

Original Article

Cross sectional analysis of suicidal behavior in adolescents — comparison with adult attempters

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Indian studies have suggested that the suicides and suicidal behaviours are higher in younger age groups. Studies comparing the socio-demographical and clinical variables between various age groups in relation to suicidal behaviours are required to tailor specific interventions for the early age groups. Hence this study was conducted to analyse socio-demographic and clinical variables of adolescent suicide attempters and to compare certain potential risk factors between adolescent and adult suicide attempters. Socio-demographic and clinical variables of 199 adolescents versus 960 adult attempters were compared using a specially designed questionnaire to find out the potential risk factors in adolescents. Significant number of adolescent attempters were females, from nuclear family, had higher frequency of medical illnesses and specific life stressors related to their developmental period. Majority had medical contact within one week of attempt and attempted suicide within one week after the stressor. Current psychiatric diagnosis was more frequent in adults than adolescents. In adolescents the most frequent psychiatric diagnosis was adjustment disorder. This study concludes that Adjustment disorders related to life stressors preceded adolescent suicidal attempts more frequently than adults. Helping adolescents to cope with life events should be a focus of suicide prevention strategies in this population.

[J Indian Med Assoc 2020; 118(1): 25-9]

Key words : Adolescents, suicide, attempts, life events, self-harm.

Worldwide, suicide is the second leading cause of death in young people, representing a major public health problem especially in the 15-19 year age group¹. Youth is a period of heightened risk of suicide and suicide is a leading cause of death among young people in India². A cross sectional study of adolescent suicidal behaviours (age 12-19) in two schools in Delhi found the life time prevalence of suicidal attempts to be as high as 8%³. Adolescents suicide attempters are a heterogeneous group and their characteristics are different and the pattern of suicidal behaviour is not similar to that of adult population⁴. Potential risk factors for suicide attempts in adolescents include female gender, psychopathology especially a major depressive disorder, previous suicide attempts, hopelessness, recent stressful life events, suicide attempts by family members or friends, chronic physical illness, family violence and dysfunction and lower academic achievement⁵. Suicidal attempt is the strongest risk factor for suicide, psychiatric disorders which tend to onset in adolescence being the second⁶. Other contributors include genetic vulnerability, psychological, familial, social, and

cultural factors⁷.

The precipitating events, which have led to a suicide attempt, are most often stressful interpersonal problems between the adolescent and his parents or peers⁸. Some types of stress such as exit events, or interpersonal losses, and other major negative events often precede suicide attempts⁹. The relationship between chronic stress and adolescent suicide attempts is clinically important because treatment for disharmony among parents may reduce the risk of suicide among adolescents living in a stressful home environment¹⁰. Given the potentially tragic nature of adolescent suicide attempts and the elevated risk of suicide clustering among adolescents, the identification of adolescents at risk for suicide attempts before their behaviour escalates and becomes more serious would be of obvious value.

There is a lack of systematic research on suicide in adolescence. Due to paucity of data and to increase our understanding of adolescent suicide attempt and improve the management present study was conducted with the following aims:

- (1) To study the socio-demographic and clinical variables of adolescent suicide attempters.
- (2) To compare certain potential risk factors between adolescent and adult suicide attempters (Tables 1-3).

MATERIAL AND METHODS

A non-experimental descriptive approach was used for

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Table 1 — Socio-Demographic Details

	Age below 19 years (199)	Age above 19 years (960)	p
Sex :			
Male	76 (38.2)	501 (52.2)	0.00*
Female	123 (61.8)	459 (47.8)	
Marital Status :			
Unmarried	174 (87.4)	272 (28.3)	0.00
Married	24 (12.1)	641 (66.8)	
Separated/widow	1 (0.5)	47 (4.9)	
Religion :			
Hindu	136 (68.4)	762 (79.4)	0.00
Muslim	59 (29.6)	156 (16.3)	
Christian	4 (2.0)	40 (4.2)	
Tribal	0 (0.0)	2 (0.2)	
Domicile :			
Rural	161 (80.9)	833 (86.8)	0.02*
Urban	38 (19.1)	127 (13.2)	
Mean Education (Years)	9.41±2.31	7.65±3.65	0.00
Occupation-Unemployed	155 (77.9)	441 (45.9)	0.00
Family :			
Joint	62 (31.2)	413 (43.1)	0.007
Nuclear	137 (68.2)	547 (56.9)	
Consanguinity- yes	16 (8.0)	63 (6.6)	0.45*
Medical Illnesses	39 (19.6)	29 (3.0)	0.001*
F/H/O Psch Illness	59 (29.6)	332 (34.6)	0.19*
F/H/O suicide	5 (2.5)	69 (7.2)	0.01*
Past Psych Illness	22 (11.1)	249 (25.9)	0.00*
Past Suicide attempt	23 (11.6)	194 (20.2)	0.002*
Mean Number of past attempts	0.13±0.5	0.24±0.7	0.004

*Fisher's exact test

Table 2 — Special Causes for the Attempt

	Age Below 19 years (199)	Age Above 19 years (960)	p
Special cause for attempt	171 (85.9)	827 (86.1)	0.51
Friction with family members	74 (37.2)	130 (13.6)	0.00
Love failure	19 (9.5)	40 (4.2)	0.00
Death of dear ones	14 (7.0)	28 (2.9)	0.01
Friction with girl/boy friends	11 (5.5)	15 (1.6)	0.00
Failure in Exam	11 (5.5)	0 (0.0)	0.00
Physical problems	7 (3.5)	66 (6.9)	0.05

*Fisher's exact test

this study. The study was conducted at KMCT Medical College Hospital with an inpatient capacity of 60 beds. Psychiatry Department receives referrals from various Departments for management of approximately 10-20 suicide attempters in any given month. The institution has a written rule that any patient admitted for a suicide attempt has to be evaluated by the Psychiatry Department before his or her discharge from the hospital. Consecutive suicide attempters of all age groups referred for detailed psychiatric evaluation from various Departments from the period 2012 January to 2015 December formed the study sample for the two comparison arms. Information was obtained from patient, care giver and other reliable sources. The assessments were completed within one day of receiving

Table 3 — Details about Suicide Attempt

	Age below 19 years (199)	Age above 19 years (960)	p
H/O Medical Contact :			
Within 1 week	162 (81.4)	685 (71.2)	0.04
Within 1 week to 1 month	13 (6.5)	78 (8.1)	
Within 1 month to 3 months	13 (6.5)	105 (10.9)	
Hours of Sleep :			
0-2	5 (2.5)	52 (5.4)	0.00
3-5	46 (23.1)	502 (52.3)	
6 or more	142 (71.3)	378 (39.3)	
Change in Weight :			
Nil	185 (93.0)	759 (79.0)	0.00
10% or Weight Loss	14 (7.0)	200 (20.8)	
10% or more Weight gain	0 (0.0)	1 (0.0)	
Time Difference between stress and Attempt :			
24 Hours	89 (44.7)	188 (19.6)	0.00
24 Hours – 1 week	27 (13.6)	111 (11.6)	
1 week – 1 month	20 (10.1)	98 (10.2)	
More than 1 month	40 (20.2)	483 (50.3)	
Suicide Treats	84(42.2)	438(45.6)	0.21*
Suicide Notes	21 (10.6)	85 (8.9)	0.42*
Time of Suicide Attempt :			
12 Midnight- 6am	8 (4.0)	46 (4.8)	0.97
6am – 6 pm	108 (54.3)	519 (54.1)	
6pm – 12 Midnight	80 (40.2)	382 (39.8)	
Place of Attempt :			
House	156 (78.4)	745 (77.6)	0.95
Outside	40 (20.1)	202 (21.0)	
Consumption of Alcohol at the Time of Attempt	11 (5.5)	211 (22.0)	0.00
Mode of Attempt :			
Poisoning	147 (73.9)	757 (78.9)	0.21
Drowning	0 (0.0)	9 (0.9)	
Hanging	24 (12.1)	97 (10.1)	
Cutting	28 (14.1)	97 (10.1)	
Mean Time of Discovery (Minutes)	77.4+140.6	73.5+152.8	0.74
Mean time of Reaching Hospital (Minutes)	198.0+485.0	167.0+304.9	0.39

*Fisher's exact test

referral. World Health Organisation (WHO) definition of child and adolescent such as any person between ages 10 and 19 was adopted for the selection of adolescents¹¹. The total sample was divided into two groups, Group 1, 10-19 years age and group 2, above 19 years age (Table 4).

INCLUSION AND EXCLUSION CRITERIA

Suicide attempters who are willing to participate in this study after signing the written informed consent were included in the study. The subjects had to be inpatients during the assessment and should be able to respond to the tools appropriately. Subjects who had no accompanying family member for corroboration of information were excluded.

TOOLS

A self-designed socio-demographic questionnaire was used to document the psycho-socio-demographic details and life events. It consists of a total of 104 items covering various aspects like socio-demographic data, details of

Table 4 — *Psychiatric Diagnosis*

	Age below 19 years (199)	Age above 19 years (960)	p
Psychiatric Diagnosis			
- Present	120 (60.3)	764 (79.6)	0.00
Depression	22 (11.1)	261 (27.2)	0.00
Mania/Bipolar	2 (1.2)	29 (3.0)	0.78
Schizophrenia/Psychoses	2 (1.2)	53 (5.5)	0.00
Alcohol/Drug abuse	7 (3.5)	117 (12.2)	0.00
Adjustment Disorder	81 (40.7)	324 (33.8)	0.04
Neuroses	21 (10.6)	65 (6.8)	0.05
Fisher's exact test			

the suicide attempt, past medical and psychiatric history, current psychiatric diagnosis and psychosocial events. Initially a pilot assessment was conducted on 10 subjects and some modifications were done in the questionnaire like removing the ambiguity of some items. Test retest reliability of the prepared tool was established by Cronbach's alpha (0.714). Psychiatric diagnosis was based on DSMIV Criteria¹².

Detailed explanations were given to subjects and parents about the purpose of the study. Confidentiality of the information was assured and informed consent was taken from parents prior to enrolling subjects. Rapport was established and explanation was given about the study tool. Total time taken for data collection was one hour for each subject.

ANALYSIS OF DATA

Data was analyzed by SPSS-10 PC software system. Socio-demographic data and Psychological factors were analyzed by percentage of frequencies. Association between socio-demographic and selected psychological factors between two groups was analyzed using "t" test, "Chi-square" test and "Fisher's exact test".

RESULTS

Table 1 shows the comparison of socio-demographic variables of adolescent versus adults suicide attempters. Significant number of adolescent attempters were females, from nuclear family and had history of medical illnesses. Adult attempters had higher frequency of family history of suicide, past psychiatric illnesses, past suicide attempts and mean number of attempts.

Table 2 shows the comparison of causes for the attempt. Adolescents had significantly higher frequency of events such as friction with family members, love failure, death of loved ones, friction with girl/boyfriends, failure in exam, physical problems etc.

Table 3 shows that significantly more adolescents had medical contact within 1 week of attempt and attempted suicide within 1 week after the stressor. Table 4 shows that current psychiatric diagnosis was more frequent in adults than adolescents. The most frequent psychiatric diagnosis in adolescents was adjustment disorder.

DISCUSSION

Suicidal behavior in adolescent age group is an important public health issue because of the large proportion (21.8%) that 10-19 year olds constitute in the population of India¹³. In a study which evaluated the cause of death among those aged 10-19 years, in a rural population of 108,000 in South India, suicide accounted for about a quarter of all deaths in males and between 50% and 75% of all deaths in females aged 10-19 years. The average suicide rate for girls was 148 per 100,000, and for boys, 58 per 100,000¹⁴. In the adolescent age group, the associated developmental and social challenges are quite different from that of an adolescent population. Understanding the characteristics and variables associated with adolescent suicide in contrast to adult suicidal behaviours is important in designing interventions specifically tailored to this population.

In most of the earlier studies, girls outnumbered boys in suicide attempt and ideation^{15,16}. Present study also there was an over representation of female attempters though it was not clinically significant. An earlier study on adolescent suicides from India has shown equal representation of male and female attempters¹⁷. This gender paradox is explained by recent studies¹⁸. Adolescent females feel shy in discussing their views and problems with peers or families resulting in feeling of being isolated and attempt suicide as a cry for help. Furthermore, although adolescent boys have less suicidal thoughts, their ideas translate into more completed suicides. Other possibility for this difference could be due to a cohort effect (ie, more recent female generations are engaging in more suicidal behavior). Additionally, boys may not remember or may minimize the clinical significance of this type of behavior during their adolescence (ie, retrospective reporting grossly underestimates the rates of adolescent suicidal behavior).

Though both the groups had predominance from rural areas (reflecting the catchment area of the hospital), there was a significant difference between the groups with a larger proportion of adolescents from urban areas. Majority of adolescents were found to be hailing from nuclear families. This could be related to fact that most of these adolescents are from urban settings where joint family fragmentation is more likely. Further studies are required to explore the psychiatric morbidity and suicide ideation among the adolescents living in different social settings like rural joint families and urban nuclear families. It also needs to be explored whether there is an underreporting of adolescent suicides in rural settings due to cultural factors.

Majority of adolescent subjects attempted suicide within 24 hours after the stressor whereas the adult subjects attempted more than a week after the stressor. This may suggest that the adolescent attempts were more

unplanned and impulsive. This again ties up with the fact that adolescent suicides appear to be related more with situational problems and associated concerns about social support and coping abilities.

Studies have found that suicidal people frequently consult medical services, usually a primary care physician, shortly before the act, sometime in the last few days or hours prior to the suicidal act¹⁹. In the present study 94% of the adolescents had contact with medical personnel at least three months before the attempt. Among them, 81% had medical contact within one week of their attempt. Even though the information is not exactly available from the subjects whether they had suicidal ideation during these consultations, considering the predominance of physical and Psychological problems in them, it is a strong possibility having grave implications. One investigation found that 41% of adult persons who committed suicide had contact with a health care professional within 28 days of death, 47 percent within 1 week, and 18 percent on the day of death. However, suicidal intent was discussed in only 22% of this cases²⁰. Unfortunately similar data is not available from adolescent group. Educational measures for primary care physicians aimed at identifying the flag signs of suicidality will be useful adolescent suicide prevention.

Many physicians miss or dismiss the telltale signs of suicidality presuming that it is quite unlikely to occur in adolescents. They also have the feeling that asking suicidal ideation may provoke suicidality in certain situations. This lack of recognition and disbelief is compounded by the fact that suicidal intent often presents differently in adolescents and can be confused with changes in personality, sleep problems, drug abuse, fatigue, concentration deficits, diminished memory, lack of initiative etc. They are also less likely to report suicidal ideation and intent compared to adults. This makes difficulty in establishing the diagnosis and initiating treatment. The problem is further compounded by the lack of sensitization among primary care givers regarding adolescent mental health problems. Hawton et al reported that only 20% of their adolescent study sample had Psychiatric disorders²¹. In the present study 60% had psychiatric disorders but with a predominant diagnosis of adjustment disorder. Their attempts were mostly impulsive occurring within a week after the stressor. This again underlines the fact that adolescent suicides appear to be related more with poor social support and maladaptive coping techniques.

In the adult suicidology, one avenue to understand the psychological condition immediately prior to the self-destructive act has been the study of suicide notes. In a study by Posener et al in Montreal, seventeen adolescents who left notes were identified, comprising 10% of the population of suicides²². Victims who left notes did not differ from the total group in age and sex distribution. In

the present study also only 10% had written suicide notes prior to their attempt. Even though this is a small number, suicidal messages from children and adolescents need to be taken very seriously as it sometimes may offer an opportunity for suicide prevention.

In contrast to adult counter parts, the adolescent group had lesser rates of past psychiatric illnesses, past suicidal attempts, family history of psychiatric illnesses/suicide and current psychiatric illnesses. These findings shows that adult attempters may have more severe psychiatric problems compared to adolescents where attempts are more likely to be related to immediate life stressors. These findings have important implications in developing specific suicide prevention strategies in adolescents. Adequate focus on screening for adjustment problems and developing healthy coping strategies as well as ensuring availability of social support for handling psycho-social stressors should be given due importance in adolescents.

Psychoactive substance abuse is a major problem in adolescents especially so in those who attempt suicide. However, in the present study only a small proportion had a history of alcohol or drug abuse and intoxication at the time of attempt. Other than adjustment disorder, neurotic disorders also significantly outnumbered among adolescents.

Stressors such as conflicts with parents, breakup of a relationship, school difficulties or failure, death of dear ones, and physical ailments were the commonly cited reasons by adolescents for attempting suicide in this study. Among young people, suicidal behavior was found to be associated with female gender, not attending school or college, independent decision making, premarital sex, physical abuse at home, lifetime experience of sexual abuse, and probable common mental disorders. Violence and psychological distress were independently associated with suicidal behavior. Factors associated with gender disadvantage increased vulnerability, particularly in rural women²³. Family disruptions and discord stemming from excessive arguments and overt violence, loss of relatives due to marital separation or divorce, and problems in family interpersonal relations are reported as stressful circumstances experienced by suicidal adolescents²⁴. We also found out that the quality of stressful life events the adolescents have faced in the preceding month is significantly different from adults. This particular aspect highlights the need of early intervention focusing on specific issues in the adolescent period related to their developmental period.

Categorizing the stress according to the source may also be useful. Majority of the adolescents in our study had interpersonal problems with family members and friends as the main precipitating factor for the attempt. When adolescents have problems in their close relationships with

family and friends, they may lose important sources of social support which may in turn increase the risk of suicidal behaviour. Early intervention may be necessary to protect the quality and integrity of these interpersonal relationships. The occurrence of these stressful life events in the recent past should be “red flags” for the clinician working with potentially suicidal adolescents. However, it is also important to note that these events most often occur without suicide as a consequence.

LIMITATIONS

Our study does have certain limitations. Cross sectional nature of the study, possibility of retrospective bias especially in the aftermath of the suicide attempt, lack of scales for assessing psychiatric morbidity or severity of suicidal risk could be the important ones. However, considering that the study is a non-purposive comparison study, any rater bias appears to be unlikely. Another issue would be the comparatively smaller sample size in the adolescent group. But the strength of our study is that all the evaluations have been consistently done by the same person (a trained psychiatrist) on a consecutive sample.

CONCLUSIONS

This study clearly differentiates adolescent suicide attempters from adult counter parts with certain unique risk factors. Adolescent attempters were mostly females, hailing from nuclear urban family, had higher frequency of medical illnesses and had specific life events related to their developmental period. Majority had medical contact within one week of attempt and attempted suicide within a week after the stressor. Their most frequent psychiatric diagnosis was adjustment disorder. Adult attempters were mostly males, had higher frequency of family history of suicide, past psychiatric illnesses, past suicide attempts and current psychiatric diagnoses.

This study suggests psychosocial intervention with specific focus on developmental issues as the most important strategy for adolescent suicide prevention. Future research should examine the role of those intervening variables that are capable of reducing the negative impacts of chronic strains, such as social supports, personality styles and coping skills. Studies with control groups comprising non-suicidal adolescents are also necessary for confirmation of our findings. Adolescents experiencing higher rates of cumulative stressful life events should be the target population for repeated monitoring for identification of suicidal behaviour.

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