Original Research Article

Factors Influencing Academic Stress and Depression among 11 to 18 Years School Age Children: A Cross-Sectional Study

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Abstract:

Background: Currently among high school students, depression is increasingly prevalent and can be attributed to several factors, including inadequate social problem-solving skills, distorted thinking patterns, conflicts within the family, feelings of detachment from both parents and peers, a tendency to attribute failures to personal helplessness, gender-related factors, and a perceived sense of criticism from teachers. The present study aimed to determine Academic stress and Depression among 11 to 18 years school aged Children and study the correlation of influencing factors on academic stress and depression.

Methods: This is a cross-sectional study carried outby the Department of Pediatrics, Shadan Institute of Medical Sciences hospital, Hyderabad, a tertiary care center in Hyderabad, Telangana. A pre-designed, pre-tested, semi-structured, and pre-coded proforma was used for recording all the findings from students willing to participate in the study, and all questions were partially closed-ended.

Results: The present study was conducted among 255 adolescents, who have given consent in government schools. Hence analysis is done and correlated with various demographic factors. Positive significance was studied with age, higher classes of English medium and children staying with parents in a joint family, mother education, and both parent's occupation but income has negative significance with academic stress and positive correlation with Beck's Depression Score.

Conclusion: Academic stress was found in 41.96% and depression was found in 31.22% of the study Population. The association between Academic Stress Score and Beck's Depression Index is statistically significant with a p-value of <0.05. Students with academic stress are 6 times more prone to depression than eustress students.

Keywords: Academic stress, Depression, Beck's Depression index, Stress score.

Introduction

Academic stress involves mental distress regarding anticipated academic challenges, failure, and even awareness of the possibility of academic failure. [1] In India, most adolescents are put under pressure to perform well in academic activities. However, this environment creates abundant academic stress in students, causing a sense of distress that is generally manifested in a variety of psychological and behavioral problems. The Indian school education system is textbook-oriented, which focuses on rote memorization of lessons and demands long hours of systematic study every day. The impact of academic stress is also far-reaching; high levels of academic stress have adverse effects and poor outcomes in academics, sports and nutrition, self-care, and substance addiction [2].

Anxiety has substantial negative effects on children's social, emotional, and academic success [3]. Parents put pressure on their children to succeed because they were concerned for their children's welfare and their awareness of the competition for admission in reputed institutions. Depression has become the most common mental health problem among high school students in recent years [3] and is caused by poor social problem-solving, cognitive distortions, family conflict [4], alienation from parents and peers, helpless attribution style, gender, and perceived criticism from teachers [5].

The mental health of students, especially in terms of academic stress and its impact, has become a serious issue among researchers and policymakers because of the increasing incidence of suicide among students across the globe. Adolescents are empowered with basic rights to enjoy- economic, political, social, and cultural- but their inability to exercise these rights makes policymakers implement separate measures to ensure their rights are on par with adults. Moreover, it is necessary to consider

adolescents as future leaders and guardians of any nation's development [6].

The integration of mental health into primary health care systems is a major endeavor to reduce the treatment gap for mental health problems. To this end, the WHO and its partners have developed the 4S Framework, which provides a structure for national initiatives to gather and use strategic information, develop supportive evidence-informed policies, scale up the provision and utilization of health services and commodities, and strengthen links with other government sectors. Such integration increases the accessibility of services and reduces the stigma attached to mental disorders [7].

However, in India, no dedicated policies or programs are catering to adolescents' specific needs. Stress is understood in relation to stressors or with the feelings associated with both physical and mental conditions that push a person to change, grow, fight, or adapt. Where stress enhances function (physical or mental, such as through strength training or challenging work), it is considered eustress. Persistent stress that is not resolved through coping or adaptation, leading to anxiety, withdrawal behavior, and depression, is considered distress. [8] The current study aimed to determine the correlation between academic stress and depression among 11- 18 Years old adolescents.

Materials and Methods

This Cross-sectional study was carried out in the Department of Pediatrics, Shadan Institute of Medical Sciences Hospital, Hyderabad, Telangana, India for all the adolescents 11-18 years of age present in the selected government school on the day of study.

Study Sample Size calculation

Taking the lowest prevalence, i.e., 13% as the anticipated prevalence of stress and depression in the study with a 95% confidence interval the sample size was estimated to be 271.

$$N = \frac{(1.96)^2 \, (p \times q)}{l^2}$$

- N = Number of eligible participants included in the study
- p = prevalence of depression or stress
- q = 100 - p
- l = allowable absolute error, here taken as 4%
- Hence, the sample size is.

$$N = \frac{(1.96)^2 \, (13 \times 87)}{(4)^2} = 271$$

Inclusion criteria

1. Students who are willing to give informed written consent.
2. Age 11-18 years.
3. Students who were present on the day of study.

Exclusion criteria

Students who are not willing to participate in the study.

A pre-designed, pre-tested, semi-structured, and pre-coded proforma was used for recording all the findings from students willing to participate in the study, and all questions were partially closed-ended, explained in their colloquial language, and relevant doubts were cleared. The duration required for the candidate to fill out the questionnaire was approximately 40 minutes. The study was conducted after obtaining Ethical clearance from the institution and School authorities.

The questionnaire consists of:

1. Demographic information: Details like age, gender, education, occupation of both the parents, etc. were obtained.
2. Clinical Data: Details related to psychiatric illness.

The following Scoring methods were used to assess academic stress and depression:

- Educational stress scale for adolescents: Score up to 48 is considered normal.
- Beck's Depression scale: A score of 0-17 is considered normal.

Statistical Analysis

A statistical analysis was conducted using Microsoft Excel 2010 and Epi Info 7.2.1.0 to tabulate all descriptive data. Pearson's chi-square test was employed to determine the connections between mental health measures and demographic and academic factors. To explore the relationships between influencing factors and academic stress and/or examination-related anxiety, the academic stress score and Becker's Depression Index were utilized. Continuous measurements were presented as Mean ± SD (Min-Max), while categorical measurements were expressed as percentages (%) and analyzed using the chi-square test. The significance threshold was set at $P < 0.05$.

Results

The present study was conducted among the government schools, A total of 271 questionnaires were given to the students but only 255 of them were filled by the students. Hence analysis is done for only 255 subjects.

Table 1: showing the age-wisedistribution of the students

Age in years	Frequency	Percentage
11	3	1.18
12	19	7.45
13	51	20.00
14	85	33.33
15	74	29.02
16	19	7.45
17	4	1.57
Total	255	100.00

Table 2: Distribution of students based on the class of study

Class	Frequency	Percent
VII	59	23.32
VIII	23	9.09
IX	89	35.18
X	82	32.41
Total	253	100.00

Most of the students belong to the spectrum of 13 to 15 years of agei.e., 20%, 33.33%, and29.02%, and approximately one-third of the study population of IX and X standard each.24% from VII standard & nearly 10% of the students belonged to VIII standard. It is observed that students of higher classes were under academic stress & examination-related anxiety with increasing age and classes (Chi-square = 11.5 dof=3, P=0.009). Particularly male students were more influenced than females. There is a strong correlation between increased age and the classes studied. (Tables 1 and 2).In the present study, academic stress has been reported by 41.96% of the students of the study population(Table3).Boys are relatively under stress than girls particularly in English medium than Telugu medium schools may be due to the influence of social and psychological factors and recent introduction of English medium in government schools. (Table 4)

Table 3: showing Academic Stress scores of the students

Academic Stress Score	Frequency	Percent
17-32 (No stress)	13	5.10
33-48 (Neutral)	135	52.94
49-64 (Stressed)	101	39.61
65-80 (Severe stress)	6	2.35
Total	255	100.00

The impact of education status of the mother is having significant association with than father's education status and the occupation of the parents has direct proportional relation to academic stress, whereas family income did not show any statistical significance with academic stress, whereas family income was significantly associated with Beck's Depression Score. (Table 5, 6, 7)

Table 4: Distribution of Demographic factors and their correlation with Academic stress score and Beck's Depression Index

Parameter	Observation			Academic stress score		Beck's Depression Index			P-Value
			Total	≤ 48	>48	≤17	>17	Total	
Sex	Male	145	255	83	62	98	47	145	0.03*
	Female	110		65	45	76	34	110	
Religion	Hindu	163	63.92	109	54	123	40	163	0.05*
	Muslim	70	27.45	31	39	50	20	70	
	Christian	19	7.45	10	9	11	8	19	
	Others	3	1.17	8	14	11	11	22	
Medium of study	English	143	56.08%	82	61	98	45	143	0.3
	Telugu	112	43.92%	67	45	74	38	112	

* Significant

Academic stress is found to be negatively correlated with adolescents staying with Parents in a joint family than separated/ divorced parents of the nuclear family may be due to psychosocial adjustments. No significant correlation was observed with family income on academic stress in this study (Table 5)

Table 5: Distribution of Demographic factors and their correlation with Academic stress score and Beck's Depression Index

Parameter	Observation			Academic stress score		Beck's Depression Index		Total	P-Value
Educational Status of Mother	Illiterate	84	33.07%	43	41	54	30	84	
	Primary	98	38.58%	105	66	120	51	171	0.06
	Upper Primary	33	12.99%						
	Higher	26	10.24%						
	Intermediate	7	2.76%						
	Graduate	6	2.36%						
	Unknown	1	0.39%						
Education Status of Father	Illiterate	56	22.13%	25	31	35	21	56	
	Primary	98	38.74%	123	76	139	60	199	0.1*
	Upper Primary	44	17.39%						
	Higher	44	17.39%						
	Intermediate	7	2.77%						
	Graduate	3	1.19%						
	Postgraduate	1	0.40%						

* Significant

Table 6: Distribution of Demographic factors and their correlation with Academic stress score and Beck's Depression Index

Parameter	Observation			Academic stress score		Beck's Depression Index		Total	p-value
Occupation of Mother	Housewife	201	78.82%	110	91	131	70	201	0.17
	Labor	29	11.37%	38	16	43	11	54	
	Teacher	4	1.57%						
	Private employee	11	4.31%						
	Cook	1	0.39%						
	Tailor	8	3.53%						
Occupation of Father	Unemployed	12	4.71%	3	9	4	8	12	0.006*
	Unskilled	80	31.37%	145	98	170	73	243	
	Skilled	140	54.9%						
	Professional	23	9.01%						
Marital Status of Parents	Living together	241	94.51%	141	100	172	69	241	0.00001*
	Separated	*13*	*5.10%*	7	7	2	12	14	
	Divorced	*1*	*0.39%*						

* Significant

Table 7: Distribution of Demographic factors and their correlation with Academic stress score and Beck's Depression Index

Parameter	Observation			Academic stress score		Beck's Depression Index		Total	p-value
Type of Family	Nuclear	181	70.98%	109	72	127	52	181	0.07
	Joint	71	**27.84%**	39	35	47	29	74	
	Extended	3	1.18%						
Family Income	<10000	124	48.63%	68	56	77	47	124	0.04*
	10000-20000	109	42.75%	62	47	78	31	109	
	>20000	22	8.63%	18	4	19	3	22	

* Significant

The association between Academic Stress Score and Beck's Depression Index is statistically significant with a P value of 0.04 (Table 8). The students with academic stress are 6 times more prone to depression than the students who don't have academic stress.

Table 8: Association between Academic Stress Score and Beck's Depression Index

Academic stress score	Beck's Depression Index		To-tal	Association
	≤ 17	> 17		
≤ 48	13	1	14	Chi-square = 4.14 Dof=1, P = 0.04, OR= 6.45 (0.8 - 50.25)
> 48	161	80	241	
Total	174	81	255	

Discussion

The present study was conducted among adolescents aged 11–18 years studying in government schools, and the results correlated with demographic factors associated with academic stress. The study found that most students were 14 years old (33.33%), followed by 15 (29.02%), 13 (20.00%), and 7.45% were 16 and 12 years old, respectively. The 11-year and 17 years students contributed less than 2%. Age was significantly associated with academic stress scores, as most of the parents were target-oriented and put pressure on students from 14 to 15 years to achieve better professional qualifications. Similarly, Chabbra GS et al. [10] concluded that psychological problems were significantly higher in middle adolescence (14-16 years). In this study, males outnumbered females (56.86% of males and 43.14% of females). Gender was also significantly associated with academic stress and depression. In other words, male students experienced more stress than their female counterparts did. Male students' experiences of pressure from factors such as frequent examinations, excessive assignments, poor time management skills, poor social relationships, and peer competition are the principal reasons for academic stress. This confirms the findings of previous studies by Dhuria. M et al. [11] andSibnath Deb et al [12] in India.

Socioeconomic status

Approximately 79% of the mothers were housewives, 11.37% were daily wage earners,4.31% were private employees, 3.53% were self-employed (tailors), only 1.57% were teachers, and one was a cook. In addition, the child's mother's occupation, the number of private tutors, and the academic performance of the students are some of the other factors associated with academic stress. Mothers' employment status was statistically associated with both academic stress and Beck's depression scores.

Fathers' educational status and occupation

39% of fathers in the study population studied up to primary education, 23% were illiterate, and 18% completed their upper primary and secondary school education. Nearly 3% were educated to an intermediate level. In addition, 1.19% were graduates, and one was a postgraduate. More than half were skilled employees, such as drivers, tailors, and carpenters, and 32% were unskilled workers. Nine% were professionals and approximately 5% were unemployed. The overall unemployment situation in parents provoked their children to better performance to get admitted to reputed institutions and to fulfill their unfulfilled dreams through their children. Father's education and employment status were significantly associated with academic stress scores, but only the father's employment was significantly associated with Beck's Depression Score.

Approximately half had a family income of less than 10,000 rupees per month. Another 42% had an income between 10,000 - 20,000. Eight% of them had an income of greater than 20,000. All students belonged to the lower class according to the Modified Kuppuswamy classification. Family income did not show any statistically significant association with academic stress and was significantly associated with Beck's Depression Score. Sibnath Deb et al. [12] found that high school students of middle socioeconomic groups were more anxious than those from both high and low socio-economic groups and concluded that more anxious with working mothers.

Family structure

In the present study, 71% were from nuclear families, 28% were from joint families, and 1.18% were from extended families. 95% of the parents lived together. Five% were separated and one was divorced. The parameters of family structure, such as the marital status of the parents, were significantly associated with Beck's Depression Index. Children staying in joint/extended families have a negative correlation with stress compared with separated/divorced parents due to psychosocial adjustments. Chabbra GS et al. [10] in their study reported stress was more in large extended families (> 8 members). Singh H et al. [13] found similar findings that stress was more among adolescents of nuclear families, whereas Krishna Kumar P et al. [14] found sources of stress in the family can be the death of a parent, conflicts with parents or siblings, mental illness in the family, parental alcoholism and parental disharmony.

Type and Medium of School

This study was conducted with students at government schools in the age group of 11 to 18 years studying in Telugu and English media. It was observed that boys were more under academic stress than girls, particularly in English medium, than in Telugu medium schools, which may be due to the influence of social and psychological factors. Akbar Hussain et al. [15] also confirmed the magnitude of academic stress was significantly higher among English medium Government school students and whereas Government School students were significantly better in terms of their levels of adjustment.

Prevalence of Academic Stress

Academic stress was observed in 41.96% of the study population. Two% of them had stress scores between 65-80. Academic stress scores were significantly associated with age, religion, class, father's education and employment, and mother's employment.

Prevalence of Depression

Depression was present in 31.22% of the study population. Beck's Depression Index was significantly associated with the father's employment, mother's employment, family income, parent's marital status, and class of the student. Other studies also support psychosomatic involvement Malhotra et al. [16] proved the prevalence of affective disorders to be up to 13.49% (0 to 14 years). Bansal et al. [17] showed the prevalence rate of depression to be around 18.9% and Sahoo S et al. [18] showed the prevalence of Depression to be around 18.5% in students with a mean age of 19 years.

Prevalence of stress and depression among adolescents

The prevalence of stress among Indian adolescents varies from 13% to 45% in different studies conducted after 2000 [10-16]. Despite limited research, epidemiological studies on the prevalence of adolescent stress have shown that such problems are not uncommon. The studies reporting the prevalence of stress among adolescents, along with the present study, are depicted in Table 9.

Other similar studies included demonstrating a comparative study on the Prevalence of academic stress and Depression among adolescents, results were analyzed and confirmed similar conclusions.

Academic Stress and Becks Depression score

In the present study, 53% of the students had academic stress scores between 33-48, followed by 40% who had stress scores between 49-64. 5% of them had a score of 17-32. Only 2% of them had stress scores between 65-80. In the present study, 46.27% of them had a score of 0-10 (Normal), 21.96% of them had a score of 11-16, 16.08% of them had a score of 21-30, 11.37% of them had a score of 17-20, 3.54% of them had a score of 31-40, 0.78% of them had a score of >40. The association between Academic Stress Score and Beck's Depression Index is statistically significant with a P value of 0.04. The students with academic stress are 6 times more prone to depression than the students who don't have academic stress.

Table 9: Comparison of different studies with the present study in relation to Prevalence of stress and Depression among adolescents

Authors	Year	Scale	Place	Study Subjects	Stress %
Amrita Mishra et al. [19]	2001	YSR 1989[@]	Delhi	1097 girl students between 12 to 18 years	13.7%
Bansal.V.et al.[17]	2009	GHQ -12[#]	Pune	125 students of Class IX	15.2%
Arun. P.Chavan BS[20]	2009	GHQ -12[#]	Chandigarh	2402 students from classes VII TO XII	45.8%
Dhuria. M et al.[11]	2009	GHQ-60[#]	Delhi	458 students from classes VII TO XII	24.7%
Sahoo S, Khess CR.[18]	2010	DAS[$]	Ranchi	405 College going adolescents	20.0%
Chabbra GS, Sodhi MK.[10]	2011	GHQ-12[#]	Amritsar	500 male adolescents from 12 to 18 years	39.6%
Salunkhe et al.[21]	2011	DAS[$]	Mumbai	317 adolescents between 17 to 19 years	16.6%
Present Study	2018	DAS[$]	Hyderabad	255 adolescents between 11 to 17 years	41.96%

[@]YSR 1989 – Youth Self Report 1989 [#]GHQ 12 & 60 – Goldberg's General Health Questionnaire 12 and 60 [$] DAS – Depression, Anxiety and Stress Scale

Conclusion

This study found that male students in higher classes were under academic stress and examination-related anxiety with increasing age and class. Males studying in English were more under academic stress than those studying in Telugu. Psychosocial factors, fathers' education status, and the occupation of parents were positively correlated with academic stress. Whereas family income had a negative effect on academic stress, it correlated positively with Beck's Depression Score. Adolescents staying with their parents in joint families had a negative impact on academic stress and depression compared to those staying with separated/divorced parents of nuclear families. No significant correlation was found between family income and academic stress.

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