

Influence of Gender on Stress among School Children: A Cross-sectional Study

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ABSTRACT

Introduction: The perception of stress by students affects their academic performance significantly. Continuous exposure to stress for a long time can cause both physical illnesses (including heart disease), and mental illnesses (e.g., anxiety disorders). Furthermore, stress increases the risk of suicide in students which is an important cause of adolescent mortality. Perception of stressors depends upon the biological, social, and psychological factors of students. Moreover, biological differences between male and female students attributed to the significant difference in experiencing stress among them.

Aim: To study the gender difference and stress levels among adolescent school students.

Materials and Methods: A cross-sectional study was conducted in Government boys higher secondary school and Government girls higher secondary school Mauganj, a town of Madhya Pradesh, India, between August 2016 to September 2016. The state board of examinations and the Hindi medium of instruction were followed in the school. A total of 40 study subjects, 24 males and 16 females were recruited for study after obtaining written

informed consent from participants by simple random sampling method. The self-administered student stress scale was used to measure participants' levels of stress and socio-demographic information, including age, sex, education, was recorded in semi-structured data entry proforma. The data were summarised using means with standard deviations and frequencies with percentages. Comparative analyses between the genders were conducted using the Student's t-test (for continuous variables). The p-value ≤ 0.05 was considered level of significance.

Results: A total of 40 study participants were included with mean age of 16.2 ± 2.2 years. A total of 24 were male students and 16 were female students, amongst included subjects. Majority of student's family practiced Hindu religion. Total stress score was 84.3 ± 7.5 for male and 96.2 ± 5.5 for female students ($p=0.001$).

Conclusion: Significant amounts of stress were felt by students in high school. Male and female students perceived similar levels of stress in their academic and vocational domains, but female students felt significantly more stress in their financial, emotional, familial, and social domain. Student total stress levels were significantly higher for female students than male students.

Keywords: Adolescent, Academic stress, Emotional stress, Mental illnesses

INTRODUCTION

Stress is an internal state which can be caused by physical demands on the body or by environmental and social situations which are evaluated as potentially harmful, uncontrollable, or exceeding the resources of coping [1]. Stress can have a variety of negative effects, including feelings of annoyance, anxiety, and depression [2]. Ineffective stress management can result in serious issues. Moreover, when a person is exposed to chronic stress, she or he is likely to experience both physical illnesses (including heart disease), and mental illness (e.g., anxiety disorders) [3].

Academic stress is an important stressor in a student's life [4]. Such stress can be characterised as anxiety and pressure that comes from schooling and education. During each semester, students often face academic stress, which is predictable, due primarily to pressure to prepare for and take exams, competition for grades, and a large amount of material within a limited time frame. heavy workload to master [5]. Performance on the final examination for the 12th grade is required to gain admission into most colleges or universities of one's choice in the Indian educational system. The poor ratio of the number of available institutions to the aspirants for college education ensures that the students face tremendous competition in getting admission to tertiary education [6]. Furthermore, the financial burden in association with academic stress causes serious challenges in front of deprived students [7]. This vulnerability compels them to choose to drop out of school for paid work [8].

Financial stress also impact the academic performance of students [7]. Exposure to other stress such as vocational stress, family stress, social stress, and emotional stress aggravates the situation.

However, different people experience a different levels of stress from the exactly similar stressor [9]. Research suggested that the perception of stress can vary in different people. Stressors alone do not produce anxiety, depression, or tension. Instead, the interaction between stressors and the person's perception and the reaction to these stressors causes stress [10]. Limited research study were done on adolescent stress and have not been explored in great detail in India [11]. Hence, the present study was conducted with the null hypothesis that student of different gender will experience same stress in same environmental conditions. To our knowledge, the first study in the Indian set-up was to assess gender differences in students' stress levels among school students. Tools used in the study another advantage of this study which is developed for Indian students. The aim and primary objective of study was to evaluate the gender difference in stress among higher secondary school students.

MATERIALS AND METHODS

A cross-sectional study was conducted in Government boys and girls higher secondary school from Mauganj town of Madhya Pradesh, India, between August 2016 to September 2016. The age of study population from 12 years to 17 years. The state board of examinations and the Hindi medium of instruction were followed in the school. Research protocol was framed, and all participants gave informed consent to participate in the study.

Sample size calculation: Formula $(N) = 4pq/l^2$ was used, 'p' denote for prevalence and $q=1-p$, and l =allowable error (5-20%) [12]. In this study, prevalence of stress among students was 25% and

15% error of margin was taken to calculate the sample size and calculated sample size was 33. So, 40 study participants were recruited for study purpose after obtaining written informed consent.

Inclusion criteria: Subjects were selected from random sampling at the study site. Assessments were carried out by face-to-face interviews conducted on the survey day. All the student of higher secondary was included in study.

Exclusion criteria: Those students who had a history of psychiatric illness or other medical illness and suffered from any disability. Subjects taking substances (e.g., Tobacco chewing or smoking, Alcohol, etc.) were also excluded from the study.

Procedure

Questionnaire: Data was collected on a specifically designed proforma to record socio-demographics which includes age, sex, education, family head occupations, education and to assess stress in participants using the student stress scale by Dr. Taresh Bhatia as depicted in study by Nagar G [13]. The student stress scale by Dr. Taresh Bhatia is a self-administrating scale. Composed of six domains: academic stress, financial stress, vocational stress, family stress, social stress, and emotional stress. Each domain consists of five questions and total of 30 items. Each item scored on five point scale in terms of strongly agree, agree, uncertain, disagree, and strongly disagree. Score of each domain ≥ 21 very high, 17-20 high, 15-16 average, 10-14 low, ≤ 9 very low-stress levels. Total score ≥ 121 very high, 97-120 high, 85-96 average, 51-84 low, ≤ 50 very low stress level. Inter-rater reliability of scale 0.74 with high validity (Coefficient of correlation 0.75) compared with another standard stress scale [14].

Participants was instructed to fill the proforma and students stress scale. Proforma and students stress scale handed to students and give them adequate time (15 minutes) to fill the entries in given proforma after that all the proforma was collected from students and collected data was further analysed.

STATISTICAL ANALYSIS

Means with standard deviations was used to summarise continuous variables and frequencies with percentages were used for categorical variables. Student's t-test was used for comparative analyses between the genders. The p-value ≤ 0.05 was fixed as level of significance.

RESULTS

A total of 40 subjects were recruited. All of the subjects were recruited from Government Hindi medium schools. The mean age of the sample was 16.2 ± 2.2 years (range 12-17 years). Males formed 24 (60%) of the sample.

Socio-demographic profile: As seen in [Table/Fig-1], on a comparison of socio-demographic profiles of the study sample. Most of the participants belong to Hindu religions 32 (80%), parents are educated up to inter and doing semiskilled works.

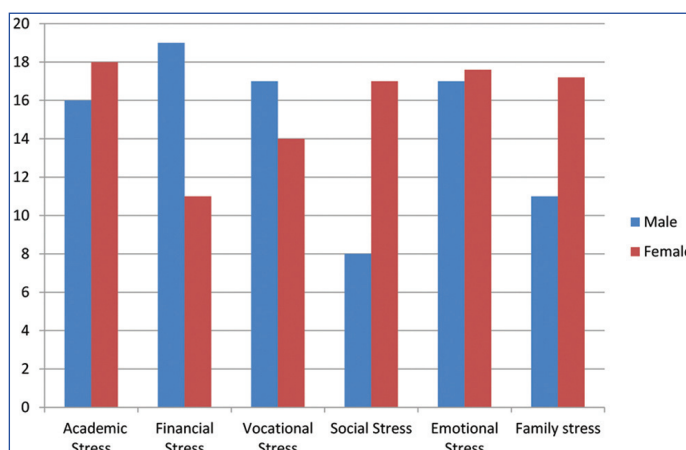
Socio-demographic details	n (%) (Total N=40)
1. Mean age (years)	16.2 ± 2.2
2. Sex	
Male	24 (60%)
Female	16 (40%)
3. Religion	
Hindu	32 (80%)
Muslim	4 (10%)
Sikh	1 (2.5%)
Christian	3 (7.5%)

4. Educational status of family	
High school	6 (15%)
Inter/Diploma	28 (70%)
Graduate/Postgraduate	6 (15%)
5. Occupation of family	
Skilled	12 (30%)
Semi-skilled	26 (65%)
Clerk/Shopkeeper/Farmer	2 (5%)

[Table/Fig-1]: Socio-demographic characteristics of the sample.

No participants were depicted under the heads of other religion, illiterate, primary and middle education, professional education, semi-professional occupation, unemployed and unskilled occupation status

Stress level: Stress characteristic between male and female in each domain is shown in [Table/Fig-2]. The comparison shows that female have more stress score than male (84.3 ± 7.5 vs 96.2 ± 5.5) [Table/Fig-3] and statistically significant difference ($p=0.001$). Both gender stress score was at an average level. In males, highest stress scored in financial stress, and vocational stress. Females suffer more academic, emotional, and social stress compared to males. Females have significantly higher stress in social, family, and emotional stress than males. In males, financial stress was significantly higher than in females. Males feel very low stress in social stress while females experienced high social stress. There was a marked gap between stress scores between males and females in social and family stress [Table/Fig-3].



[Table/Fig-2]: Stress domain and level of stress.

*X-axis denote the domain of stress and Y-axis denote the level of stress

Stress domain	Male (n=24) (Mean \pm SD scores)	Female (n=16) (Mean \pm SD scores)	p-value*
Academic stress	16.3 ± 5	18.3 ± 3.8	0.35
Financial stress	19.7 ± 4.1	11.3 ± 3.2	≤ 0.001
Vocational stress	17.3 ± 3.7	14.5 ± 3.3	0.114
Social stress	8.2 ± 4.2	17.2 ± 4.4	≤ 0.001
Emotional stress	11.2 ± 2.7	17.6 ± 3.4	0.001
Family stress	11.5 ± 3.4	17.2 ± 4.5	0.008
Total stress	84.3 ± 7.5	96.2 ± 5.5	0.001

[Table/Fig-3]: Gender differences in stress characteristics of the sample.

*Independent t-test was applied and bold p-values are significant. The p-values ≤ 0.001 are highly significant

DISCUSSION

The study was carried out on adolescent students who were attending school, with a mean age of 16.2 ± 2.2 years. In study, 40 subjects were interviewed, comprising of 24 male and 16 female students. The study revealed that both male and female students experience a significant level of stress, with the statistical analysis indicating that the types and levels of stress perceived by male and female students differed significantly. Although both genders reported experiencing an average level of stress, the female students

had a significantly higher level of stress compared to males. These findings are consistent with previous research studies [12,15].

The academic stress level in males and females experienced high levels of stress scores and no significant difference was seen in both groups. This finding is consistent with a previous work which was conducted in same demographic profile of students [16]. Although, some contradictory reports about gender difference and academic stress have also been reported [14]. Financial stress was more in male students compared to female students and there was a significant statistical difference and financial stress lead to poor academic performance also [7]. Vocational stress was higher in male and average in female students but the difference was non-statistical. Higher social stress was observed in female students and the male had very low levels of social stress and the difference in stress levels was statistically significant. Female student perceives high emotional and family stress while male student perceives the average level of emotional and family stress.

The null hypothesis was rejected that both male and female students perceive same stress but the finding from study clarify that both gender perceived different stressors. People manage stressors by the different coping mechanisms to mitigate the effects of stressors [15]. Perception of the stressor and coping mechanism of stress depends upon biological social and environmental. Males and females are biologically different and their social, and environmental challenges are different [16]. Therefore, their perception and reaction to stressors are also different.

In society, female gets less freedom and autonomy than male so this may be the cause of higher emotional social and family stress level in female students. A male student has more expectations toward holding family responsibility and earning money may be the possible cause so male students perceived more vocational and financial stressors than female students [17]. Perception of stress among male and female students was different and female students perceived significantly higher stress than male student. The finding of study supported the need to introduce the structured stress management program for school students. Stress management program considered the different stressors and perception of stressors by different gender and tailored the stress management program for male and female students.

Limitation(s)

The study did not take into account significant stressful events that study subjects may have experienced in the past. Furthermore, since the study only included subjects recruited from towns or villages,

the findings may not be applicable to all school students and may not be applicable to schools in urban areas where challenges and stressors differ from those in rural environments.

CONCLUSION(S)

Adolescent school going students perceived significant level of stress. Female students perceived significantly higher level of stress than male students in financial and social domain and experienced statistically similar perceived stress in academic, vocational, emotional and family stress. Government Hindi medium state board schools are major centres to provide secondary education in the town area of the country so, this study represents stress levels in town or village students' perceived stress.

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