



Age and Gender Disparity of the Risk Factors for Suicide among Adolescent Suicide Attempters

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Abstract

Background: Research on suicide in the developed countries has consistently found gender differences in suicidal behaviour. Most notably, males have the higher rate of completed suicide than females. We designed the study to find out the age and gender disparities in various risk factors for attempted suicide among adolescent.

Material and Methods: This was a hospital-based cross-sectional study conducted among the randomly selected 100 adolescents who were attempted suicide. A structured pre-tested questionnaire was used to collect information on socio-demography, family pathology and standard questionnaires to assess mental status. SPSS software was used for the analysis. Chi-square test was used to find out the disparities in age group and gender between various risk factors.

Results: The present study identified that substance abuse (18.2%), mental illness (12.7%), previous history of suicide attempts (14.5%), aggressive nature of suicide attempt (40%), were common in older age group adolescent. Among male suicide attempters substance abuse (22.2%) and aggressive nature of suicide attempt (40.7%), were common than females. There is no statistically significant difference in scores of Becks Suicidal Indent scale, Hopelessness scale, Hamilton Psychiatric Rating Scale, and Presumptive Stressful Life Events Scale with respect to age and gender of suicide attempters.

Conclusions: Age and gender disparities exist with regard to various risk factors for suicide attempt hence differential way screening and intervention need to be considered for effective preventive service.

Keywords: adolescent, attempted suicide, disparity, risk factors.

Introduction

Suicide is a complex social issue and the leading cause of death and a significant mental health

problem worldwide.^[1,2] Suicidal behaviour, a mental disorder is a spectrum that ranges from suicidal thinking at one end to completed suicide

at the other end. Suicide is defined as death caused by self-directed injurious behaviour with any intent to die as a result of that self-harming behaviour.^[3] Suicide rate increase globally and over 78% of global suicides occurred in low and middle-income countries.^[4] Suicide attempt is defined as a non-fatal self-directed potentially injurious behaviour with any intent to die as a result of that intentional behaviour.^[3] A suicide attempt may not always result in injury or death. Adolescence is a period of marked risk for suicidality as evident from the statistics that it was the second leading cause of death among youngsters in the age group of 15 to 29 years globally.^[1] The incidence rate of suicide among adolescents is increasing in India also.^[5] For adolescent between the ages of 10 and 24, suicide is the third leading cause of death, significantly superseding the rate for adults aged 35 to 54 years.^[6] Males are more likely to die as a result of suicide, whereas in almost all regions of the world, nonlethal suicide attempts are more common in females.^[1,7] Males are more likely to use more lethal life destroying methods than females, partially accounting for the different pattern of suicide deaths and attempts.^[8] Apart from the method of suicide attempt, gender differences also exist in attitudes about suicide with males tending to possess more maladaptive attitudes about suicide than females. These patterns are evident across development from adolescents to elderly adults, yet are generally more robust among adolescence.^[9,10] In the present study, we tried to compare the psychopathologic risk factors for adolescent suicide and suicidal behaviour, namely, disruptive family issues, substance abuse, psychotic, and personality disorders with different age group and gender. Knowing the interaction of psychopathology with age and gender differences, planning and evaluating the effects of suicide prevention interventions could be considered. Unfortunately, there has been insufficient attention to age and gender differences in prevailing risk factors for attempted suicide.

Hence the present study was designed with the objectives to find out the disparity between various individual and familial risk factors found among adolescent suicide attempters with their age group and gender; and also to compare the various mental status score of study subjects with respect to their age category and gender.

Material and Methods

Study Setting and Design

The present study was a cross-sectional analytical study that was carried out in a tertiary care teaching hospital situated at Cuddalore district of Tamil Nadu. It is a 1000 bedded multi-specialty tertiary care teaching hospital. On an average, the outpatient and inpatient load of Psychiatry department per day was 80 and 20 respectively. The department provides care to nearly 250 attempted suicide patients every year who were referred from various specialties.

Study Population

Adolescents belonging to both genders and in the age group of 13 to 18 years admitted with the history of attempted suicide in the emergency department and were referred to the Department of Psychiatry for providing care and support during the year 2012 formed the study participants. Subjects with the stable physical condition that could undergo detailed assessment were included. We excluded those adolescents who were in the state of disorientation and confusion which interfered with the administration of rating scale to them and also those without a reliable informant.

Sampling and Sample Size

Sample size was calculated to be 100, using the software OpenEpi version 3.0, taking into consideration proportion of male adolescent suicide attempters with violent method of suicide as 81% and that of female as 60.9% based on previous study,^[10] with 80% power, 95% confidence interval, and 10% non-response rate. Study subjects fulfilling the eligibility criteria

were consecutively enrolled in the study till the calculated sample size was reached.

Study Tool and Study Variables

Pretested structured proforma was developed for collecting information on any substance abuse among participants, past history of mental illness and a previous attempt of suicide among participants, the method adopted to attempt suicide, childhood adversities like family history of substance abuse, attempted and completed suicide history among family members. Subjects were clinically examined for any psychiatric morbidity and diagnosis was made according to ICD-10. The Suicide Intent Scale (SIS) developed by Beck (1979),^[11] Presumptive stressful life events scale (PSLES),^[12] Hopelessness scale (HS) by Beck (1974)^[13] and Hamilton Depression Rating Scale (HDRS)^[14] were administered. PSLES was used to capture the stressful life events in the past one year, HS by Beck (1974) was used to assess the spectrum of negative attitudes, and HPRS (1960) was used to assess the most important symptoms of depressive disorders.

Study Procedure and Data Collection

Institute Ethics Committee clearance was obtained before starting the study. Subjects were selected as per the selection criteria mentioned above. Then interview was conducted with the study subject to obtain information on risk factors using predesigned pilot-tested questionnaire and their family caregivers were also interviewed as and when required. It was carried out in two to three sessions, each consisting of thirty minutes to one hour.

Ethical Consideration: From the study participants written informed assent was obtained and consent from their legal parents were also obtained. All ethical principles adhered throughout the study.

Data entry and statistical analysis

Data was entered in EpiInfo software version 7.2.2.6 and analyzed using SPSS software version

25. Description of categorical variables was done in frequency and proportion. Chi-square test was used to find out the disparities in age group and gender between various risk factors. The Mann Whitney U test was used to find out the statistical difference in median score of various standard tools between age and gender group. All statistical tests were two-tailed and p-value < 0.05 was considered statistically significant.

Result

Of the 100 adolescent interviewed and examined, 45 belonged to the age group 13 -15 years and the rest 55 were in the age of 16-18 years. Of them 54 were males and 46 were females. The majority of the adolescents studied up to middle school 47 in number, there were 12 illiterates and 12 studies up to high school and above. Of them, 49 were students and 26 were unemployed. Most of them were from the rural background and 21 from the urban residence. As per socio-economic status, 83 were from lower SES and the rest belonged to middle and upper SES. Only 8 of them were married (Table-1). History of substance abuse was given by 4.4% of the younger adolescent and 18.2% of the older adolescent and this difference was statistically significant. None of the female candidates has a history of substance abuse compared against 22.2% of the male suicide attempters. Mental illness was more among the older adolescent (12.7%) than younger (8.9%) but the difference was not statistically significant. It was statistically more among female adolescent suicide attempters (19.6%) than male (3.7%). The previous suicide attempt was significantly more among older (14.5%) than younger adolescent (2.2%) and it was more among females (15.2%) than male subjects (3.7%). This difference was statistically significant too. When compared the aggressive nature of suicide attempt with respect to gender and age group, it was found that 40% of the older adolescent and 11.1% of the younger adolescent had an aggressive method. Among male suicide attempters, 40.7% adopted aggressive method compared to 10.9% of the

female attempters who had used aggressive methods. This disparity of aggressive method of suicide attempt was statistically significant with respect to gender and age group of the attempters. The family history of mental illness was more among younger age adolescent (8.9%) than older (1.8%) and also more among female attempters (8.7%) than male (1.9%). But these disparities were not statistically significant. Younger adolescents (48.9) had a slightly higher proportion of family history of substance abuse than older adolescents (41.8) and it was more among females (52.2%) than males (38.9%). But these differences were not significant. Among them, 8.9% of the younger adolescent suicide attempters gave a family history of attempted suicide and completed suicide and hence were statistically significant when compared against older adolescent. The family history of attempted and completed suicide was almost same among male and female participants, so there was no statistical

significance (Table-2). Age and gender-wise disparities in scores of standard tools that measure the mental status of individuals like, Becks Suicidal Indent scale (BSI), Hopelessness scale (HS), Hamilton Depression Rating Scale (HDRS) and Presumptive Stressful Life Events Scale (PSLES) was measured using Mann Whitney U test. As the scores were not normally distributed median and inter-quartile range was used to summarize the scores. The median score of BSI was same for both age group and genders. The median score of HS was more for younger age group than older and it was same for both genders. The median score of HDRS was greater for younger age group and for males than older age and female participants. Median PSLES score was more for older age group suicide attempters and for the female adolescent. But none of these disparities were statistically significant (Table-3).

Table-1: Socio-demographic details of the study participants (N=100).

Sl. No.	Characteristics	Frequency and %
1	Age group in years	
	13 to 15	45
	16 to 18	55
2	Gender	
	Male	54
	Female	46
3	Education	
	Illiterate	12
	Primary school	29
	Middle school	47
4	Occupation	
	Student	49
	Unskilled	9
	Semiskilled	11
	Skilled	15
5	Residence	
	Urban	21
	Rural	79
6	Socio-economic status[#]	
	Lower	83
	Middle & upper	17
7	Marital status	
	Single	92
	Married	8

Note: # Based on Kuppuswamy's classification for urban and BG Prasad scale for rural residence modified for the year 2011.

Table-2: Disparities in age and gender for various risk factors for suicide attempt among study subjects (N=100).

Sl. No.	Features	Age group in years		p [#] value	Gender		p [#] value	
		13-15 n (%)	16-18 n (%)		Male n (%)	Female n (%)		
1	Substance abuse	Yes	2 (4.4)	10 (18.2)	0.04*	12 (22.2)	0	0.001*
		No	43 (95.6)	45 (81.8)		42 (77.8)	46 (100)	
2	Mental illness	Yes	4 (8.9)	7 (12.7)	0.54	2 (3.7)	9 (19.6)	0.01*
		No	41 (91.1)	48 (87.3)		52 (96.3)	37 (80.4)	
3	Previous suicide attempt	Yes	1 (2.2)	8 (14.5)	0.03*	2 (3.7)	7 (15.2)	0.04*
		No	44 (97.8)	47 (85.5)		52 (96.3)	39 (84.8)	
4	Aggressive nature of attempt	Yes	5 (11.1)	22 (40)	0.001*	22 (40.7)	5 (10.9)	0.001*
		No	40 (88.9)	33 (60)		32 (59.3)	41 (89.1)	
5	Family history of mental illness	Yes	4 (8.9)	1 (1.8)	0.10	1 (1.9)	4 (8.7)	0.12
		No	41 (91.1)	54 (98.2)		53 (98.1)	42 (91.3)	
6	Family history of substance abuse	Yes	22 (48.9)	23 (41.8)	0.48	21 (38.9)	24 (52.2)	0.18
		No	23 (51.1)	32 (58.2)		33 (61.1)	22 (47.8)	
7	Family history of attempted suicide	Yes	4 (8.9)	0	0.02*	2 (3.7)	2 (4.3)	0.87
		No	41 (91.1)	55 (100)		52 (96.3)	44 (95.7)	
8	Family history of completed suicide	Yes	4 (8.9)	0	0.02*	2 (3.7)	2 (4.3)	0.87
		No	41 (91.1)	55 (100)		52 (96.3)	44 (95.7)	

Note: # p value is based on Chi-square test, * statistically significant (p<0.05)

Table-3: Comparison of scores of mental status among study groups with respect to age and gender using various standard tool (N=100).

Sl. No.	Scale	Score for age in years Median (IQR)		p [#] value	Score for gender Median (IQR)		p [#] value
		13-15 (N=45)	16-18 (N=55)		Male (N=54)	Female (N=46)	
1	BSI	8 (6-10)	8 (5-14)	0.60	8 (5-14.5)	8 (5.75-11.25)	0.29
2	HS	4 (2-5.5)	2 (0-10)	0.06	3.5 (0.75-8)	3.5 (2-6.5)	0.52
3	HPRS	7 (6-9.5)	6 (0-18)	0.50	8 (1.5-18)	6.5 (4.75-10)	0.61
4	PSLES	47 (47-90)	58 (47-124)	0.27	58 (47-124)	47 (47-90)	0.12

Note: # p value is based on Mann Whitney U test, IQR-Inter Quartile Range, BSI-Becks Suicidal Indent scale, HS-Hopelessness scale, HPRS -Hamilton Psychiatric Rating Scale, PSLES-Presumptive Stressful Life Events Scale.

Discussion

The present study identified that substance abuse, mental illness, previous history of suicide attempts, aggressive nature of suicide attempt, were common in older age group adolescent. The family history of substance use attempted suicide, mental illness, and completed suicide were more among young adolescent. Among male suicide attempters, substance abuse and aggressive nature of suicide attempt were common than females. Other studied risk factors were common in female suicide attempters. There is no statistically significant difference in scores of Becks Suicidal Indent scale, Hopelessness Scale, Hamilton Depression Rating Scale, and Presumptive Stressful Life Events Scale with respect to age and gender of suicide attempters.

Studies done in other countries showed that females were involved more in suicide attempt and male were involved in completed suicide.^[1,9] Even studies carried out in India reported similar finding.^[5,10] One of the main reason behind this is nature of suicide attempt that was irreversible type of attempt were different for both genders. Females were involved in less violent nature of suicide attempts than males and hence deaths were avoided. In the present study also the aggressive nature of suicide attempt is significantly more among males (40.7%) than females (10.9%). This was in alignment with the result of study done in California among adolescent suicide attempters.^[9] A study done in Bengaluru among adult suicide attempters also conveyed similar result.^[10] We also explored the difference in choosing

aggressive nature of suicide attempt could be due to the influence of age of the subjects. The current study found that aggressive nature of suicide attempt is more in adolescent who were relatively older (16 -18 years) than younger age group (13-15 years). Among older adolescent 40% of them were used aggressive methods and 11.1% of the younger adolescent used aggressive methods of suicide. Gender difference in aggressive method could be due to the variation in their age. It was found in a previous study that subjects with increasing age had tried aggressive and irreversible method of suicide than their younger counterparts.^[1,15] The effect of socialization of adolescent varies with respect to gender and that leads to the availability of materials used for suicide.^[16,17] Another reason could be that the concern of women about the physical disfigurement of their body after death. It was suggested in previous studies that women prefer to leave a “beautiful corpse” because of societal emphasis on their physical appearance.^[8,18]

The substance abuse was more among older adolescent (18.2%) than younger ones (4.4%) and it was seen only among males than females in the present study. A similar finding was obtained in a study done in other developed countries.^[19,20] History of mental illness was more among older adolescent (12.7%) and females (19.6) than younger ones (8.9%) and male (3.7) attempted adolescent suicides in the present study. The previous study found that mental illness plays a role in variation in gender and age difference in suicide attempters.^[21,22] Depression and mood disorders are highly associated with suicide attempts and what remains unanswered in previous researchers is the relationship between aggressive methods of suicide and the nature of mental illness, which is either depression or mood disorders among the attempters. Studies showed that females had high risk to develop depression and mood disorders than males.^[23] Hence gender and age difference in choosing suicide has got interaction with their type of mental illness.

The prevalence of psychopathology among family members in terms of family history of substance abuse attempted and completed suicides in family and family history of mental illness also plays a vital role in the age and gender difference of suicide attempts.^[24,25] In the present study, though there were some differences with respect to these family factors related to suicide, most of the findings were not statistically significant. A study done in Bengaluru found that family history of mental illness was more among females and history of suicide attempts were more among male suicide attempters.^[10] Further research with more representative samples and large samples are required to create evidence related to this finding.

The present study has got few limitations. Firstly it was a cross-sectional study hence the temporal relationship between exposure and outcome could not be established. Secondly, the study subjects were recruited from the hospitals and hence they were not the real representatives of the adolescent suicide attempters. So the study findings could not be extrapolated to the general adolescent suicide attempters. Finally, the information on family history was self-reported. Hence the chance of desirability bias could be a potential possibility however it was reduced by conducting a detailed interview that happened after obtaining rapport with the subjects and their caregivers.

Conclusion and Recommendations

There was a difference between age group and gender of adolescent suicide attempters in relation to the method of suicide, family history of psychopathology, mental illness and substance abuse. Older adolescents who attempted suicide had more substance abuse, previous attempts, mental illness and aggressive method of suicide. Females had no substance abuse and a lesser proportion of irreversible method of suicide. They had higher previous suicide attempt and mental illness. General practitioners, family physicians, and pediatricians need to be informed about these differences that help them an ineffective screening of adolescents to identify those who are at risk.

This also helps the policy developers and suicide prevention program designers to develop tailor-made interventions to reduce the occurrence of suicide attempt among adolescents.

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