Research Article

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A prospective study of suicidal intended poisonings among rural children and adolescents from Mandya district, Karnataka

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ABSTRACT

Background: Aims & objectives of this study were to study the demographic characteristics, clinical presentation & immediate outcome of suicidal intended poisonings among rural children & adolescents from Mandya district, Karnataka.

Methods: One year prospective study was conducted between December 2013 to December 2014. Data was collected from all children from age 5-18 years who presented to emergency department with history of poisoning with suicidal intention.

Results: A total of 32 children presented with suicidal intended poisonings, among which girls constituted 84.3% and boys 15.6%. 60% of poisonings were seen between the age group 16-18 years, followed by 31.2% in age group between 11-15 years. 59.3% were from lower class of socioeconomic status. In all cases, the route was oral. Most common poison encountered were insecticides, as seen in 53.1%, followed by drugs as seen in 34.3%. 65.6% of cases were symptomatic. Most common symptoms were vomiting in 71.4%, followed by pain abdomen in 33.3%. Specific antidote was given in 40.6% of the cases. Most common reason which triggered the suicidal intention was parental scolding as seen in 37.5%, followed by low marks in exam as in 25%, love affair in 21.8% and sibling rivalry in 12.5%. Psychiatric counseling was carried out in all cases. There was no mortality observed during the study period. **Conclusions:** Adolescent girls, with low socioeconomic status were found to be at an increased risk of suicidal tendencies. Parental support during adolescence is very important in prevention of triggering suicidal intention, especially in girls.

Keywords: Adolescents, Organophosphorous, Suicide

INTRODUCTION

"Suicide is defined as a self-inflicted death with evidence which is either explicit or implicit, suicide attempt is defined as self-injurious behavior with a non-fatal outcome accompanied by evidence which is either explicit or implicit and deliberate self-harm is willful self-inflicting of painful, destructive or injurious acts without intent to die".¹ "Completed suicide is a self-injurious behavior that has the consequence of death, which must be accompanied by at least some intent to die, as a result of the behavior".²

Suicide is among the top 3 causes of death among youth worldwide. According to the WHO, every year, almost one million people die from suicide and 20 times more people attempt suicide; a global mortality rate of 16 per 100000, or one death every 40 seconds and one attempt every 3 seconds, on average. Suicide worldwide was estimated to represent 1.8% of the total global burden of

disease in 1998; in 2020, this figure is projected to be 2.4%. India ranks 43 in descending order of rates of suicide with a rate of 10.6/100000 reported in 2009.³

Childhood and adolescence is a vulnerable age, both physically and psychologically. Children and adolescents face a lot of emotional and internal conflicts in life. They have a lot of growing dreams and aspirations. When any of their dreams or aspirations are disturbed, adolescents can become rebellious and in extreme cases, attempt suicide.

Factors that increase the risk of suicidal tendency include:

- Psychological disorders like depression, bipolar disorder, and alcohol and drug use
- Feeling of hopelessness and frustration
- Emotional, physical or sexual abuse
- Broken family & poor bond with parents
- Family history of depression or suicide
- Poor relationships with peers and feeling of social isolation

Girls are emotionally more prone for suicidal intention due to their impulsive behavior when compared to boys. Suicidal attempt is more common in girls which is attempted to threaten their parents whereas completed suicide is common in boys.

It is evident from research that attempted suicide is more common than completed suicide. There is an alarming increase in the number of suicides and attempted suicides in rural areas.

There are not many studies in India which focuses suicidal problem in rural children and adolescents. Hence, this study is undertaken to study the sociodemographic characteristics, clinical presentation and immediate outcome of poisonings in children and adolescents with suicidal intention.

METHODS

Setting: This study was carried out in Pediatric department of Adichunchanagiri Institute of Medical sciences, B.G Nagara, Karnataka.

Design: This is a hospital based prospective study which was conducted between December 2013 to December 2014.

All children between 5-18 years of age, who presented with history of deliberate poisoning with suicidal intention were included in the study. Exclusion criteria included accidental consumption and children with mental retardation. A written informed consent was taken from all the included patients.

Data was collected using a specially designed proforma documenting socio demographic details, mode of suicide, reason and precipitating factors for suicide, clinical presentation at the time of admission, treatment, immediate outcome and associated psychiatric illness. Modified Kuppusamy classification was used for determining the socio economic status as all the subjects were from rural background.

All patients enrolled for the study were discussed with a qualified psychiatrist in the department.

RESULTS

This study included a total of 32 cases with suicidal intended poisonings, among which girls constituted 84.3% and boys 15.6% (Figure 1) (p value <0.05). Majority of poisonings were seen between the age group 16-18 years, followed by age group between 11-15 years (Table 1). Minimum age encountered was 8 years.



Figure 1: Sex-wise distribution of the cases.

Table 1:	Age wise	distribution	of the	cases.
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Age	No. of cases	%
5-10 years	1	3.1
11-15 years	10	31.3
16-18 years	21	65.6
Total	32	100

Majority (59.3%) were from lower class of socioeconomic status (p value <0.05) (Table 2).

Table 2: Socio economic class distribution.

Class	No. of cases	%	Total %	
Upper	1	3.1	3.1%	
Upper middle	1	3.1	27 5	
Lower middle	11	34.3	57.5	
Upper lower	14	43.7	50.2	
Lower lower	5	15.6	39.3	
Total	32	100	100	

92.8% of poisonings were attempted in home and 7.2% were attempted in school. 50% of cases presented to emergency department between 2-4 hours after consumption of poison (Table 3). In all cases, the route was oral.

Table 3: Time of arrival to hospital.

Time	No. of cases	%
0-1 hour	1	3.1
2-4 hours	16	50
5-10 hours	11	34.3
>10 hours	4	12.5
Total	32	100

Most common poison encountered were insecticides, as seen in 53.1%, followed by drugs as seen in 34.3%, rodenticide in 6.2%, hydrocarbon & corrosive in 3.1%. Among the insecticides, most commonly encountered poison was organophosphorous compounds as seen in 52.9%, followed by pyrethroids in 35.2% and fungicides in 11.7 (Figure 2).



Figure 2: Type of poisons encountered.

Among the drugs, NSAIDS constituted 36.3%, followed by anti-epileptics in 27.2%, anti-helminthic drugs and Ayurvedic tablets in 18.1% each, oral hypoglycemic agents, antacids, anti-hypertensive agents and antispasmodic agents in 9% each.

65.6% of cases were symptomatic, out of which 66.6% had symptoms within $\frac{1}{2}$ hour of ingestion of poison. Most common symptoms were vomiting in 71.4%, followed by pain abdomen in 33.3% (Table 4).

Table 4: Clinical presentation of the cases.

		No. of cases	%
No symptoms		11	34.3
Symptoms		21 (total)	65.6
- Vomi	ting	15	
- Pain	abdomen	7	
- Synce	ope	2	
- Naus	ea	2	
- Giddi	ness	1	

Specific antidote was given in 40.6% of the cases. Most common reason which triggered the suicidal intention was parental scolding as seen in 37.5%, followed by low marks in examination as in 25%, love affair in 21.8% and sibling rivalry in 12.5% (Figure 3).





Psychiatric counseling was carried out in all cases. 28.1% had co morbid psychiatric illness, out of which adjustment disorder was more common, as seen in 66%, followed by depression as seen in 30%. 4 patients had more than one co-existing psychiatric illness (Table 5) There was no mortality observed during the study period.

Table 5: Psychiatric illness association.

	No. of
	cases
No psychiatric illness	23
Adjustment disorder	6
Depression	5
Borderline personality	2
Alcohol dependence	1

DISCUSSION

A total of 32 cases of suicidal intended poisonings were included in the study. The commonest age group involved was 16-18 years which is in similar to study done by Lalwani et al where the commonest age group seen was 15-18 years. This is similar to the other studies.^{6,7} In our study, minimum age involved was 8 years. There was a significant difference in sex involved. Females were found to be most vulnerable for suicidal intent. Girls constituted 84.3% and ratio of girls:boys seen was 5.4:1. Similar difference in gender is seen in many other studies.^{5,8,9} This is in contrast to the study done by Sharma et al., where predominance was seen more in boys.

Poisoning cases were seen more in lower class which is in par with study done by Kumar et al, where poisoning was seen more in lower socio economic status families. In our study, most common poison used were insecticides (53.1%). Among the insecticides, most commonly encountered poison was organophosphorous compounds as seen in 52.9%, followed by pyrethroids in 35.2% and fungicides in 11.7%. This reflects the easy availability of insecticides in rural areas, as farming is the major occupation. Next to insecticides, drugs were most commonly encountered (34.3%) out of which NSAIDS constituted the majority as seen in 36.3%. Wide use of NSAIDS for all ailments attributes to the easy availability of these drugs in home. Most common symptom seen was vomiting as in 71.4% and pain abdomen in 33.3%.

Specific antidotes like atropine, pralidoxime, vitamin K, N-Acetyl cysteine was given in 40.6% of the cases. Family history of suicidal attempt was seen in one child. In our study, the most common reason triggering suicide encountered was parental scolding as seen in 37.5% followed by low marks in exam as seen in 25%. This is in contrast with other studies where love failure and failure in exam were most encountered reasons.^{8,9} Psychiatric counseling was carried out in all cases and majority of attempts (71.8%) were found to be impulsive acts due to acute emotional crisis. Co-morbid psychiatric illness was seen in 9 cases, out of which 4 cases had more than one co-existing psychiatric illness. Alcohol dependence was seen in one boy.

CONCLUSION

Adolescent girls, with low socioeconomic status were found to be at an increased risk of suicidal tendencies. Common mode of attempting poisoning in rural areas is poisoning due to ingestion, as there is an easy availability of insecticides and NSAID drugs. Parental support during adolescence is very important in prevention of triggering suicidal intention, especially in girls. Schools and colleges should also be encouraged to provide support regarding adolescent emotional problems and should create awareness regarding prevention of suicidal tendencies in adolescents.

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