (3.75%). **Conclusion:** Late adolescent age group was noted more vulnerable to suicidal behavior with female gender predominance. Poisoning and hanging were noted as the main methods used for a suicide attempt.

Keywords: Adolescent, Suicide, Risk factors for suicidal behavior

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Introduction

The World Health Organization (WHO) defines an adolescent as any person between ages 10 and 19. Studies have shown a strong association between adverse childhood experiences – such as physical and drug and sexual abuse, parental education and neglect, bullying – and suicidal behaviors during adolescence and adulthood [1]. Psychological factors such as depression, low self-esteem, hopelessness, and weak social relationships are well-established correlates of suicidal behaviors among adolescents[2]. Suicide is a multidimensional phenomenon that has different meanings among adolescents in different cultures and places[3]. In recent studies, individual, family, psychosocial, and cultural factors contribute to adolescents attempting suicide. Also, suicide can be seen as a psychological phenomenon, social phenomenon, and as a phenomenon associated with psychiatric disorders, genetic and biologic problems [4 -7]. Thus, suicide is defined by many factors and a deep understanding of this issue is necessary for the prevention and rehabilitation of those attempting suicide. India is labeled as 'Suicide Capital of South-East Asia' as it has recorded the highest number of suicides in South-East Asia in 2012, according to a WHO report [8]. If the progress of the rate of suicide is observed [9], in 1967 the suicide rate in India was 7.8, but it has steadily increased to 11.0 in 2013, with a peak rate of 11.4 in 2010. Previous studies done in India also have found female gender, not attending school or college, independent decision making, premarital sex, physical or sexual abuse, even psychological distress were some of the factors associated for suicidal attempts in adolescents. In Chhattisgarh community based reported cause of death on 2017 showed that suicide is 4th commonest cause of death[10]. In year 2017 total 3105 suicide deaths were reported during the year out of those highest 34% (1062) were among 15-25 years of age group. Out of those deaths (62%) were male and (38%) were female. Considering the severity of issue current study was planned to study the Psychological, personal and social factors affecting suicidal behavior in adolescents admitted in paediatric ward and PICU of Dr. BRAM Hospital Raipur, Chhattisgarh, India.

Aim and Objectives

Aim-To study the personal, social, and psychological factors associated with the risk of suicidal behavior in adolescents.

Objectives

01. To study the correlation of sociodemographic and education level with the suicidal attempt in adolescents.
02. To study the correlation between stressful life events and suicidal tendencies in adolescents.

Material and Methods

Study design: This is a cross-sectional study conducted between April-2018 to March-2019.

Study setting: This study was conducted inwards and PICU in the department of pediatrics, Pt J N M Medical College, and Dr. BRAM Hospital, Raipur, Chhattisgarh, India.

Sample size: This is a facility-based study hence all adolescent patients who were suicide attempters admitted in Pediatric ward and PICU between age group 10 years to 18 years during a period of 1 year from April 18 to March 19 taken in to study as sample size. A total of 80 adolescents who attempted suicide were taken into study.

Selection criteria

Inclusion criteria

01. Adolescents admitted to wards and PICU of Dr. BRAM Hospital, Raipur after a suicide attempt.
02. Adolescents aged between 10 to 18 years.

Exclusion criteria

01. Patients who were comatose or died wherever the scale could not be administered.
02. All the patients whose relatives did not consent to participate in the study.

Method of data collection

- At admission the complete family history, history of addiction, demographic details were noted, details regarding drug abuse drug usage and previous suicidal attempts were taken for all children.
- Complete clinical and laboratory examinations as per the hospital policy the appropriate treatment started.
- After the patient recovered each patient was taken for a psychiatric referral. The assessment was done using Beck's Suicide Risk Assessment Form.
- Suicide Risk Assessment Form (Beck's suicide intent scale) was used to assess the level of the intent.

Beck's suicide intent scale contains 15 items each scoring from 0,1 and 2 points. The total score of 0-10 was recorded as low intent, score 11-20 was recorded as medium intent, and score 20-30 was recorded as high intent.

Data collection tools and technique: Data collection is divided into 3 parts; the first part includes the detailed family history, history of addiction, demographic details were noted, details regarding drug abuse drug usage, and previous suicidal attempts.

Primary data collection tools were prepared in the form of interview schedules and pre-tested for appropriateness. Changes were done according to pre-test results.

Following schedules were filled during the study period

Schedule A: Data collection format of demographic details

Schedule B: Detailed family history, history of addiction, demographic details were noted, details regarding drug abuse drug usage, and previous suicidal attempts.

Schedule C: Suicide Risk Assessment Form

Data entry and analysis: Data entry was done using the Microsoft excel 2013 and All analysis will be done by using the SPSS version 20.0. Wherever, possible percentage, Chi-square test, and logistic regression were applied

Ethical issues: Informed consent was taken from mothers of all the study participants and ethical issues were considered.

Results

In the present study data of 80 adolescents who committed suicide was analyzed of that (66.25%) 53 were females and one third (33.75%) 27 were male. Age distribution data showed that the mean age of adolescents who were committed suicide was 15.97 years. (55%) 44 were 17 -18 years old, (43.75%) 35 were 15-16 years old, and (16.25%) 13 were 13-14 years old.

Table1 showed the methods of suicide used by adolescents. The main methods used in suicide were (31.25%) organophosphorus poisoning in 25, (16.25%) 13 as rat killer poisoning, (8.75%) 7 were as Phenyl ingestions, (6.25%) 5 celphos poisoning, 4 each for partial hanging and hanging.

Table2 showed the socio-economic status of the study subjects. (61.25%) 49 were belonging to the middle class, (22.5%) 18 belongs to the lower middle class, and (16.25%) 13 belongs to upper-middle class. (51.25%) 41 were high school students, (31.25%) 25 were higher secondary students, (11.25%) 9 were school dropouts and 5 were middle school students. Educational status of parents in study subjects showed that (21.25%) 17 were illiterate, (32.5%) 26 were educated till primary school, (33.75%) 27 were educated till middle school, 9 were educated till high school and 1 was graduated.

Table-1: Methods of suicide used by adolescents (N=80).

Diagnosis	Frequency	Percentage
Organophosphorus poisoning	25	31.25
Rat killer poisoning	13	16.25
Phenyl ingestion	7	8.75
Celphos ingestion	5	6.25
Unknown drug ingestion	4	5.00
Unknown poisoning	4	5.00
Partial hanging	4	5.00
Hanging	4	5.00
Herbicide poisoning	3	3.75
Naphthalene ball and Phenyl poisoning	2	2.50
Terpentine oil ingestion	2	2.50
PCM+Nemusulide drug ingestion	1	1.25
Red hit spray ingestion	1	1.25
Toilet cleaner Ingestion	1	1.25
Benzene poisoning	1	1.25
Dettol ingestion	1	1.25
Datura poisoning	1	1.25
Kerosene poisoning	1	1.25
Total	80	100.00

Table-2: Socio-economic factors in adolescents attempted suicide.

Socio-economic status of study subjects	Frequency	Percentage
Lower middle class	18	22.5
Middle class	49	61.25
Upper middle class	13	16.25
Education status of study subjects	Frequency	Percentage
School dropout	9	11.25
Middle school	5	6.25
High school	41	51.25
Higher secondary	25	31.25
Education status of parents of study subjects	Frequency	Percentage
Illiterate	17	21.25
Primary school	26	32.5
Middle school	27	33.75

High school	9	11.25
Graduate	1	1.25
Total	80	100

Table-3: History of family-related issues in adolescents attempted suicide.

Dysfunction in family	Frequency	Percentage
Yes	57	71.25
Parent separation		
Yes	8	10
Domestic violence		
Yes	42	52.5

Table 3 shows family-related issues in adolescents attempted suicide. (71.25%) 57 reported a history of family dysfunction, (10%) 8 reported history of parent separation whereas (42%) 52.5 reported a history of domestic violence in their family.

Table-4: History of mental disorder and substance abuse in adolescents attempted suicide.

Chronic disorder in study subjects	Frequency	Percentage
Yes	4	5
Mental disorder in study subjects		
Yes	7	8.75
Addiction in study subjects		
Yes	9	11.25
Addiction in family members		
Yes	28	35

Table4 showed that only (5%) adolescents had chronic disorder, (8.75%) adolescents had a mental disorder and (11.25%) (11.25%) adolescents reported that they were addicted to some form of substance and (35%) had an addiction of substance abuse in family members.

Table-5: Personal and academic issues in adolescents attempted suicides.

Bullying/ragging	Frequency	Percentage
Yes	12	15
Poor academic performance		
Yes	46	57.5
Failed in relationship		
Yes	36	45

Table5 showed that out of 80 adolescents (15%) 12 adolescents reported that they were bullied by their friends or ragged by their seniors, (57.5%) 46 adolescents reported that they had their poor academic performance, and (45%) 36 reported that they have a failed relationship.

Table-6: Suicidal behavior, tendency, and preparation in adolescents attempted suicides.

Previous suicidal attempt	Frequency	Percentage
Yes	3	3.75
The suicidal tendency in family		
Yes	3	3.75
Preparation for suicide attempt		
Extensive	8	10
Minimal to moderate	66	82.5
None	6	7.5
Status of the suicide note		
Present	2	2.5
Status of seriousness		
Not seriously attempted to end life	7	8.75
Seriously attempted to end life	9	11.25
Uncertain about seriousness to end life	64	80
Status of premeditation		
None, impulsive	77	96.25
3 Hours or less before attempt	3	3.75
Total	80	100

Table6 showed that (3.75%) 3 adolescents accepted that they had a previous suicidal attempt and only 3 reported that there was a suicidal tendency in their family and some family members earlier committed suicide. Active preparation of Suicide attempt in study subjects showed that (82.5%) 66 had minimal to moderate preparation and (10%) 8 had extensive preparation.

A suicide note was present in (2.5%) 2 cases. The seriousness of Suicide attempt in study subjects showed that (11.25%) 9 cases were seriously attempted to end life. Degree of premeditation before Suicide attempt in study subjects showed that in (96.25%) 77 cases there was no premeditation it was an impulsive act and in (3.75%) 3 cases it was planned 3 Hours or less before the attempt.

Table-7: Becks suicidal scale score of adolescents attempted suicides.

Becks suicidal in scale score of study subjects		
Scale-Score	Frequency	Percentage
Low Risk (0-10)	7	8.75
Medium Risk (11-20)	66	82.5
High Risk (21-30)	7	8.75
Total	80	100

Table7 showed Beck's suicidal scale score of study subjects. (82.5%) 66 had a medium risk of suicidal intent as per Beck's suicidal intent scale and (8.75%) 7 each had a low and high risk of suicidal intent as per Beck's suicidal intent scale respectively.

Table-8: Association between Beck's suicidal intent scale score and status of previous suicide attempts in study subjects.

Beck's suicidal intent scale	Previous suicidal attempt		Total	P-value
	Yes	No		
Low risk	0	7	7	0.000
	0.0%	9.1%	8.8%	
Medium risk	0	66	66	
	0.0%	85.7%	82.5%	
High risk	3	4	7	
	100.0%	5.2%	8.8%	
Total	3	77	80	
	100.0%	100.0%	100.0%	

Table 8 showed that 3 study subjects who had previous suicide attempts were at high risk as per Beck's suicidal intent score and the chi-square test showed a strong statistically significant association between (p=0.000) Beck's suicidal intent scale score and previous suicide attempt in study subjects.

Table-9: Association between Beck's suicidal intent scale score and status of suicidal tendency in the family of study subjects.

Beck's suicidal intent scale	The suicidal tendency in family		Total	P-value
	Yes	No		
Low risk	0	7	7	0.001
	0.0%	9.1%	8.8%	
Medium risk	1	65	66	
	33.3%	84.4%	82.5%	
High risk	2	5	7	
	66.7%	6.5%	8.8%	
Total	3	77	80	
	100.0%	100.0%	100.0%	

Table 9 showed that 3 study subjects had a history of suicidal tendency in the family were in high risk as per Beck's suicidal intent score and chi-square test showed a strong statistically significant association between (p=0.001) Beck's suicidal intent scale score and status of suicidal tendency in family study subjects.

Table-10: Association between Beck's suicidal intent scale score and a suicide note in study subjects.

Beck's suicidal intent scale	Suicide note		Total	P-value
	Absent	Present		
Low risk	7	0	7	0.000
	9.0%	0.0%	8.8%	

Medium risk	66	0	66
	84.6%	0.0%	82.5%
High risk	5	2	7
	6.4%	100.0%	8.8%
Total	78	2	80
	100.0%	100.0%	100.0%

Table 10 showed the association between Beck's suicidal intent scale score and a history of a suicide note in study subjects. Chi-square test was used to analyze the association and it shows strong statistically significant (p=0.000) between Beck's suicidal intent scale score and a suicide note in study subjects.

Discussion

In this cross-sectional study out of 80 adolescents who attempted suicide of that (66.25%) 53 were females and one third (33.75%) 27 were male. Age distribution data showed that the mean age of adolescents who were committed suicide was 15.97 years. Suicidal ideation is rare before the age of 10 and its prevalence rapidly increases between 12 and 17 years of age [11]. Uddin R et al analyzed data of adolescents in 59 low-income and middle-income countries. Adolescents aged 15-17 years had a higher prevalence than those aged 13-14 years of suicide attempts (17.6%, vs 16.2) [12].

Sex presents a now well-established paradox in which adolescent girls are more likely to have experienced suicidal ideation and suicide attempt than boys, but adolescent boys are more likely to die by suicide (Brent et al 1999; Fergusson et al 2000; Kokkevi et al., 2012; Lewinsohn et al 2001). [13,14,15,16]. Kar N. reported that the male-to-female ratio was closer to one in adults and around 1:3 in adolescents [17]. In the present study (71.25%) 57 reported a history of family dysfunction and 10%) 8 reported history of parent separation. A survey by Kim HS (2002) showed dysfunctional family dynamics to be more prevalent in the suicide attempters than in the non-attempters [18]. Begum A et al (2018) reported that suicidal ideation is more common among adolescents who were not living with their parents 18 (8.2%) [19].

In the present study (42%) 52.5 reported a history of domestic violence in their family. Garnefski N et al (1992), suicide attempts were reported to be five times more common in girls and 20 times more common in boys with previous physical /sexual abuse in comparison to non-abused adolescents

[20]. In the present study (61.25%) 49 belonged to the middle class and (22.5%) 18 belongs to the lower middle. Also (51.25%) 41 were high school students, (31.25%) 25 were higher secondary students, (11.25%) were school dropouts. Whereas, their parent's education showed that (21.25%) were illiterate and (32.5%) were educated till primary school, Begum A et al (2018) revealed that suicidal ideation is more common among adolescents of low-income group parents 104 (5.5%). The parental socioeconomic position was associated with suicidal ideation [19].

In the present study, only 7 (8.75%) adolescents had a mental disorder and a strong statistically significant association between ($p=0.000$) was noted. Gabrielle A et al (1982) found that 63% of subjects with depressed CDI scores are suicidal vs. 34% who are suicidal but not depressed [21].

In the present study (45%) 36 reported that they have a failed relationship. Spirito A et al (2006) documented that it is not very surprising that interpersonal losses such as relationship break-ups, the death of friends are found in one-fifth of youth suicide cases [22]. In the present study (11.25%) 9 reported that they were addicted to some form of substance and (35%) 28 adolescents reported that their family members were addicted to some form of substance. T Nasel et al (2007) revealed that depression and substance use were the only significant predictors of suicidal ideation as measured by the Suicidal Ideation-JR scale [23].

In the present study (57.5%) 46 adolescents reported that they had a poor academic performance. A Zheng et al (2014) analysis showed that academic burden and grade are the most significant psychological risk factors for suicidal tendencies in students. Angela S et al (2005) analyses revealed that failing academic performance (compared to above average) is associated with a five-fold increased likelihood of a suicide attempt [24].

In the present study (15%) 12 adolescents reported that they were bullied by their friends or ragged by their seniors. T Nansel et al. (2001) reported strong evidence highlights bullying (i.e. peer victimization) as a risk factor for suicidal thoughts and behaviors among youth [23]. In the present study, 3 adolescents accepted that they had a previous suicide attempt and there was a suicidal tendency in their family by any of the family members.

Qin P et al (2002) reported that a family history of completed suicide was found to increase the suicide risk. Moreover, a family history of suicidal behavior remained a significant risk factor [25].

In the present study out of (82.5%), 66 had minimal to moderate preparation of suicide attempt in study subjects and (10%) 8 had extensive preparation. A Athey et al (2018) reported that Suicide decedents who did not actively prepare for suicide showed significantly higher risk-taking scores than suicide decedents who actively planned for suicide [26].

In the present study suicide note was present in (2.5%) 2 cases. Of that one case was 16 years old male and another was 17 years old female. P. Namratha et al (2015) reported that Studies on suicidal notes from this part of the world are sparse. The majority of suicidal notes contained "guilt" which is a strong indicator of possible depression in the deceased [19].

In the present study in (96.25%), 77 cases had no premeditation it was an impulsive act and in (3.75%) 3 cases it was planned 3 Hours or less before the attempt. Berg et al. (2015) reported that emotion-relevant impulsivity – poor control over reactions following emotions – is a strong predictor of problem behaviors generally and suicidality specifically [27].

Conclusion

In this cross-sectional study, various factors associated with the risk of suicidal behavior in adolescents were evaluated. Gender differences were also seen as females were two times more than males. Poisoning and hanging were the main methods used to commit suicide in adolescents. Major risk factors for adolescent suicide were family dysfunction in their family, the dispute in the family, history of parent separation, domestic violence in the family, mental disorder, poor academic performance, failed relationship, substance abuse, and suicidal tendency in the family. Previous suicide attempts in adolescents and previous suicide attempts by family members were significant predictors of adolescent suicide.

Considering the high suicide rates in adolescents, the importance of providing psycho-education, restricting access to lethal means, and promoting social integration in immigrants are various ways by which suicides in adolescents can be avoided.

What does the study add to the existing knowledge?

In the present study failed or disturbing relationship in the adolescent age group is found as an important risk factor for suicidal behavior. Most suicide attempts are found in an impulsive manner.

Author's contribution

Dr. Sharja Phuljhele: Concept, study design

Dr. Kanak Ramnani: Manuscript preparation

Dr. Surbhi Dubey: Statistical analysis

Dr. Himanshu Namdeo: Manuscript preparation

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