



Perceived Stress among Adolescent School Students in Hubli: A Cross-Sectional Study

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ABSTRACT

Background: Psychological morbidity in children and adolescents is high. The present study was done to assess the level of perceived stress and psychological morbidities among secondary school students.

Methods: A cross-sectional study was done on 311 adolescent students in 9th and 10th classes of two government and two private schools in Hubli city, Karnataka. A validated and culturally adapted version of the 12-item general health questionnaire (GHQ-12) and perceived stress scale (PSS-10) was administered with Cronbach's alpha of 0.74. coGuide software was used for analysis.

Results: Out of 311 students, 159 (51.13%) were males; 50.5% were from government schools, 72.3% were from 10th class while 27.7% were from 9th class. On assessment by PSS-10 scale, 11.9% had low stress, 63.7% had average stress, and 24.4% were highly stressed. According to GHQ scale, 43.4% had evidence of distress while 50.2% had severe psychological distress.

Conclusion: There was a high prevalence of stress among school students. It calls for regular assessment by trained psychologists. Integration of mental health services with school health services is the need of the hour.

Keywords: Adolescent, Stress, School students, General Health Questionnaire (GHQ-12), Perceived stress scale (PSS-10)

INTRODUCTION

Stress can be simply defined as emotional disturbances or changes caused by stressors.¹ When an individual's ability to cope up with the daily demands of life is exceeded, the pressure created henceforth causes stress. The stress can be good or bad depending on the perception of the individual.^{2,5} They can either become demotivated (distress) or can perceive it positively (eustress). The adolescent period is characterized by a plethora of physiological and psychological changes. Stressors in the adolescent age group vary from increased physical, emotional, social, vocational, intellectual, and moral needs to a high intense academic race to survive in the current world. An optimal level of stress can enhance learn-

ing ability.³ But stress, which inhibits and suppresses learning, is called bad stress. The bad stress must be prevented and avoided. In a systematic review and meta-analysis, the global prevalence of common mental disorders in adolescents defined by general health questionnaire (GHQ-12) criteria of three or more symptoms was 31%⁶ The same stressors may be perceived differently by different students, depending on their cultural background, personality traits, experience, and coping skills. Stressed children show signs of emotional disabilities, aggressive behavior, shyness, social phobia, and often lack interest in otherwise enjoyable activities.³ Stress and anxiety in children and teenagers are just as prevalent as in adults.^{7,8} High expectations in academic activities and other performances, childhood abuse,

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negligence of parents and caretakers, broken families, peer group stress, problem families, and familial responsibility are some of the vital causes leading to stress in adolescents and school-going children. Previous studies have demonstrated that perceived stress is associated with premature death and also affects the quality of life.^{9,10} The importance of research on perceived stress suggests the need for valid and reliable instruments to measure and assess global perceptions of stress. Accurate measurement of psychological perceived stress is essential for a better understanding of the susceptibility and treatment of psychological distress. The Cohen Perceived Stress Scale (PSS) is one of the most widely used instruments for measuring psychological perceived stress. The PSS-10 was developed later from the original PSS-14 version, as it demonstrated comparable psychometric properties.^{11,12} Numerous studies have supported the validity and reliability of the Cohen PSS in a variety of samples.^{13,17} General health questionnaire (GHQ) is one of the most commonly used, validated, and refined scales for measuring mental health status.^{18,21} GHQ-12 is the most commonly used scale recently. Adolescents are less likely to recognize the symptoms of depression and do not give due importance to their health at this stage of their life. They are also less likely to receive the appropriate treatment and are more likely to adopt harmful lifestyle practices like smoking, alcoholism, addiction to drugs, and risk-taking behaviors. They are also at risk of developing suicidal tendencies and ideas with severe psychological stress if not counseled. There is a dearth of literature on psychological morbidity in adolescent school students in the city of Hubli. Hence, the present study was carried out with the objective of estimating the prevalence of perceived stress using PSS-10 and psychological morbidity using GHQ-12 among 9th and 10th Class students of government and private schools in Hubli city.

METHODS

A cross-sectional study was carried out amongst government and private school students of 9th and 10th standards over a period of two months from December 2014 to February 2015. The sample size was calculated using the formula $Z=4pq/12$. Using the prevalence of 15% and an allowable absolute error of 4%. The sample size was calculated to be 310 students. The permission for the study was obtained from the DDPI of Dharwad. The nature and the purpose of the study were explained. Out of several school enrolments in the Dharwad district, two government and two private schools were conveniently chosen for the study. All the students studying in the 9th and 10th classes present at the time of data collection were enrolled. A pre-designed and semi-structured questionnaire was used, and data was obtained by one on one interview basis.

The questionnaire consisted of three parts, 1) Socio-demographic details; 2) Screening of stress and psychological morbidity by GHQ-12 (General Health Questionnaire); and 3) In-depth assessment of stress levels by PSS-10 (Perceived Stress Scale 10).

GHQ-12 developed by Goldberg & Williams was administered to measure the evidence of stress/psychological distress in the individual during the past week involving all the dimensions of the health and is used as a screening tool for psychological morbidities.¹⁹⁻²¹ The questions were graded on a Likert scale with scores of 'better than usual'=0, same as usual =1, less than usual=2, much less than usual=3. The possible range of scores is 0-36. A total score of <15 is normal, 15-20 indicates evidence of distress, and that of >20 shows severe psychological distress. GHQ has been validated in several populations, including India.¹⁸⁻²¹

PSS-10 scale developed by Cohen S et al.^{11,12} is a globally validated psychological instrument scale.¹³⁻¹⁷ It is a 10-item scale that measures the degree to which situations in one's life are appraised as stressful during the past month. The subjects were required to choose from a scale of 5 alternatives 'never'=0, 'almost never'=1, 'sometimes'=2, 'fairly often'=3, 'very often'=4 relating to their feeling of being stressed on a 0-4 scale, the score of ≤12 is low stress, 13-20 is average stress, and >20 is high stress. The questionnaire was checked for reliability among Indian school adolescents using Cronbach's alpha. A value of 0.72 was obtained and was considered highly reliable. The questionnaire was administered by interview method after getting informed consent from parents and school authorities.

Statistical methods:

Prevalence of perceived stress measured using PSS-10 and prevalence of common mental disorders/psychological morbidity measured using GHQ-12 were considered as primary outcome variables. Gender, religion, school, and a class of study was considered as primary explanatory variable. Descriptive analysis was carried out by frequency and proportion for categorical variables. For normally distributed quantitative parameters, the mean values were compared between study groups using ANOVA. If a statistically significant difference was found in ANOVA, an appropriate post-hoc test (LSD/Tukey's HSD test) was used to assess the statistical significance of pair-wise comparisons. Categorical outcomes were compared between study groups using the chi-square test. P value <0.05 was considered statistically significant. The data collected was entered in a Microsoft Excel worksheet. Data was analyzed using coGuide software, V.1.03.²²

RESULTS

A total of 311 subjects were included in the final analysis.

Among the study population, 159 (51.13%) were male, and the remaining 152 (48.87%) were female. Out of 311 participants, the majority of 74.28% were Hindu religion, 50.48% from government schools, 72.35% were in class 10th standard. As per the PSS-10 scale, 11.89% of students had low stress, 63.67% average stress, and 24.44% were highly stressed. According to the GHQ scale, 6.43% of students' normal, 43.41% evidence of distress, and 50.16% had severe psychological distress; 37 (11.9%) reported loss of parents, 146 (46.95%) facing economical difficulty, 25 (8.04%) experienced parental fights, and 51 (16.4%) encountered punishment. (Table 1)

The difference in gender across the perceived stress scale was found to be insignificant with p value of 0.531, where the majority of 101 (66.45%) female participants reported average distress. There was a statistically significant difference in baseline parameter like religion (P value= <0.001), school (p value =0.047), and a class of study (p value 0.003) across the perceived stress scale. All religions reported average stress as high proportion, both government and private schools reported average stress as majority as per the class of average study stress was more in students and high stress was followed by it. (Table 2)

There was a statistically not significant difference in the type of school (p value =0.567) and a class of study (p value 0.786) across the general health questionnaire scale stress report. Physiological distress was high as 52.23% in a government school and 48.05% in private schools; 9th class students and 10th students reported psychological distress majorly as 47.67% and 51.11%, respectively. (Table 3)

A statistically significant difference in the mean PSS-10 scale reported between private schools Vs. government for 9th class, 9th government Vs. 10th private schools, 9th and 10th government school children as p value <0.001 .

Table 1: Summary of baseline parameters (N=311)

Parameter	Participants (%)
Gender	
Male	159(51.13)
Female	152(48.87)
Religion	
Hindu	231(74.28)
Muslim	55(17.68)
Others	25(8.04)
School	
Government	157(50.48)
Private	154(49.52)
Class of study	
9 th	86(27.65)
10 th	225(72.35)
PSS 10	
Normal	37(11.89)
Average stress	198(63.67)
High stress	76(24.44)
GHQ scale	
Normal	20(6.43)
Evidence of distress	135(43.41)
Severe psychological distress	156(50.16)
Reason for stress	
Loss of parents	37(11.9)
Economically difficulty	146(46.95)
Parental fights	25(8.04)
Punishment	51(16.4)

Table 2: Baseline parameter across various categories of perceived stress scale (N=311)

Parameter	Perceived Stress Scale			P value
	Normal	Average Distress	Stressed	
Gender				
Male(N=159)	19 (11.95%)	97 (61.01%)	43 (27.04%)	0.531
Female(N=152)	18 (11.84%)	101 (66.45%)	33 (21.71%)	
Religion				<0.001
Hindu(N=231)	20 (8.66%)	145 (62.77%)	66 (28.57%)	
Muslim(N=55)	7 (12.73%)	42 (76.36%)	6 (10.91%)	
Others(N=25)	10 (40%)	11 (44%)	4 (16%)	
School				0.047
Government (N=157)	20 (12.74%)	108 (68.79%)	29 (18.47%)	
Private (N=154)	17 (11.04%)	90 (58.44%)	47 (30.52%)	
Class of study				0.003
9 th (N=86)	18 (20.93%)	54 (62.79%)	14 (16.28%)	
10 th (N=225)	19 (8.44%)	144 (64%)	62 (27.56%)	

Table 3: Comparison of School and Class of study across general health questionnaire scale (N=311)

Parameter	General Health Questionnaire Scale			P value
	Normal	Evidence of Distress	Psychological Distress	
School				0.567
Government (N=157)	10 (6.37%)	65 (41.4%)	82 (52.23%)	
Private (N=154)	10 (6.49%)	70 (45.45%)	74 (48.05%)	
Class of study				0.786
9 th (N=86)	5 (5.81%)	40 (46.51%)	41 (47.67%)	
10 th (N=225)	15 (6.67%)	95 (42.22%)	115 (51.11%)	

Table 4: Comparison of mean school and Class of study across PSS 10 scale (N=311)

Parameter	Mean \pm SD	Mean difference \pm SE	P Value
Private 9 th v/s govt 9 th	18.20 \pm 3.20 v/s 14.22 \pm 3.88	3.973 \pm 0.84	0.000
Private 9 th v/s private 10 th	18.20 \pm 3.20 v/s 19.03 \pm 4.34	-0.839 \pm 0.70	0.236
Private 9 th v/s govt 10 th	18.20 \pm 3.20 v/s 18.17 \pm 3.60	0.021 \pm 0.71	0.977
Govt 9 th v/s private 10 th	14.22 \pm 3.88 v/s 19.03 \pm 4.34	-4.812 \pm 0.68	0.000
Govt 9 th v/s govt 10 th	14.22 \pm 3.88 v/s 18.17 \pm 3.60	-3.952 \pm 0.69	0.000
Private 10 th v/s govt 10 th	19.03 \pm 4.34 v/s 18.17 \pm 3.60	0.860 \pm 0.51	0.099

Private 9th and 10th, private 9th government 10th, 10th class private and government students have not reported a statistically significant difference in PSS-10 scale as p value =0.23, 0.97 and 0.09 respectively. (Table 4)

DISCUSSION

Mental health is an integral part of health. It does not merely mean the absence of mental disease. Depression and anxiety are the most common mental health problems faced by adolescents.²³ The present study reports the prevalence of perceived stress measured by the PSS-10 scale and psychological distress measured by the GHQ-12 scale. There was a high prevalence of perceived stress among school students. According to the PSS-10 scale, 11.9% had low stress, 63.7% had average stress, and 24.4% were highly stressed. According to the GHQ scale, 43.4% had evidence of distress, while 50.2% had severe psychological distress. Factors significantly associated with various categories of classification of stress according to PSS-10 were the type of religion, type of school, and class of study. The statistically significant difference in mean PSS-10 scale score was reported between private Vs. government schools for 9th class, 9th government Vs. 10th private schools, 9th Vs. 10th government school children (p value<0.001) in the present study.

Adolescence is a period involving many psychosocial and physiological changes. The period of adolescence is specifically manifested by significant changes in hypothalamic-pituitary-adrenal (HPA) activity. This, in turn, results in sharp stress-induced hormonal responses.³ In the present study, there was a fairly equal distribution of male (51.13%) and female students. The prevalence of stress and anxiety has been reported to be high among female adolescent students in the literature.^{24,25} This could be due to increased responsibilities and expectations on males. Also, the national programs are focused on adolescent girls compared to boys. But in the present study, there was no significant difference between male and female students with respect to the categorization of perceived stress. The Cohen PSS categorized the 311 subjects as low stress, average stress, and highly stressed. 40 was the maximum score that could be obtained on this scale, with scores of \leq 12 denoting low stress, 13-20 is average stress, and $>$ 20 is high stress. 24.4% of the students were highly stressed in the present study. Similar to the present study, the prevalence of stress was 21.1% in 830 higher sec-

ondary school students of Imphal in the study by Kumar KS et al.²⁴

The prevalence of low stress was 135 (30.33%), moderate stress was 177 (39.78%), and severe stress was 133 (29.89%).

The prevalence of low stress was 135 (30.33%), moderate stress was 177 (39.78%), and severe stress was 133 (29.89%) and was slightly more among males than female.

In a similar study done by Vijay C et al.²⁵ in Bangalore using PSS, the prevalence of low stress was 30.3%, moderate stress was 39.8%, and severe stress was 29.9%. In the present study, 11.9% had low stress, 63.7% had average stress, and 24.4% were highly stressed. The prevalence of moderate stress was significantly higher in the present study compared to their study. This could be due to age differences across the study population. The present study included only school students of the 9th and 10th standard, while their study included adolescents between the 7th to 12th standard. In another study, all three categories of low, moderate, and high stress had a fairly equal distribution of adolescent school students.²⁶

Type of religion, type of school, and class of the study were significantly associated with various categories of classification of stress according to PSS-10 in the present study. In the present study, 50.5% were from government schools, and 72.3% were from 10th Class. The burden of academic success, expectations from family, and peer pressure in private schools could have resulted in more students perceiving high stress than government schools. Students in the tenth standard tend to perceive more stress compared to the ninth standard because of the public exams. Also, in Hindu families, academic expectations could have been more stressful compared to other religions. Similar to the present study, the type of school, educational status of the parents, and working mother had shown significant association with girls with mental health problems in a study on adolescent school girls.²⁷

The 48.78% of adolescent school-going girls had common mental disorders by GHQ-12 in the study by Mangal A et al. in Gujarat.²⁷ In the present study, according to the GHQ scale, 43.4% had evidence of distress, while 50.2% had severe psychological distress. GHQ scale has 12 items with a maximum possible score of 36, with each item ranked between 0 to 3. A score of 15-20 indicates evidence of distress, and that of $>$ 20 indicates severe psychological distress;

43.6% had mental health problems in the study by Panesar S et al.²⁸ Their study observed higher GHQ-12 scores in young age adolescents (53.3%), ninth standard students (65.4 nuclear family, higher socio-economic classes, and history of exposure to mental health programs previously. However, in the present study, type of school and class of study were not significantly associated with various categories of classification of distress according to the GHQ scale. A similar study was done by Mangal A et al.²⁷ also support these findings. In developing countries like India, the mental health of children is not adequately taken care of. Adolescent mental health is an issue of more serious concern. Besides, the stigma associated with mental illness in various cultures in India, limits access to healthcare services. If untreated, they can severely influence children's development and also affect their potential to lead fruitful and productive lives.

The present study was limited by the fact that it was a cross-sectional study. Hence, dependence on memory for recall and the subjective perception of stress could have affected the outcome of the present study. The sampling was also only convenient because of practical constraints. Hence, generalizability and external validity of the present study findings are limited.

CONCLUSION

There was a high prevalence of perceived stress and psychological distress among adolescent school students, especially in private schools and in children belonging to the 10th standard. There is a need to incorporate "Life skills" education as part of the curriculum and training of school teachers. It also calls for regular assessment by trained psychologists along with the practice of stress reduction methods. Integration of mental health services with school health services is the need of the hour.

CONFLICT OF INTEREST

Nothing to disclose

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