

## Intentional Self-harm in Children and Adolescents: A Study from Psychiatry Consultation Liaison Services of a Tertiary Care Hospital

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### ABSTRACT

**Objective:** The objective of this study was to evaluate the socio-demographic and the clinical profile of children and adolescents presenting with Intentional self-harm. **Materials and Methods:** Records of all children and adolescents ( $\leq 19$  years) seen by the consultation liaison (CL) services during the period of 2000-2012 were screened. Patients with a diagnosis of intentional self-harm (at the time of assessment) were taken up for this study. Data was extracted from the records, to study the socio-demographic and clinical profile. **Results:** During the study period, 101 patients aged  $\leq 19$  years and diagnosed with intentional self-harm at the time of admission were evaluated by the psychiatry CL services in various emergency and medical surgical wards. In the study population, females ( $N = 61$ ; 60.4%) outnumbered males. The age of the patients ranged from 12 to 19 with a median and mean of 17.0 years (standard deviation-1.6 years; interquartile range 16-18 years). Children and adolescent with self harm were more commonly females, from nuclear families, middle socio-economic status and Hindu by religion. The common method of self-harm in adolescents is by ingestion of insecticides (65%) and the self-harm behavior was often precipitated by interpersonal problems in the family context. About one-fifth of the patients have psychiatric morbidity. **Conclusion:** Findings suggest that the most common method of intentional self-harm in children and adolescents is consumption of insecticides and precipitated by interpersonal problems in the family context.


**Key words:** Adolescent, children, consultation liaison, intentional self-harm

### INTRODUCTION

Suicidal behavior is known to exist on a continuum ranging from occasional suicidal ideas to serious contemplation to planning to attempt and finally culminating in completed suicides.<sup>[1-3]</sup> Understanding

this continuum suggests that suicides can be prevented if appropriate steps are taken in identifying the persons at risk. One of the important risk factors for completed suicides is history of previous suicidal attempt.<sup>[4,5]</sup> It is suggested that suicide attempters have about 10 times higher risk of future attempts and completed suicides.<sup>[4,5]</sup>

Although there is reasonable data from India on understanding the risk factors for completed suicides and attempted suicides in adult population,<sup>[6,7]</sup> there is relative lack of data for children and adolescents. Studies suggest that about one-fourth to three-fourths of deaths in the young population in India could be due to suicides.<sup>[8]</sup>

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The handful of studies which have evaluated the different levels of suicidal behavior in children and adolescents report that 6% and 21.7% of children and adolescents report current and life time suicidal ideations respectively and about one-tenth of the study population (11.7%) report suicidal ideations in last 1 year. In terms of suicide attempt 8% of children and adolescents report life time suicide attempt and 3.5% report suicide attempt in last 1 year.<sup>[2,9]</sup>

Studies from India which have evaluated the risk factors for suicidal behavior have reported that suicidal behavior is more commonly seen in those belonging to Hindu religion,<sup>[3]</sup> older adolescent,<sup>[3,9]</sup> female gender<sup>[3,9]</sup> and working for income after school/college.<sup>[3]</sup> Other important risk factors which have been shown to predict suicidal behavior in children and adolescents include school and academic related problems,<sup>[9-13]</sup> family pathology,<sup>[3,9,12,14]</sup> actual or anticipated punishment,<sup>[9,15,16]</sup> failure in love,<sup>[14]</sup> social conflict,<sup>[17]</sup> history of suicide by a friend,<sup>[9]</sup> presence of physical illness,<sup>[17]</sup> psychiatric morbidity in parents in the form of alcoholism, generalized anxiety disorder and depression.<sup>[12,18]</sup> Death of one of the parents by suicide has also been shown to be a strong predictor of suicidal behaviour among offspring and this association persists despite controlling for comorbidity of parental disorders and for the presence of mental disorders among offspring.<sup>[18]</sup>

With regards to psychiatric morbidity studies suggest that only one third to half (30-52%) of the adolescents who present with attempted suicide or deliberate self-harm have psychiatric morbidity.<sup>[12,17]</sup>

However, it is important to recognize that most of these studies have included small study sample and only occasional study has focused on children and adolescents presenting with deliberate self-harm.<sup>[12,16,19,20]</sup> This suggests that there is a need to expand the literature on this topic. Accordingly, the aim of this retrospective chart review was to study the socio-demographic and clinical profile of children and adolescents presenting with intentional self-harm and referred to psychiatry consultation liaison (CL) services for evaluation.

## MATERIALS AND METHODS

### Set-up

This study was conducted in a tertiary care multicentric public sector hospital in North India. The department of Psychiatry runs round the clock CL services to all the wards and emergency services of the hospital. Most of the cases who come to emergency or are admitted in various wards, who have history suggestive of self-harm/attempted suicide are usually referred to psychiatry CL services. Each of these patients is

evaluated in detail initially by a trainee (junior) resident under the supervision of a senior resident (qualified psychiatrist). Then all the cases are evaluated by the consultant psychiatrists and final diagnosis is made and management is carried out. During the evaluation of the case, information is obtained from as many sources as possible including the family members and diagnosis is made as per the international classification of diseases-10. The cases are followed-up by the CL psychiatry services until the patient is either discharged, has a fatal outcome or is transferred to the psychiatry ward for further management.

All the cases seen by the CL psychiatry team are recorded in a registry and the CL psychiatry team maintains separate records of all the cases seen. The data included in the registry include age, gender, psychiatric diagnosis, physical diagnosis, treatment given and outcome of the patient at the time of last evaluation. Prior to 2010, only the cases seen in various wards were entered into the registry and from 2010 all the cases seen in various wards and emergency services are also entered into the registry.

This chart review involved screening of the CL Psychiatry registry to identify patients aged less than equal to 19 years who were diagnosed to have intentional self-harm by the CL psychiatry team during the period of 2000-2012. Once the cases were identified the treatment records maintained by the CL psychiatry team of these patients were traced and the data was extracted in a structured performa designed for the study. Demographic information was extracted pertaining to the age, gender, marital status, educational qualifications, present occupation, religion, place of residence and the type of family. Clinical information relating to the method used, preceding life events, psychiatric morbidity and family history of psychiatric illness and any use of substances was also extracted. The outcome of the patients was also noted.

Data analysis was performed using SPSS version 14 (SPSS Inc., Chicago, IL, USA). Descriptive analysis was conducted for demographic and clinical variables and included mean, standard deviations, frequencies and percentage. Comparisons were carried out by using Chi-square test, Fisher exact test and Mann Whitney U-test.

## RESULTS

During the period of 2000-2012, 9830 referrals were received by CL psychiatry team from various wards and about 2450 numbers of referrals were received from various emergency services during the period of 2010-2012. Out of these, 101 cases (0.82%) were diagnosed with intentional self-harm in adolescents

by the CL psychiatry team. The mean age of this sample was 17.0 years (standard deviation 1.58 years) with youngest patient being 12-year-old child. The interquartile range of the sample was 16-18 years and median was 17 years. The study sample comprised of 40 males (39.6%) and 61 females (60.4%). Almost all the patients were unmarried (99.0%).

As you can see in Table 1, the most common methods of intentional self-harm was consumption of insecticide (62.4%) followed by corrosives (10.9%). Violent methods (hanging, strangulation, jumping from height, self-stabbing and self-immolation) were used by 11 individuals (10.9%), 9 out of them were males. It was seen that males had significantly increased likelihood of using violent methods than females (Fischer's exact test  $P = 0.006$ ).

Two of these patients had expired (2.0%) during the hospital stay and in 99 patients (98.0%) the intentional self-harm was not associated with fatal outcome. The use of violent method was related to poorer survival outcome (Fischer's exact value = 0.011), but not related to the age (Mann Whitney  $U = 405$ ,  $P = 0.310$ ).

However, detail treatment records were available for only 57 cases (56.4% of the sample). The demographic and clinical characteristics of the sample for which the detailed case records were available are shown in Table 2. Majority of the patients were students, Hindus, belonged to nuclear families of middle socio-economic status. There was nearly equal distribution of patients from rural and urban background.

The patients for whom detailed records were available did not differ from those patients for which detailed records were not available in terms of gender ( $\chi^2 = 0.056$ ,  $P = 0.814$ ), age (Mann Whitney  $U = 1215$ ,  $P = 0.782$ ), marital status (Fisher's exact test  $P = 1.000$ ), violent methods being used ( $\chi^2 = 0.018$ ,  $P = 0.893$ ) and outcome (Fisher's exact test value = 1.000).

The precipitating events of attempting self-harm included inter-personal relationship (IPR) issues with family members in about half of the patients, followed by stress of failure in examinations. When we looked at the specific interpersonal familial issues, the events which precipitated self-harm included issues like altercation with one or either the parents or sibling mainly related to the demands of patients being not met. Other common precipitating events included broken love affairs and depressive cognitions. Few patients ( $N = 13$ ; 22.8%) had a diagnosable psychiatric disorder.

Having IPR issues with family members was not associated with type of family (nuclear/non-nuclear),

**Table 1: Self-harm methods used in the entire sample (N = 101)**

Method	Number (%)
Consumption of insecticide	63 (62.4)
Organophosphates	47 (74.7)
Aluminum phosphide	3 (4.8)
Naphthalene balls	3 (4.8)
Zinc sulfide	2 (3.2)
All out	1 (1.6)
Potassium permanganate	1 (1.6)
Exact poison unknown	6 (9.6)
Corrosives	11 (10.9)
Prescription medicines other than psychotropics	6 (6.0)
Psychotropics	5 (5.0)
Hanging and strangulation	5 (5.0)
Burns/self-immolation	4 (4.0)
Ingestion of kerosene/diesel	3 (3.0)
Unknown poisoning	2 (2.0)
Jumping from height	1 (1.0)
Self-stabbing	1 (1.0)

**Table 2: Demographic and clinical characteristics of patients whose case records available (N = 57)**

Variable	Mean ( $\pm$ SD) or N (%)
Socio-demographic characteristics	
Age	17.0 ( $\pm$ 1.51)
Gender: Male/female	22 (38.6)/35 (61.4)
Marital status: Single/married	56 (98.2)/1 (1.8)
Occupation: Student/employed/not employed	42 (73.7)/5 (8.8)/10 (17.5)
Years of education	10.3 ( $\pm$ 4.33)
Religion: Hindu/Sikh/others	41 (71.9)/13 (22.8)/3 (5.3)
Family: Nuclear/non-nuclear	45 (78.9)/12 (21.1)
Locality: Urban/rural	30 (52.6)/27 (47.4)
Socio-economic status: Low/medium/high	5 (8.8)/51 (89.4)/1 (1.8)
Clinical characteristics	
Psychiatric illness in patient	13 (22.8)
Depressive episode	5 (8.8)
Emotionally unstable personality disorder	5 (8.8)
Adjustment disorder	3 (5.3)
Psychiatric disorder in family members	
Alcohol dependence	6 (10.5)
Depression	1 (1.8)
Precipitating event for self-harm behavior	
Interpersonal problems with family members	28 (49.2)
Failure in examinations	13 (22.9)
Broken love affair	4 (7.1)
Depressive cognitions	4 (7.1)
Interpersonal problems with friends	2 (3.6)
Work related stress	2 (3.6)
Unclear	6 (10.6)

<sup>a</sup>Few patients had more than one precipitating event

the locality ( $\chi^2 = 0.338$ ,  $P = 0.561$ ) or the gender of the patient ( $\chi^2 = 0.011$ ,  $P = 0.916$ ). However, the presence of IPR issues as precipitating event for self-harm was associated with family history of psychiatric illness, most of which included alcohol use disorder (Fisher's exact test value = 0.048).

## DISCUSSION

India has the largest population of adolescents in the world.<sup>[3]</sup> According to the census of 2001, 45% of population of India is in the age range of 0-19 years, with one-fifth of the population (21.8%) in the age group of 10-19 years.<sup>[21]</sup> Considering the fact that about one-fourth to three fourths of deaths in the young population in India could be due to suicides,<sup>[8]</sup> it is very important to identify the risk factors associated with suicide so that preventive strategies can be planned.

One of the important precursors of completed suicides is suicidal attempt or intentional self-harm <sup>[4,5,22]</sup> and evidence suggest that there is certain level of overlap in the risk factors associated with completed suicides and suicide attempters.<sup>[23]</sup> Hence, understanding the profile of suicide attempts can help in prevention of completed suicides.

The present study attempted to study the profile of patients referred to CL psychiatry team after an attempt of self-harm. Present study suggests that majority of patients who attempt self-harm are females and this is in keeping with international literature<sup>[24,25]</sup> and studies from India.<sup>[3,9]</sup> However, this is in contrast to Indian literature involving patients who are in the adult and elderly age group, which suggests preponderance of males.<sup>[26,27]</sup> This difference possibly suggests that gender plays a differential role in different age groups.

The present study also shows that the patients who attempted self-harm more frequently belonged to nuclear families. This possibly reflects the lack of emotional support available to the children, which possibly contributes to the self-harming behavior.

Similar to previous report,<sup>[3]</sup> self-harm behavior was more common in those belonging to Hindu religion and older adolescents. In the present study too most of the adolescents who presented with self-harm were aged 16-18 years.

In the present study, the most common method of self-harm was poisoning, by consumption of insecticides and that too organophosphates. This is similar to the method of self-harm reported in the previous studies from India, involving adolescents,<sup>[10,20]</sup> as well as adults.<sup>[27,28]</sup> This may be due to easy availability of insecticides as India is an agrarian based economy and people routinely use insecticides for use in the farms as well as for storage of grains in the houses. Violent methods of self-harm were used by about 10% of the sample, that too was more commonly by males. Violent methods were more frequently associated with fatal outcome. This is in keeping with the Western literature

which suggests that adolescent males usually use more lethal and irreversible methods to attempt self-harm and suicide and more frequently results in completed suicide.<sup>[22,23]</sup>

Studies from other parts of India have also reported interpersonal problems with parents,<sup>[14]</sup> physical abuse by parents, feeling of being neglected by parents,<sup>[9]</sup> conflicts with parents or siblings and parental disharmony<sup>[13]</sup> to be associated with self-harm behavior. Findings of the present study too support this, as in half of the patients; act of self-harm was precipitated by IPR problems with family members.

In the present study too like previous studies involving adolescents, academic issues<sup>[10-12]</sup> and failure in love<sup>[14]</sup> were associated with self-harm in few patients. However, in contrast to the previous studies, none of the patient in the present study had physical illnesses.<sup>[17]</sup>

Slightly more than one-fifth of the patients had diagnosable psychiatric illness in the present study, this is less than the reported range of 30-52% in previous studies from India<sup>[12,17]</sup> which have studies children and adolescents presenting with attempted suicide or deliberate self-harm. In the present study, about one-tenth of patients had family history of alcohol dependence, which has been identified as a risk factor for self-harm in adolescents.<sup>[12,18]</sup> Further present study suggests that interpersonal problems were more common in households where one of the parents had a psychiatric disorder, especially in the form of substance use disorder.

## CONCLUSION

Based on the above study it can be concluded that self-harm is more common in children and adolescents who are females, from nuclear families, middle socio-economic status and Hindu by religion. The common method of self-harm in adolescents is by ingestion of insecticides and the self-harm behavior is often precipitated by interpersonal problems in the family context. About one-fifth of the patients have psychiatric morbidity.

Taking the findings of the present study into consideration there is an urgent need to develop a clear policy for the sale and purchase of insecticides. Further, the families which use the same for occupational use should be advised to store the insecticides safely, so that access to the same can be minimized. Further considering the fact that in most cases self-harm behavior was precipitated by interpersonal issues, there is an urgent need for enhancing the parenting skills of the parents. With regards to the academic issues, there



is a need to reduce the stress of performance and failure in exams should not be stigmatized. Schools should have adequate number of counselors who could guide the students and their parents based on the intelligence and aptitude of the adolescents. In terms of secondary prevention, the psychiatric morbidity at any level, i.e., in parents and children and adolescents should be treated adequately, so as to prevent suicidal behavior.

Present study was limited by its retrospective design and limited to the patients referred to CL psychiatry services. It may not be true reflection of entire population of treatment seekers presenting to the hospital. It is possible that for many of the cases who were too sick to be interviewed, a psychiatric consultation was not sought. Furthermore, it is possible that the patient or the family members did not disclose crucial information fearing the legal implications of suicidal attempts in India. Hence, the findings of the study should be interpreted in the light of the above mentioned limitations.

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