

## Clinico-psychiatric profiles of children with self-harm poisoning

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Received – 22 August 2014

Initial Review – 22 September 2014

Published Online – 02 February 2015

### Abstract

**Background:** Self-harm among young people is increasing day by day and little is known about the reasons young people give for cessation and their link with gender or employment status. **Objectives:** The aim was to study the psychiatric aspects of self-harm and to look for underlying contributing factors responsible for self-harm. **Materials and Methods:** Hospital based prospective study conducted in a tertiary hospital in the eastern India. Children between 5 and 15 years of age admitted with poisoning were recruited. Extensive questionnaire was put to the admitted children and their parents. Psychiatric diagnosis and evaluation were made based on Diagnostic and Statistical Manual of Mental Disorders IV criteria. **Results:** Of 62 children admitted with poisoning, 20 children had self-harm poisoning. Girls outnumbered boys with ratio of 1.8:1. Though the number is less, boys had more severe poisoning requiring longer hospital stay. More than 85% children with self-harm were more than 11 years of age. Incidence was more in low socioeconomic group, and family stress was the most important contributing factor. Out of two children with recurrent self-harm behavior, one had bipolar disorder and other was having major depression. **Conclusions:** Self-harm poisoning is one of the significant problems in children and adolescent. In the case of recurrent episode, one should evaluate for any underlying psychiatric illness and treat the underlying illness.

**Key words:** Children, Poisoning, Psychiatric illness, Self-harm

The term self-harm refers to any act of self-poisoning or self-injury carried out by an individual irrespective of motivation [1]. This commonly involves self-poisoning with medication or physical injury by self. Important exclusions to this term include: (1) Harm to the self, arising from excessive consumption of alcohol or recreational drugs, (2) mismanagement of physical health conditions, (3) body piercing, and (4) starvation arising from anorexia nervosa. Adolescent age group is the most vulnerable group for the self-harm poisoning. The agents used in self-poisoning vary depending on the area and the culture worldwide. Population estimates of the prevalence of self-harm in the community vary considerably. One cross-national study of 17 countries found that an average of 2.7% of people reported a previous episode of self-harm, but with considerable variation between 0.5% in Italy and 5% in the US [2]. In a survey by Meltzer et al. conducted over 12,529 children and young people aged 5-15 years, 1.3% had tried to harm them. However, there is no such data available for estimation of prevalence of self-harm in India [3].

It is reported that not all deliberate self-harm patients are suicidal, and, therefore, the motivation of the ingestion is something else. Certain reported risks for self-harm behavior are depression, disruptive disorders, poor family background

and low self-esteem [4]. Some studies present a higher rate of suicidal behavior among girls than among boys in self-poisoning [5,6]. It is a known fact that adult suicidal behavior is associated with unemployment, social deprivation and psychiatric illness [7], but the association between self-harm and underlying psychiatric illness in young people in Indian scenario is less clear. Therefore, we planned this study in an attempt to find the relationship between underlying psychiatric illnesses and self-harm in children and adolescents in a tertiary care center and to identify the associated risk factors and precipitants.

### MATERIALS AND METHODS

This was a prospective study carried out in a tertiary care hospital in the eastern part of India from January to December 2010. Institutional ethics committee approval was taken before recruitment of cases. Children between 5 and 15 years of age admitted with poisoning were recruited after taking informed consent from the parents. Detail history was taken from the parents as well as patients about the circumstances of the poisoning and psychiatric consultation was taken to rule out association of any psychiatric illness. Socioeconomic status of the parents was classified based on modified Kuppaswamy classification. Extensive questionnaire was put to the admitted

children and their parents. Psychiatric diagnosis and evaluation were made based on Diagnostic and Statistical Manual of Mental Disorders IV criteria. When both the parents and child were in agreement that the child consumed the poisonous substance intentionally (when interviewed separately) were included in the study and children with accidental or homicidal poisoning and children with mental retardation were not included in the study population.

## RESULTS

During the study period, total 62 children were admitted in our hospital with poisoning or envenomation. Among the 62 children, only 20 children qualified the inclusion criteria and the rest were excluded from the study. Among the study subjects, 7 were male and 13 were female. Male to female ratio was 1:1.8. When we compared the age group of the subject, we found that most of the children with self-harm poisoning were young adolescent. 16 children belonged to the age group between 10 and 15 years where as 4 children were between 6 and 10 years. Mean age was 12 years and 2 months (Table 1).

Socioeconomic factor also contributes a great deal to the psychological stress and which lead to self-harming. 70% of the studied children belonged to low socioeconomic status as compared to only 25% belonged to the middle, and 5% belonged to high socioeconomic status (Table 1). Children have used different methods for harming themselves. In our study, we found that organophosphorous was the most common offending agent, followed by oleander, insecticide, phenyl and kerosene. Out of 20 children 14 were admitted with organophosphorous poisoning whereas 4 with oleander poisoning. Phenyl and kerosene were the offending agent in one patient each (Table 1).

In our study, we found that in most of the children stress was the most important contributing factor, which provoked the child to take this extreme step. Family stress (8 out of 20 cases) in the form of conflict with the peer or parental neglect was the most common, followed by study stress (7 out of 20 cases). In the case of four children, stress was not identified.

The study showed two children with recurrent self-harm behavior had underlying psychiatric illness, which required treatment in the psychiatric department. One 11 year old child had bipolar disorder and other child of 13 years had major depression. After treatment, they have not taken the extreme step of self-harm in 2 years follow-up after the study.

## DISCUSSION

Self-harm is an expression of personal distress, usually made in private by an individual who hurts him/herself. The nature and meaning of self-harm may vary from person to person and the reasons behind it may be different on each occasion [8]. Methods of self-harm can be divided into two broad groups:

**Table 1: Demographic profile of the study population**

Total number of children with poisoning/envenomation	62
Number of children excluded	42
Total study subject	20
Age group (years)	
6-10	14
10-14	6
Socioeconomic condition (%)	
Low	14 (70)
Medium	5 (25)
High	1 (5)
Type of poison	
Organophosphorous	14
Oleander	4
Phenyl	1
Kerosene	1

Self-poisoning and self-injury. Although, there may be different motivations and intentions behind the method chose [9], there is a variety of individual and practical reasons those span both the groups. Assumptions cannot be made about motivation and intent based on the chosen method of self-harm and, indeed, there is good evidence that people often switch methods of self-harm [10].

Data regarding self-harm in India is lacking as there are very few studies regarding self-injury on Indian children. In our study, we observed that the maximum number (more than 85%) of children with self-harm were more than 10 years old. Girls outnumbered boys with a sex ratio of 1.8:1. However, more serious and fatal poisoning was found in the case of boys leading to prolonged hospital stay. Our study differs from the study done by Krishnakumar et al. In their study incidence of self-injury was more in boys [11]. As our hospital is one of the major referral hospitals in the eastern part of our country, the hospital figures included information of all young people who needed emergency medical assessment or treatment following self-harm behavior. However, those young people who did not need hospital treatment were not represented in this study. This may explain the relatively low numbers of cases with self-inflicted injury, as superficial cuts may not require medical intervention. Most of the cases are managed in the peripheral hospitals, and only a few are referred to tertiary care center. Therefore, the incidence of self-harm in young people who do not attend the emergency department is unknown.

Different factors contribute to the self-harm behavior in children and adolescent. Some of these factors are: Family conflict, socioeconomic factors, nutrition, smoking, substance abuse, deviant peer group, and school problems. In the present study, we found a significant correlation between social deprivation indices and parasuicide (including overdose

and deliberate self-injury) in children and adolescents. This may be because of parental neglect and more acute stress in this socioeconomic group. There is accumulating evidence that the risk of self-harm and suicide increases with social deprivation [12]. Given the link between suicide and parasuicide, understanding better the reasons for this association might help in planning more effective primary and secondary prevention programs.

Mental disorders (in particular affective disorders, substance abuse disorders and antisocial behavior) are strong risk factors for youth suicidal behavior [13,14]. These disorders can be familial and may have influence from genetic and environmental factors. In our study, family conflict is the most important contributing factor for inciting self-injury. Family instability and lack of family support might be one of the significant underlying factors. There is a well-demonstrated association between deprivation (particularly male unemployment) and child abuse or neglect [15-17], which in turn is associated with parasuicidal behavior. It can be concluded that socioeconomic adversity has a negative effect on parenting in general, regardless of the type of family.

Most of the children in our study belong to low socioeconomic status and most common substance used for self-poisoning is organophosphorous (insecticide used for farming) because it is readily available in the household as most of people in our state depend on agriculture. Our study differs from Krishnakumar et al., in their study they found that rat poison is the most common substance used for self-harm. Repoisoning was found in two children, and they were diagnosed to have some psychiatric illness. One of the children had bipolar disorder, and other had major depression.

## CONCLUSION

Self-harm poisoning is one of the significant problems in children and adolescent, and about one third of the patients admitted with poisoning and envenomations have this problem. In the case of the recurrent episode, one should evaluate them for any psychiatric illness and treat the underlying illness. Family issues can be tackled by thorough discussion with the parents and these children should be handled with utmost care and caution to prevent such incidences.

## REFERENCES

1. Hawton K, Harriss L, Hall S, Simkin S, Bale E, Bond A. Deliberate self-harm in Oxford, 1990-2000: a time of change in patient characteristics. *Psychol Med.* 2003;33(6):987-95.
2. Nock MK, Borges G, Bromet EJ, Alonso J, Angermeyer M, Beautrais A, et al. Cross-national prevalence and risk factors for suicidal ideation, plans and attempts. *Br J Psychiatry.* 2008;192(2):98-105.

3. Meltzer H, Harrington R, Goodman R, Jenkins R. Children and adolescents who try to harm, hurt or kill themselves. London: Office for National Statistics; 2001.
4. Grøholt B, Ekeberg O, Wichstrøm L, Haldorsen T. Young suicide attempters: a comparison between a clinical and an epidemiological sample. *J Am Acad Child Adolesc Psychiatry.* 2000;39(7):868-75.
5. Borna P, Ekedahl A, Alsén M, Träskman-Bendz L. Self-poisonings with drugs by adolescents in the Lund catchment area. *Nord J Psychiatry.* 2001;55(5):325-8.
6. Gauvin F, Bailey B, Bratton SL. Hospitalizations for pediatric intoxication in Washington State, 1987-1997. *Arch Pediatr Adolesc Med.* 2001;155(10):1105-10.
7. Hawton K, Harriss L, Hodder K, Simkin S, Gunnell D. The influence of the economic and social environment on deliberate self-harm and suicide: an ecological and person-based study. *Psychol Med.* 2001;31(5):827-36.
8. National Collaborating Centre for Mental Health. Self-Harm: The Short-Term Physical and Psychological Management and Secondary Prevention of Self-Harm in Primary and Secondary Care. London: National Institute for Health and Clinical Excellence; 2004.
9. Sutton J. Healing the Hurt Within: Understand Self-injury and Self-harm, and Heal the Emotional Wounds. Revised and Updated 3rd ed. Oxford: How To Books; 2007.
10. Lilley R, Owens D, Horrocks J, House A, Noble R, Bergen H, et al. Methods of self-harm: a multi-center comparison of episodes of poisoning and injury. *Br J Psychiatry.* 2008;192:440-5.
11. Krishnakumar P, Geeta MG, Riyaz A. Deliberate self harm in children. *Indian Pediatr.* 2011;48(5):367-71.
12. Gunnell D, Shepherd M, Evans M. Are recent increases in deliberate self-harm associated with changes in socio-economic conditions? An ecological analysis of patterns of deliberate self-harm in bristol 1972-3 and 1995-6. *Psychol Med.* 2000;30(5):1197-203.
13. Beautrais AL. Risk factors for suicide and attempted suicide among young people. *Aust N Z J Psychiatry.* 2000;34(3):420-36.
14. Hawton K, Harriss L. Deliberate self-harm by under-15-year-olds: characteristics, trends and outcome. *J Child Psychol Psychiatry.* 2008;49(4):441-8.
15. Drake B, Zuravin S. Bias in child maltreatment reporting: revisiting the myth of classlessness. *Am J Orthopsychiatry.* 1998;68(2):295-304.
16. Eamon MK, Zuehl RM. Maternal depression and physical punishment as mediators of the effect of poverty on socioemotional problems of children in single-mother families. *Am J Orthopsychiatry.* 2001;71(2):218-26.
17. Royal College of Psychiatrists. Better Services for People who Self-Harm: Quality Standards for Health Care Professionals. London: Royal College of Psychiatrists; 2006.

*Funding: None; Conflict of Interest: None Stated*

**How to cite this article:** Modi NP, Das DK, Shukla S. Clinico-psychiatric profiles of children with self-harm poisoning. *Indian J Child Health.* 2015;2(1):15-7.