Original Research Article

Depression, Anxiety and Stress among Junior Science College Students

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ABSTRACT

Background: Adolescence is a transitional stage marked by rapid changes in physical, cognitive and emotional development. Presence of conditions like depression, anxiety and stress at this age is a matter of concern. Teen stress is an important health issue.
Aims:
To study the depression, anxiety and stress among adolescent junior science college girls.
Methods and Material: A cross sectional study was conducted in a junior science college, 240 girl students in the age group of 16 to 18 years, was recruited for the study. Among them 87 students were day scholars and 153 students were hostellers.
Depression, anxiety and stress score (DASS 21) questionnaire was used to assess depression, anxiety and stress among the students. Sleep pattern of all the participants were sought. Statistical analysis was performed using SPSS version17.0.
Results: The scores in the three domains viz. depression, anxiety and stress (DAS) were found to be remarkably high. Depression and anxiety was more in students compared to stress. DAS score was found to be more in hostellers viz. depression (77.11%), anxiety (75.16%) and stress (45.08%) in comparison to day scholars, depression (72.39%), anxiety (67.8%) and stress (40.22%). Average sleep duration of less than 6 hours per day was observed in both hostellers and day scholars.
Conclusions: Educational institutions need to identify the prevalence of negative mental health states among students especially high risk students and preventive measures should be undertaken to reduce the mental stress.
Key words: Adolescent students, DASS - 21, academic stress, mental health, DAS.

INTRODUCTION

Academic stress is the most important cause of mental health problems in adolescents both in Asian as well as western countries. It affects thoughts, feelings and the behaviour of a person. Though some amount of stress is necessary for motivation and improves performance, overstress causes negative effects. [1] When stress becomes excessive, students experience physical and psychological impairment which results in anxiety, depression, social dysfunction and even suicidal ideation. [2,3] There is a direct link between stress and the immune system. Chronic stress is associated with suppression of both cellular and humoral immunity. [4] Poor immune functioning makes them prone to illness leading to reduced academic performance. [5] Neuronal

damage and hippocampal shrinkage has been observed in chronic stress. [6] This may lead to attention deficits and cognitive impairment which affects memory. This further increases the stress level in students. The adolescent junior science student population is vulnerable to stress due to tremendous competition in seeking admission into tertiary education. They undergo further stress as they tend to appear for entrance examinations for admission into specialised professional courses. [7] The pressure to prepare for examinations creates a high degree of anxiety among many students. Stress that starts in the student period may continue to adult life, which may lead to reduced work efficiency, increase in substance abuse and other maladaptive behaviours. [8]

MATERIALS AND METHODS

A cross sectional study was conducted in a junior science college, 240 girl students in the age group of 16 to 18 years, belonging to class 11th and 12th were recruited for the study. Among them 87 were day scholars and 153 were hostellers. A written consent was taken from the head of the college prior to the study. An informed consent was taken from each participant. The purpose of the study was explained to all the respondents and the maintenance of confidentiality of their scores were assured to them.

Depression, Anxiety and stress scale (DASS 21) questionnaire was used to assess depression, anxiety and stress among the students. The DASS 21 is a 21 item self report questionnaire designed to measure the severity of a range of symptoms of depression, anxiety and stress. In completing the DASS scale, the individual is required to indicate the presence of a symptom over the previous week. Each item is scored from 0 to 3. Scores of depression, anxiety and stress are calculated by summing the scores for the pertinent items. [9,10] As DASS 21 is a short form version of the DASS 42, a long form, the final score was calculated by multiplying each score by

two. The final score was compared to the DASS normative data scores. Statistical analysis was performed using SPSS version17.0. Arithmetic mean with standard deviation, confidence interval, standard error of mean, Variance and two-tailed p value were used for analysis.

RESULTS

The questionnaire was analyzed and results were tabulated and expressed as percentages. Scores were given to individual parameters according to their response in each item. The mean age of day scholars was 16. 966 ± 0.732 and hostellers was 16.529 ± 0. 753.

Based on the score ranges from the DASS manual, percentage of students having depression, anxiety and stress were classified into normal, mild, moderate, severe category.

Table 1: Distribution of DASS scores (%) among day scholar junior science college students (n= 87)

Subscale	Normal	Mild	Moderate	Severe
Depression	27.61	45.97	25.28	1.14
Anxiety	32.2	34.48	31.03	2.29
Stress	59.78	35.63	4.59	0

Table 1 depicts the distribution of depression, anxiety and stress among day scholar students. 72.39% of students showed signs of depression, 67.8% of students had anxiety and 40.22% of students had stress. It was observed that depression was more prevalent among the students in comparison to anxiety and stress. In all the three categories (DAS) it was noticed that majority of students had mild to moderate amount of depression, anxiety and stress. Very few percentages had severe scores.

Table 2: Distribution of DASS scores (%) among hosteller junior science college students (n = 153)

| Subscale	Normal	Mild	Moderate	Severe
Depression	22.89	45.09	32.02	0
Anxiety	24.84	43.79	29.41	1.96
Stress	54.92	37.90	7.18	0

The results of the DASS scores of hostellers are portrayed in Table 2. In hosteller too more percentage of students had depression (77.11%) followed by anxiety (75.16%) and stress (45.08%). Here

also majority of students showed mild to moderate DAS scores. Only 1.96% of students had severe anxiety whereas severe depression and stress was not found in any student.

Table 3: Statistical analysis of Depression scores among hostellers and day scholars

Depression Scores	Hostellers	Day Scholars
Sample size	153	87
Arithmetic mean	11.9673	11.7931
95% CI for the mean	11.4145 to 12.5201	10.9956 to 12.5907
Variance	11.9792	14.0032
Standard deviation	3.4611	3.7421
Standard error of the mean	0.2798	0.4012
Two-tailed probability	P = 0.7162	

The comparison of mean score with standard deviation, standard error of mean, variance and confidence interval of depression among day scholars and hostellers is depicted in Table.3. It was observed that depression was higher among those residing in hostel in comparison to students staying at home.
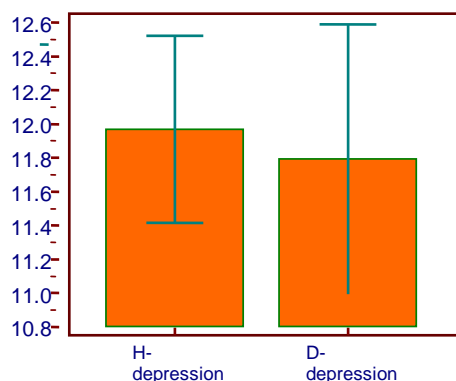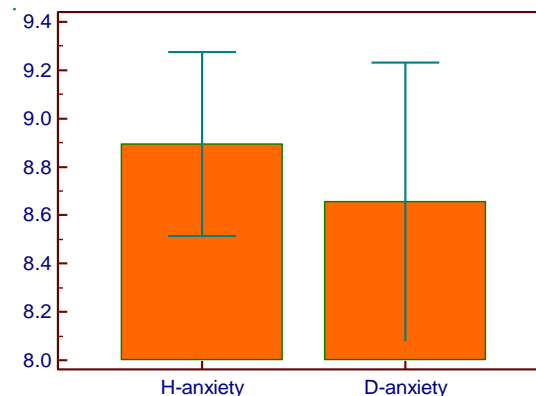

Figure 1: Comparison of mean scores of depression between hostellers and day scholar students.

Difference in mean scores of depression of hostellers and day scholars is portrayed in figure 1. It was observed that depression was higher among those residing in hostel in comparison to students staying at home.

Table 4: Statistical analysis of Anxiety scores among hostellers and day scholars

Anxiety Scores	Hostellers	Day scholars
Sample size	153	87
Arithmetic mean	8.8954	8.6552
95% CI for the mean	8.5145 to 9.2763	8.0776 to 9.2328
Variance	5.747	7.414
Standard deviation	2.3846	2.7101
Standard error of the mean	0.1928	0.2906
Two-tailed probability	P = 0.4761	

Table 4 shows the comparison of mean scores with standard deviation, standard error of mean, variance and confidence interval of anxiety between hostellers and day scholars. Anxiety scores too showed the similar pattern as depression.

Figure 2: Comparison of mean scores of anxiety between hostellers and day scholar students

Figure 2 shows difference in mean scores with standard deviation, standard error of mean, variance and confidence interval of anxiety of hostellers and day scholars. Anxiety scores too showed the similar pattern as depression.

Table 5: Statistical analysis of stress scores among hostellers and day scholars.

Stress Scores	Hostellers	Day scholars
Sample size	153	87
Arithmetic mean	12.6405	12.2644
95% CI for the mean	12.0316 to 13.2495	11.4679 to 13.0608
Variance	14.5344	13.9642
Standard deviation	3.8124	3.7369
Standard error of the mean	0.3082	0.4006
Two-tailed probability	P = 0.4600	

Comparison of mean scores of stress among day scholar and hostellers is depicted in table 5. Stress was found more in students residing in the hostel in comparison to students residing at home.

Figure 3 shows difference in mean scores with standard deviation, standard error of mean, variance and confidence interval of stress of hostellers and day scholars. Stress was found more in students residing in the hostel in comparison to students residing at home.

Sleep pattern of all the students were sought and it was found that average sleep duration was less than 6 hours per day for all the respondents i.e. residing in the hostel as well as day scholars.
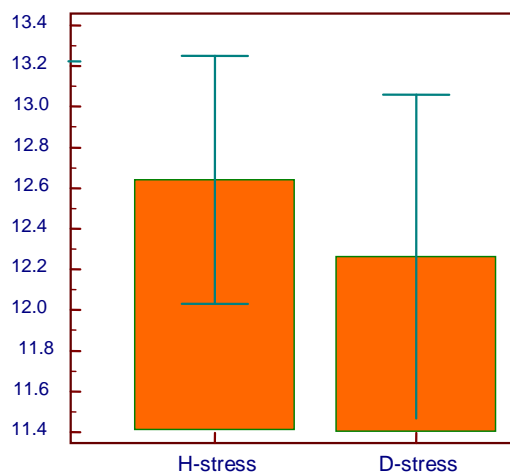

Figure 3: Comparison of mean scores of stress between hostellers and day scholar students.

DISCUSSION

A high proportion of the students were found to be having increased levels of depression, anxiety and stress. This may be due to the fact that students have to appear for many examinations and compete with other students to get a good rank. Maladjustment with other students, parental pressure and pressure by teachers could be other causes of a high score. Majority of students in junior colleges are new to this type of competitive environment which is completely different from that of schools. Similar results were also observed in previous studies. [11,12] It was observed that depression and anxiety was more prevalent compared to stress. [12,13] DASS scores were found to be more in the students residing in hostels in comparison to day scholars, though the differences were not statistically significant. A cause of this might be the hostellers having to adjust with new food, friends and surroundings. Apart from that hostellers feel home sick and feel emotionally down. This study also revealed that average sleep duration of students were less than 6 hours in both day scholars and hostellers. Shorter sleep duration may be one of the causative factors in causing high

scores of DASS. Sleep-wake cycle has a strong role in causing depression which is evident from previous studies. [14] Melatonin has been shown to play a major role in maintaining circadian rhythm. Imbalance in melatonin secretion and abnormal circadian rhythms has been reported among depressed subjects. Pressure to perform well academically is a strong predisposing factor for DAS among students. In addition, the majority of science students undergo further stress as they have to appear for entrance examinations for admission in specialized professional courses. [15] The pressure of preparation for intermediate examinations along with entrance examination creates a high degree of anxiety in many students, especially in those who are unable to perform at par with other students scoring higher grades.

CONCLUSION

The depression, anxiety and stress scores were found to be quite high among students. There is a need for special focus on the adolescent population and their mental health. Understanding the prevalence of DAS and the possible factors associated with higher levels of DAS would help in designing of college based counselling centres. Prompt interventions will likely prevent or ameliorate DAS among students.

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