

## ORIGINAL ARTICLES

# STRESS AND SUICIDAL IDEAS IN ADOLESCENT STUDENTS IN CHANDIGARH

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### ABSTRACT

**BACKGROUND AND OBJECTIVES:** School students in India have a high stress level and high rate of deliberate self-harm. The present study was conducted to find out stress, psychological health, and presence of suicidal ideas in school students and to find out any correlation between these variables. **SETTING AND DESIGN:** Cross-sectional study conducted on school students in urban area of Chandigarh city. **MATERIALS AND METHODS:** Data was collected on 2402 students from classes VII to XII on socio-demographic scale, 12-item general health questionnaire, Mooney problem checklist, and suicide risk eleven -a visual analogue scale. Statistical analysis used was chi square and Spearman's correlation. **RESULTS:** Out of 2402 students, 1078 (45.8%) had psychological problems, half (1201 students) perceived problems in their role as students, 930 (45%) reported academic decline, 180 (8.82%) students reported that life was a burden, 122 (6%) reported suicidal ideas and 8 (0.39%) students reported suicidal attempt. There was significant correlation between student's perception of life as a burden and class they were studying, mother's working status, psychological problems and problems students experienced in relation to study, peers, future planning and with parents. **CONCLUSIONS:** Students with academic problems and unsupportive environment at home perceived life as a burden and had higher rates of suicidal ideations.

**Key words:** Academic stress, adolescents, relation with parents, suicidal ideas

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### INTRODUCTION

Well-being of adolescents is largely the product of interactions among the multiple contexts in which adolescents are embedded.<sup>[1]</sup> In India

there is heavy academic and social pressure that results in negative emotional states and more internalizing problems.<sup>[2]</sup> In many studies of deliberate self-harm, academic pressure was found to be associated with suicidal ideas and occurrence of deliberate self-harm.<sup>[2-4]</sup>

Suicide is considered to be the second most common cause of death in adolescents in industrialized countries, and high rates are reported from India as well.<sup>[5,6]</sup> The present study

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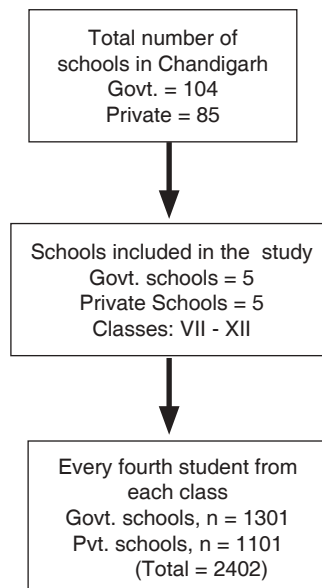
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was planned to determine levels of stress in school students, their psychological health, and prevalence of suicidal ideas among them and any correlation between these variables.

## MATERIALS AND METHODS

This was a cross-sectional study carried out on school students of Chandigarh after obtaining approval of the research and ethics committee of the institute. Ten schools of Chandigarh were randomly selected for the study. In order to have representative sample, the city was divided into 5 zones, and one government school and one private school were included from each zone. The students in government and private schools differ in their socioeconomic status because of the huge difference in fee structure. Approval of the District Education Officer was taken, and subsequently school principals were contacted. Written informed consent from parents of students was obtained with the help of class teachers. Students from classes VII to XII formed the study sample. The sample size was calculated using the formula for optimality of sample size, i.e.,  $N = (1.96)^2 pq / L^2$ , where prevalence was taken as 12%; and permissible error, 10%. This gave a sample size of 2800 students. A systematic sampling was done wherein from each section of the class, students were selected according to roll number provided by the school. In all the schools, roll numbers were arranged serially. From each section of a class, every fourth student was selected. This led to a sample of 200 to 300 students from each school [Figure 1]. All private schools were coeducational schools, and one government school was only for girls. Inclusion criterion was that the student should have been attending



**Figure 1:** Sampling method

school regularly for the last 6 months. Details of academic performance of the student were taken from the school records, as well as by interviewing students. A decrease of at least 20% in the marks over a period of 3 years was taken as academic decline. Socio-demographic details were noted. Students were assessed in the school setting itself after giving them introduction about the scales; students took about 30 minutes to complete the questionnaires.

## Tools

General health questionnaire (GHQ) — 12 items<sup>[7]</sup> (Hindi version). It is a scale used for screening of psychological problems. A cut off score of 2/3, which gives sensitivity of 96.7% and specificity of 90%, was used.<sup>[8]</sup>

Mooney problem checklist (MPC), high school form (Mooney RL, 1950), revised by Joshi, 1970, was used to assess the nature of

stress.<sup>[9]</sup> This is a 40-item scale, translated from English into Hindi by Joshi. It assesses 4 areas: A) problems teenagers have in relation to their parents, B) problems that arise in their role as students, C) problems that involve their peer relationship and D) problems that arise as they plan for their future. This is a Likert type scale. Each area has 10 items. Scores were summed up for each problem area, and average for each problem was calculated to find out the severity of stress. An item with a mean rating of 2.0 or more was considered stressful. A rating of 20 on each subscale is taken as cutoff to assess the perceived problem.

Suicide risk eleven (SRE).<sup>[10]</sup> This is a visual analogue scale by Verma *et al.* (1998), developed in the Department of Psychiatry, PGIMER. It is a self-administered scale. It has items ranging from "It is a sin to commit suicide," "I do not have suicidal thoughts" to "I have tried suicide many times."

For statistical analysis, Chi-square with Fisher's correction and Spearman's correlation were done using SPSS version 13.

## RESULTS

A total of 2402 students from classes VII to XII were included. The number of students from government and private schools was 1301 and 1101, respectively. There were 393 (16.4%) students from class VII, 467 (19.4%) from class VIII, 429 (17.9%) from class IX, 446 (18.6%) from class X, 352 (14.7%) from class XI and 315 (13.1%) from class XII.

There were 1371 (57.1%) boys and 1031 (42.9%) girls. There were 55, 211, 310, 396, 382, 320, 261 and 104 subjects, respectively, from every year of age starting from 12 years

to 19 years. Five hundred thirty-nine (22.4%) fathers were doing their own business or had agriculture as profession, while 1636 (68.1%) were doing a job. Mothers of 1834 (76.4%) students were housewives. One hundred seventy-nine (7.5%) children were the only child to their parents, 1436 (59.8%) were from nuclear family, 1632 (67.9%) were Hindus, 677 (28.2%) were Sikhs, 203 (8.5%) students reported medical illness and 1321 (55%) students reported no academic decline.

### Missing data

In GHQ, MPC and SRE, data of 49 (2%), 8 (0.3%) and 363 (15.1%) students, respectively, were missing. Students whose data were missing on SRE did not differ statistically with rest of the sample on the aspects of mother's working status, siblings and academic decline. These were treated as missing in analysis, and the valid number of observations available for analysis is presented in the tables.

### Psychological problems

On GHQ, 1078 (45.8%) students scored above cutoff, indicating psychological problems. SRE data were available for 2039 students; and on Mooney problem checklist, out of 2402 students, data were available for 2394 students. As many as 1196 (49.8%) students scored above cutoff on Factor B, which taps problem students' face in school. In addition, 913 (38.14%) students scored above cutoff on Factor D, which indicates stress as they plan for future; 583 (24.4%) students found relationship with parents stressful (Factor A); while 386 (15.4%) students found peer relationship stressful (Factor C).

### Suicidal ideas

A total of 1729 (84.8%) students reported

no suicidal ideation, whereas 180 (8.82%) reported life as a burden, 122 (6%) expressed suicidal ideation and 8 (0.39%) reported suicidal attempts. It was found that there was no difference with regard to age, sex, father's occupation, siblings, family type, religion and the aspect of having medical illness between students reporting no suicidal ideation and the students reporting life as a burden, suicidal ideation and suicidal attempts. Significantly more students from classes VIII, X and XI reported suicidal ideas, whereas more students from classes X and XII reported life as a burden. Similarly, life as a burden was reported by a statistically significant number of students of working mothers. The number of children with academic decline was significantly

different statistically from the number of rest of the students on the aspects of life being felt a burden ( $\chi^2= 15.7$ ,  $P< 0.0001$ ) and suicidal ideas ( $\chi^2= 23.7$ ,  $P < 0.0001$ ). However, there was no significant difference on academic decline between students that had no suicidal ideas and those with suicidal attempts ( $\chi^2= 0.095$ , not significant). On all factors of MPC, students scoring above cutoff reported statistically significant scores on burdensome life, suicidal ideas and suicidal attempts [Table 1].

**Spearman's correlation** was applied to SRE, GHQ and MPC. All the factors were highly correlated with SRE, and the highest correlation was for GHQ, followed by peer relationship (MPC-C), relations with their parents (MPC -A),

**Table 1: Comparison of variables associated with risk of suicide**

Variables	(n)	No suicidal ideas n=1729 n(%)	Life is a burden n= 180 n(%)	Suicidal ideas n=122 n(%)	Suicidal attempt n=8 n(%)	$\chi^2$	Sig
Class	7 (288) 8 (389) 9 (381) 10 (376) 11 (321) 12 (284)	258 (89.58) 324 (83.3) 311 (81.62) 311 (82.7) 278 (86.6) 247(86.9)	14 (4.68%) 35 (8.99) 38 (9.97) 38 (10.1) 27 (8.41) 28 (9.85)	16(5.55%) 26(6.68) 32(8.39) 24 (6.38) 15 (4.67) 9 (2.8)	0 4(1.02) 0 3 (0.79) 1 (0.31) 0	26.9	0.03
Mother's working status	Nonworking (1563) Working 388 (81.5)	1341 (85.24)	122 (7.9)	94 (6.01)	6 (0.38)	8.74	0.03
Academic decline	Yes (930) No (1109)	742 (79.78) 987 (88.99)	105 (11.29) 75 (6.76)	80 (8.6) 42 (3.78)	3 (0.32) 5 (0.45)	36.6	0.0001
MPC-A	<=20 (1495) >20 (539)	1310 (87.62) 416 (77.17)	112 (7.49) 66(12.24)	68 (4.54) 54 (10.01)	5 (0.33) 3 (0.55)	35.5	0.0001
MPC-B	<=20 (967) >20 (1067)	872 (90.1) 854 (80.03)	60 (6.2) 118(11.05)	30 (3.1) 92 (8.62)	5 (0.51) 3 (0.28)	46.2	0.0001
MPC-C	<=20 (1697) >20 (337)	1480 (87.27) 246 (72.99)	129 (7.6) 49 (14.54)	81 (4.77) 41 (12.16)	7 (0.41) 1 (0.29)	47.8	0.0001
MPC-D	<=20 (1216) >20 (818)	1084 (89.14) 642 (78.4)	65 (5.34) 113(13.81)	63 (5.18) 59 (7.21)	4 (0.32) 4 (0.48)	50.3	0.0001
GHQ	0-2 (1050) >2 (954)	962 (91.6) 734 (76.93)	57 (5.42) 123(12.89)	30 (2.85) 91 (9.53)	1 (0.09) 6 (0.62)	84.7	0.0001

planning for future (MPC-D), and as students (MPC-B) [Table 2].

## DISCUSSION

In the present study, we have tried to assess problems students face in dealing with various areas of their life. Results show that half of the students in the sample found study and related issues as problems, which was tapped by the items of Factor B of MPC, which measures academic performance of students. Academic decline over a period of 3 years was reported by 45% of the students in our study. This is significant when seen in the light of the finding in one of the earlier studies where academic decline was associated with 5 times higher risk of deliberate self-harm.<sup>[11]</sup> In another large study ( $n=5759$ ), increased risk of occasional self-harm was reported with lower academic achievement in 15-year-old students.<sup>[12]</sup> In Indian studies, academic problems were reported to be associated with deliberate self-harm<sup>[13]</sup> and more stress.<sup>[14,15]</sup> In a study of completed suicides in adolescents from Delhi, 56% of the suicides occurred in the months from March to July.<sup>[16]</sup> These months correspond to announcements of results, entrance into college and beginning of new academic session. Similar trend was reported from Tamil Nadu.<sup>[14]</sup>

In the present study, 38.4% of the students reported problems related to their future planning. The areas relating to future planning, which were tapped by using MPC-D, were decisions regarding choice of subject, college, career, lack of clarity about future planning and confidence in dealing with future issues, including college and job.

One fourth of the students reported problems in relation to their parents on subscale A of MPC. The issues assessed on subscale 'A' included frequent arguments among parents, criticizing and interfering attitudes of parents, disagreement between student and parent, poor trust, high expectations and lack of guidance. In earlier studies also, disturbed interpersonal relationship with parents was associated in 77% of adolescents with deliberate self-harm,<sup>[14,18]</sup> and higher stress in three quarters of suicidal adolescents.<sup>[17]</sup> In another study from Delhi, physical abuse and feeling neglected by parents were found to be significant risk factors for suicidal behaviors.<sup>[19]</sup>

Subscale C of MPC assesses students' peer relationships in various areas, including heterosexual relationships; dating behavior; unreciprocated love; dislike by peers; and lack of trust in relationships, which is necessary for getting realistic feedback on shortcomings. In an earlier study, failure in love was reported by 11% of adolescents that attempted deliberate self harm.<sup>[14]</sup> Friendship patterns were found to be correlated with suicidal ideas in a large study on American adolescents.<sup>[20]</sup>

In our study, 8.82% of the students reported feeling life was a burden, 6% of the students reported suicidal ideas and 0.39% reported deliberate self-harm. This prevalence is lower

**Table 2: Spearman's correlations**

	SRE	MPC-A	MPC-B	MPC-C	MPC-D	GHQ
SRE	1.000 (2039)	0.155** (2034)	0.130** (2034)	0.162** (2034)	0.141** (2034)	0.231*** (2004)
MPC-A		0.548** (2394)	0.600** (2394)	0.441** (2394)	0.287** (2347)	
MPC-B			0.524** (2394)	0.494** (2394)	0.331** (2347)	
MPC-C				0.531** (2394)	0.346** (2347)	
MPC-D					0.256** (2347)	

Figures in parentheses are valid numbers. \*\*Correlation is significant at the 0.01 level.

when compared with the figures of prevalence in other Indian studies, where prevalence ranging from 12% to 21.7% is reported.<sup>[18,21]</sup> In a large study from Guyana, 18.4% of students considered suicide in the last one year.<sup>[22]</sup> In another study from Nigeria, suicidal ideas were reported in 20% of the students, and suicidal attempt, in 12%.<sup>[23]</sup> The low prevalence of suicidal ideas and attempt in our study could be because suicidal ideas were assessed through a visual analogue scale where various options were provided rather than a yes/ no answer. This gives more options to individuals to accurately state what they are experiencing. In the present study, there was no significant difference between boys and girls; though in earlier studies, a higher prevalence among girls has been reported.<sup>[22,24]</sup>

In our study, working status of mother was statistically significant for 'life felt to be a burden' and 'suicidal ideas.' Sharma *et al.* also reported correlation of mother's working status with suicidal ideas in a study conducted in Delhi.<sup>[21]</sup> This finding indicates that students whose mothers are working find it difficult to cope with problems of student life. In an earlier study, having close friends and understanding parents was negatively associated with suicide ideation.<sup>[22]</sup> Similar conclusion was drawn in a study from Hong Kong, where altering immediate family environment was noted to bring about improvement in the functioning of adolescents with suicidal behavior.<sup>[17]</sup> The present study also found that almost half of the students suffered from psychological problems as assessed by GHQ, and GHQ scores were correlated significantly with SRE scores and all four factors of MPC.

However, there has not been any systematic review of risk of suicide among students in India. The available studies have employed different methodologies and have studied subjects of different ages. Hence it is not possible to put all the findings together to reach a common figure for the country.

The present study has attempted to investigate a very important area, viz., risk of suicide among students, using a sound methodology with a large sample size. However, the study has certain limitations; including cross-sectional design, which limits its utility to report on examination-related stress, as well as seasonal variation in emotional disturbances and resultant suicidal risk. The present study did not assess many other factors, like use of drug and alcohol, sexual abuse and recent anticipated or real loss. All these factors can contribute to emotional distress. Future research should focus on these variables using prospective design.

## CONCLUSION

The study reports high rates of academic decline among students, and this decline is significantly correlated with the feeling of 'life is a burden' and suicidal ideations. The students with suicidal attempt appear to be a separate category requiring detailed assessment of psychological problems. Also, the study highlights the fact that relationship with peers and parents is a significant determinant of psychological health. Taken together, the findings strongly highlight the need of regular assessment of mental health of students in order to identify psychological, behavioral and relationship-related issues among students and design effective interventional strategies.

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