

Association of Academic Performance and load with Depression, Anxiety and Stress among School going Students (9th-12th class) of District Amritsar: A Cross Sectional Study.

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Abstract

Background: Adolescence is a ripe stage where the onset of many psychiatric illnesses increases sharply. Identification of factors making adolescent population vulnerable to disturbed mental health is of high public health importance.

Materials and methods: A cross sectional study was conducted among students of 9th -12th class of government and private schools of urban and rural areas of Amritsar. Sample size was calculated using formula $N > 4pq/d^2$. Data was collected during the period of one year. Pre tested, semi structured questionnaire and DASS -21 scale were used. Chi squared tests were applied and statistical analysis was conducted using Epi-Info. P value <0.05 was considered to be statistically significant.

Results: The prevalence of Stress, Anxiety and Depression was found to be 53%, 58% and 54% respectively having significant associations with academic performance, excessive homework, performance satisfaction among self & parents and comparison by parents.

Conclusion: Stress, anxiety and depression were associated with factors like academic performance, academic load, performance satisfaction by self and parents and other parental factors. There is need to provide a healthy and supportive school as well as home environment to reduce the risk of stress, anxiety and depression among adolescents.

Keywords – Stress, anxiety, depression, academic performance, academic satisfaction, parental satisfaction.

Introduction

Worldwide there are 1.2 billion adolescents, which is approximately 1 in every 6 persons¹. 21% of Indian population comprises of adolescents i.e about 243 million, making India the country harboring highest number of adolescents in the world. Although adolescence is the period of life filled with most vitality, specific needs regarding changes in mental and physical growth along with

evolving understanding of the world can overwhelm an adolescent outside his/her coping capacity. Such circumstances increase the risk of mental disorders in adolescents most commonly mood disorders like stress, anxiety and depression.

According to World Health Organization (WHO) 1 in 13 globally suffer from anxiety². It is estimated that 3.6% of 10-14 year-olds and 4.6% of 15-19 year olds experience an anxiety disorder³. Stress and anxiety

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can make a person vulnerable to depression which in adolescents is a real, distinct clinical entity. Increasing academic pressure; unrealistic parental & social expectations; unstable home environment; emotional, sexual or physical abuse; bullying; loss of a closed one; chronic illness in self & family are some of the important factors that can upset the mental health of an adolescent. Various studies done in India report prevalence of stress among school students ranging from 40%-50%^{4,5,6}. Whereas anxiety is reported to be 17-59%^{5,7,8}. Indian studies conducted on adolescents report prevalence of depression to be 40% – 54%^{5,9}.

Evolution from childhood to adulthood exposes an adolescent to changing academic environment from the playful junior schools to more serious senior grades. Students with high stress levels in academia are seen to exhibit signs of depression, anxiety, phobia, school refusals, increased irritability, and complaints and reduced interest in schoolwork¹⁰. In a Delhi based study all the three (depression, anxiety and stress) were found to be higher among students having lesser academic performance¹¹. Pushed by the parents to 'be the best', some students cannot cope with the demands anymore and emotionally collapse. This can result in deep rooted nervous disorders. Keeping such factors in mind, this cross sectional study was conducted to find the prevalence of stress, anxiety and depression and it's association with academic pressure & load among the students of 9th-12th class of district Amritsar.

Materials and Methods

Study population – students studying in 9th-12th class of government and private schools consisted the study population. Those who gave their written assent were included in the study whereas those who did not and those who were already suffering from a mental disorder were excluded from the study.

Study period – 1 year (1 st April 2020 – 31st March 2021)

Sample size and sampling technique - Sample size was calculated using the prevalence rate of stress among students, found to be 47% in a similar study conducted at Chandigarh in the year of 2014¹². Formula $N > 4pq / d^2$ was used, where p= prevalence of the problem, q = (1-p) and d = absolute error/precision (taken as 5% for the current study)¹³. Assuming power of the study to be 80% and α to be 5% required sample size was calculated to be 399 using the above formula. Taking the non - response ratio to be 20%,

the final sample size for the study was decided to be 480. However, 444 students participated in the study due to the prevailing COVID-19 pandemic and lockdowns.

Data collection tool

Data collection tools consisted of a pre-tested semi structured questionnaire developed to collect the desired information on the socio-demographic profile and contributory factors towards Stress, Anxiety and Depression and a standardized Depression Anxiety and Stress Scale -21 used for assessment of presence of Depression, Anxiety and Stress. DASS -21 consists of 3 subscales and each of the three DASS-21 subscales contains 7 items. Scores for depression, anxiety and stress are calculated by summing the subscale items individual scores which were marked on a likert scale of 0-3¹⁴.

Methodology

After required ethical committee's and District Education Officer's approvals, 4 schools as per the selection criteria were randomly selected. Consents of Principals of selected schools were taken and students in equal representations from each class were selected using simple random sampling. Written informed consents were obtained from the parents/guardians of the selected students along with written assent from students themselves. Data was collected over the period of 1 year using self-administered, pre-tested, semi structured questionnaire and DASS -21 scale. Circulation of google forms was done among the students through whatsapp groups during COVID-19 lockdown and personal visits were conducted once restrictions were lifted. Visits to the schools were conducted in such a manner so that school's routine schedule was not disturbed. Students of only one class were studied during a visit and next visit was planned as per the convenience of the school's Principal. Students were sensitized regarding stress, anxiety and depression and instructions related to filing-up the forms were also discussed. After fully ensuring the students regarding the confidentiality of their responses performas were distributed to be filled. The performas were collected after an average period of 45 minutes.

Statistical Analysis

Prevalence of depression, anxiety and stress were calculated by dividing the number of students having score above the respective cut offs of DASS-21 by total students and was compared across various groups.

Mean scores of all the subscales were calculated along with standard deviation of the same. Responses of each student were compiled using Microsoft excel and later imported into Epi-Info for the statistical analysis. The distribution of various variables was represented through frequencies and proportions whereas, for continuous variables mean \pm standard deviations were calculated. Association of various contributing factors with three subscales was established by using Chi-square test where p-value of less than 0.05 (on both sides) was considered to be statistically significant. If any of the expected cell value of <5 was found then Fisher's exact test was used. Those who were found to have stress, anxiety and depression were advised to seek counseling and appropriate treatment.

Results

205 (46%) students studied in government schools whereas 239 (54%) were from private schools. Minimum participation was from 12th standard because of ongoing board examinations at the time of the study. As far as age was concerned majority of the students, 218(49%) were of 16-17 years of age followed by 138 (31%) of those in the age group of 13-15 years and only 20% (93) were above 18 years of age. A total of 227 (51%) students were male and 217 (49%) students were female. More than half (253: 57%) of the students belonged to Sikh religion, while 264 (60%) were of general caste. Out of the total 444 study participants, students participating from rural areas were 245 (55%) whereas those from urban areas were 199 (45%).

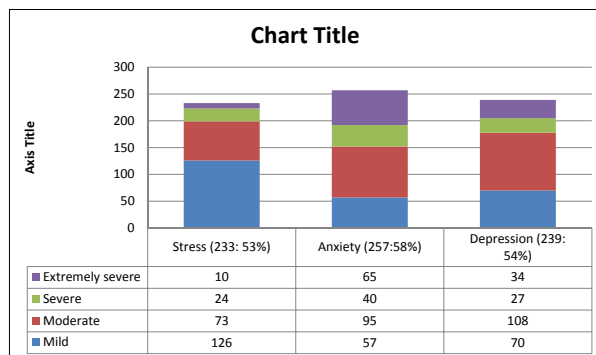
The prevalence of Stress was 53% (233/444) in study participants with majority of them (126; 54%) having mild stress, anxiety was found to be in 257 (58%) students with majority (95; 40%) having moderate anxiety and 239 (54%) study participants had depression with high prevalence (108; 46%) of moderate depression.

166 (38%) students thought homework to be excessive but majority, (294; 66%) completed their assignments on time. Among the study participants, 56% (247) felt nervous when new assignments were given. Assistance for doing homework was required by 69% (305) of the study participants out of which half (50%) took tuition classes for completing homework while 20% and 14% took assistance from friends and siblings for doing the same. Minimum (23; 7%) used internet as an assistant to complete their homework.

As far as academic performance was concerned,

12% (55) and 14% (62) scored above 90% and $<60\%$ in last exam, respectively. Scores of rest of the students (74%) ranged between 61%-90%. Failure in exam was faced by 15% (69) of the study participants. 66% (291) of the study participants were satisfied with their own academic performance and teachers of 60% (265) study participants were satisfied with their academic performance. It was observed that parents of 55% (245) students were not usually satisfied with their academic performance, whereas, that of 53% (236) of study participants compared them with others. Out of all the study participants, 16% (71) felt nervous while conveying their results to parents.

Figure 1: Distribution of depression, anxiety and stress in study participants (N = 444)



Based on the responses to DASS-21, stress, anxiety and depression related symptoms were found to be present among, 53%, 58% and 54% study participants. Moderate depression (46%) and anxiety (40%) were most common whereas mild symptoms related to stress were the commonest (54%). A significant proportion of study participants having anxiety and depression had severe symptomology (27% and 14% respectively).

Table 1: Association of academic load with depression, anxiety and stress among study participants (N = 444)

| Variable | Depression (n=239) | Anxiety (n=257) | Stress (n=233) |
|----------------------------------|--------------------|--------------------|-------------------|
| Excessive homework | | | |
| Yes (166) | 87(53) | 84(51) | 82(49) |
| No (278) | 152(55) | 173(62) | 151(54) |
| χ^2 (p value) | 0.21; df=1 (0.6) | 5.7; df=1; (0.01)* | 1.00; df=1; (0.3) |
| Completion of assignments | | | |

| Variable | Depression (n=239) | Anxiety (n=257) | Stress (n=233) |
|--|---------------------|-------------------|---------------------|
| On time (n=294) | 146(50) | 164(58) | 143(49) |
| Not on time (n=150) | 93(62) | 93(62) | 90(60) |
| χ^2 (p value) | 6.08; df=1; (0.01)* | 1.57; df=1; (0.2) | 5.14; df=1; (0.02)* |
| Nervousness at new assignments | | | |
| Yes (n=45) | 30 (67) | 27(60) | 27(60) |
| No (n=399) | 209 (52) | 230(58) | 206(52) |
| χ^2 (p value) | 3.32; df=1; (0.06) | 0.09; df=1; (0.7) | 1.13; df=1; (0.2) |
| Need for assistance with homework | | | |
| Yes (n=305) | 162(53) | 182(60) | 162(53) |
| No (n=139) | 77(55) | 75(54) | 71(51) |
| χ^2 (p value) | 0.19; df=1; (0.6) | 1.2; df=1; (0.2) | 0.15; df=1; (0.6) |

- All figures in parenthesis are percentages
- *= p < 0.05 is considered to be significant

Depression (62%) and stress (60%) were significantly higher among those who did not complete their assignments on time when compared to those who completed their assignments on time (depression-50% and stress-49%)

Similarly depression (67%), anxiety (60%) and stress (60%) were relatively higher among those who felt nervous when they were given new assignments.

Depression (53%) was lower, whereas anxiety (60%) and stress (53%) were higher among those who needed assistance with homework without statistically significant differences.

Table 2: Association of academic performance

with depression, anxiety and stress among study participants (N = 444)

| Variable | Depression (n=239) | Anxiety (n=257) | Stress (n=233) |
|--|-----------------------|---------------------|------------------------|
| Performance grade in last exam | | | |
| >80% (n=153) | 68(44) | 76 (50) | 70 (46) |
| 60-80% (n=229) | 132 (58) | 143 (62) | 131 (57) |
| <60% (n=62) | 39 (63) | 38 (61) | 32 (52) |
| χ^2 (p value) | 8.8; df=1; (0.01)* | 6.4; df=1; (0.03)* | 4.8; df=1; (0.08) |
| Satisfied with own academic performance | | | |
| yes (n=291) | 146(50) | 157(54) | 135(46) |
| no (n=153) | 93(61) | 100(65) | 98(64) |
| χ^2 (p value) | 4.54; df=1; (0.03)* | 5.35; df=1; (0.02)* | 12.54; df=1; (0.0003)* |
| Teacher satisfaction with grades | | | |
| yes (n=265) | 133(50) | 150(57) | 130(49) |
| no (n=179) | 106(59) | 107(60) | 103(58) |
| χ^2 (p value) | 3.50; df=1; (0.06) | 0.44; df=1; (0.50) | 3.08; df=1; (0.07) |
| Parental satisfaction with grades | | | |
| Usually (n=199) | 90 (45) | 110 (55) | 93 (47) |
| Unusually (n=245) | 149 (61) | 147 (60) | 140 (57) |
| χ^2 (p value) | 10.73; df=1; (0.001)* | 1.00; df=1; (0.3) | 4.77; df=1; (0.02)* |
| Comparison with others by parents | | | |
| No (n=208) | 88(42) | 102(49) | 90(43) |
| Yes (n=236) | 151(64) | 155(66) | 143(61) |

| Variable | Depression (n=239) | Anxiety (n=257) | Stress (n=233) |
|--|-------------------------|-------------------------|----------------------------|
| χ^2 (p value) | 21.8; df=1; (0.000)* | 13.3; df=1; (0.00)* | 14.03; df=1; (0.00)* |
| Feeling of nervousness while telling results to parents | | | |
| Unusually (n=373) | 193(52) | 205(55) | 192(51) |
| Usually (n=71) | 46(65) | 52(73) | 41(58) |
| χ^2 (p value) | 4.08; df=1; (0.04)* | 8.17; df=1; (0.004)* | 0.94; df=1; (0.3) |

- All figures in parenthesis are percentages
- *= p < 0.05 is considered to be significant

Depression increased with decreasing percentage in exam (44% in those who scored >80% to 63% among those who scored <60%) and this difference was found to be statistically significant. Levels of depression (61%), anxiety (65%) and stress (64%) were found to be significantly higher among those who were not satisfied with their own performance, but teacher satisfaction with grades did not have significant associations. Depression (61%) and stress (57%) was higher among those whose parents were not satisfied with their and this difference was statistically significant. Depression (64%) anxiety (66%) and stress (61%) were significantly higher among those students whose parents compared them with others. Those who felt nervous while telling their results to parents had significantly higher levels of depression (65%) and anxiety (73%).

Discussion

Prevalence of anxiety was reported be highest (58%) in the present study, which was followed by depression (54%) and stress (53%). Similar results have been noticed in different parts of country where the prevalence of stress, anxiety and depression ranged from 19%-49%; 24%-81% and 21%-65%^{4,5,15}. In our study, 27% of the anxious, 14% of depressed and 4% of stressed were graded to be suffering from extremes of these conditions.

Adolescent population already suffers from the stage of rapid physical and mental maturation that can give rise to intense psychological and physical change. The desire to be needed by others, independence,

adequate adjustment to the opposite sex along with conflicting beliefs with parents; academic, parental and social pressure; quality of friends, etc. all contribute towards the disruption of mental harmony that result into tremendous stress, anxiety and depression among this population. Lagging behind in academics can result in self and parental academic dissatisfaction that causes worry and stress among students. Constant academic inferiority complex and incapacity to achieve goals set by self, parents and teachers may result in stress and anxiety due to which student feels incapacitated to complete work on time, thus piling up of more work which results in overburdening of a student.

Various studies have also found low academic performance to be the cause of stress, anxiety and depression^{11,16}. In our study too, students who had lower grades in exams were found to have high levels of anxiety (61%) and depression (63%). Large number of students (70%) who did not attend tuition classes were found to be significantly depressed in the present study. Being overburdened by academic load, especially in board classes and not getting proper help to handle it may be the cause of such finding. This finding was opposite to a study where strong association of stress, anxiety and depression was observed in students taking tuitions¹¹.

Negative effects of stress at home linger and affect student's academic performance at school¹⁷. Present research showed high prevalence rates of stress (57%), anxiety (60%) and depression (61%) among students whose parents were not satisfied with their grades. Similar significant results were seen among those students whose parents compared them with others. It has been noted in other studies as well that students whose parents pressurize them to study have significantly higher depression and stress¹⁸.

Conclusion

Present study highlights the prevalence of stress, anxiety and depression among students of 9th -12th classes studying in government and private schools of rural and urban Amritsar. It also identifies important positive and negative risk factors associated with adolescent depression. The results of this study are cautious reminder of the extreme pressure the adolescent face in this particular age. The study reflects the importance of student friendly curriculum, positive parenting and psychological counseling availability at school.

Conflict of interest – the author declares that there is no conflict of interest

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Ethical clearance – clearance granted from Institutional Ethics Committee (IEC), Government Medical College, Amritsar

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