RESEARCH ARTICLE

ACADEMIC STRESS AND COPING STRATEGIES AMONG UNDERGRADUATE HEALTHCARE PROFESSIONAL STUDENTS IN INDIA: A QUASI-EXPERIMENTAL STUDY

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ARTICLE INFO

ABSTRACT

Introduction: This study aimed to explore the academic stress among undergraduate healthcare professional students in India, before and after implementing specific Coping strategies. Academic stress plays an important role in mental health. It is essential that stress intervention programs be designed to address stress among college students.

Materials and Methods: One group pre-test post-test, research design was used in the study. This quasi-experimental study was performed in 106 undergraduate healthcare students. A modified version of "College student's stressful event checklist" (Holmes and Rahe 1967) is used to assess the academic stress and social readjustment scale was validated by research experts.

Results: There was a significant decline in the stress level among 31% of students, after implementing various coping measures. A positive relationship was found between the medium of instruction and Academic stress. There is significant relationship between pre-test and post-test academic stress scores (p<0.001).

Conclusion: Specific coping measures like breathing and relaxation exercises certainly help students to overcome various types of stresses that influence the academic program and improve their self-coping.

INTRODUCTION

Ineffective coping measures and strategies contribute to clinical depression in many students, particularly healthcare professional students. Any graduate course being a stressful environment demands management. As a college student he or she may face many changes and challenges that can be very stressful. A student may experience problems with his roommates, pursue a demanding class load and face tough competition from classmates. Other common stressful situation includes relationship problems, conflict with parents, medium of instruction, self-esteem, and identity stress. As Singh (2006) mentioned, college students are a group particularly prone to stress due to transitional nature of college life. Education in itself was meant to be stress relieving. But it has given way to unhealthy competition and unchecked commercialization. Omigbodum (2006) reported males perceived financial and lecturer problems as stressors and females had strikes and overcrowding as source of stress. Stressors associated with psychological distress in students include excessive school work, congested classrooms, strikes by faculty, lack of laboratory equipment, family problems, insecurity, financial and health problems. As Sankara Narayan, (2005) have shown

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nearly 1 lakh people commit suicide in India every year, about 10,000 in Tamil Nadu and 1,000 in Chennai alone. According to official statistics available, more than 2,000 students commit suicide because of failure in examinations and most vulnerable age group for suicides are 15 to 29 years in females and 30 to 45 years in men. Macgeorge *et al.* (2005) presented academic stress is associated with a variety of negative health outcomes, including depression and physical illness. College students completed measures of academic stress, of supportive communication received (emotional and informational) and of health status (depression and symptoms of physical illness). Results indicated that the positive association between academic stress and depression decreased as informational support increased. As Moffat (2004) mentioned the principal stressors were related to medical training rather than to personal problems, in particular uncertainty about individual study behavior, progress and aptitude, with specific concerns about assessment and the availability of learning materials. As per Baber, (2004) study; low moods, inability to concentrate, loss of temper are most common symptoms. Females report more symptoms. Academics and exams are the most powerful stressors. Sports, music, hanging out with friends, sleeping or going into isolation are various coping mechanisms. According to Misra (2000), undergraduate students experience distress rather than challenge which can lead students to feel threatened and helpless. Academic work reflects some of the high levels

of stress that undergraduate student reported. Too much stress can interfere with a student's preparation, concentration and performance. Academic stress has emerged as a significant mental health problem in adolescents in recent years. Anxiety about examination and competitiveness in school causes stress and tension in students. The students experienced academic stress in the areas of inadequate study facilities and fear of failure than in others such as teacher-pupil relationship, interpersonal difficulties and personal inadequacy (Srikanth Reddy *et al.,* 2005).

OBJECTIVES

The major objective of the study was to assess the academic stress and its coping strategies among healthcare professional students in India. Thereafter promote specific coping measures and reassess the level of academic stress to find out if there are any improvements in the academic, personal, psychological, and physical stress levels.

MATERIALS AND METHODS

The research design used in this study was one group pre and post-test design. The study was conducted at PSG Institute of Medical Science and Research Centre, Coimbatore, Tamilnadu, India. The First year undergraduate students were selected from College of Nursing, College of Pharmacy, College of Physiotherapy and PSG Medical College. The main study was conducted from June 2006 to July 2006. The data was collected by means of a checklist to assess the level of stress and coping measures among undergraduate students. A structured teaching module was prepared to educate the students on stress management techniques and demonstrated breathing and relaxation exercises to the students through lecture cum demonstration. The total strength of first year students were 216 (Two hundred and sixteen), out of which 56 (fifty six) students were selected for pilot study by using ratio sampling technique and the remaining students were selected for main study and Sample free technique was adopted. 54 (fifty four) students were dropped out during the study due to various reasons. The total number of students participated for the main study was 106 (one hundred and six). All First Year Students of Medicine, Pharmacy, Nursing and Physiotherapy were included in the study and Second, Third and Fourth Year students were excluded from this study. The instrument used for the collection of data was a checklist for assessing the type of stressors and self-coping measures adopted by the students. The data were collected by administering a structured check list on assessment of the academic stress level prepared by the investigator. After the collection of the baseline data, practical training classes were given to all members of the group on different types of relaxation techniques and Breathing exercises. After doing regular exercises and relaxation techniques, continuously for 7 days, on the 8th day the post test was conducted by using same check list. The breathing and relaxation techniques which were included in this study were Equal breathing technique, Abdominal breathing technique, Alternate nostril breathing technique, Skull shining breath, Progressive relaxation technique, and Guided visualization. The checklist consists of;

Section I, a demographic data which includes Sample number, Name of the course, Age, Sex, Place of stay, With whom they are staying, Type of Family, Education of the parents, Family income per month, Medium of instruction in school, Mode of travel to college and their hobbies, Section II, which had 46 items focused on the type of stressors the students experienced during their academic programme. Types of stressors were categorized as Academic, Physical, Psychological, Personal, Environmental and Financial. Each question has four possible responses as Always, Often, Sometimes and Never. Positive and negative items were used. Positive item scoring given as 1,2,3,4 which are Always, Often, Sometimes and Never respectively and for negative items the scores are 4,3,2,1 for Always, Often, Sometimes and Never respectively. When scores get increased the level of stress also increases as mild, moderate and severe level, Section III, which had 18 items related to self-coping measures adopted by the students. Here also positive and negative items were used.

Table 1. Total number of First year undergraduate students (N= 216)

S.No.	Courses	Number of Boys	Number of girls	Total
1	Medicine	49	52	101
2	Nursing	0	49	49
3	Pharmacy	18	11	29
4	Physiotherapy	17	20	37
	Total	84	132	216

Table 1 shows, the total Number of First Year Undergraduate Health care professional students in PSG Institute of Medical Sciences. Among the students, 39% were girls and 61% were boys.

Table 2. Socio – demographic characteristics of Students (n = 106)

S.No	Items	No	Percentage (%)
1.	Age		
	17Years	20	19
	18 Years	62	58
	19 Years	18	17
	20 Years	6	6
2.	Place of stay		
	College hostel	70	67
	Private Hostel	10	9
	Home	17	16
	Staying with friends	9	8
4.	Medium of Instruction		
	English	86	81
	Tamil	18	17
	Others	2	2
5.	Mode of travel to college		
	Walk	81	76
	Bicycle	5	5
	Bus	12	11
	Motorcycle	4	4
	Car	4	4
6.	Hobbies		
	Watching TV	41	39
	Reading	65	61
	Listening to music	65	61
	Chatting	22	21
	Singing	5	5
	Playing games	44	42
	Drawing	3	3
	Painting	2	2

Table 2 shows the socio-demographic characteristics of students. Majority of students were of age of 18 years (58%) while 6% among them were 20 years of age.67% students stayed at college hostel while 16% come from home whereas 8% students stay with their friends. Majority of the students' medium of instruction was English (81%). Majority of the students walks to the college (76%) and very few of them come by car and motorcycle (4%). More number of students had reading and listening to music as their hobby (61%) while 39% of them watch TV and 2% had painting as a hobby.

Table 3. Types and Level of Academic stress among undergraduate students (n = 106)

S.No	Items	No	Mean	SD
1.	Academic stress		33.62	6.4
	Mild	64		
	Moderate	41		
	Severe	1		
2.	Physical stress		19.72	3.74
	Mild	63		
	Moderate	43		
	Severe	0		
3.	Psychological stress		11.08	3.07
	Mild	77		
	Moderate	27		
	Severe	2		
4.	Personal stress		15.14	3.07
	Mild	43		
	Moderate	61		
	Severe	2		
5.	Environmental stress		5.07	1.4
	Mild	91		
	Moderate	14		
	Severe	1		
6.	Financial stress		6.13	2.43
	Mild	64		
	Moderate	29		
	Severe	13		

Table 3 represents various types and levels of academic stress among students. During pre- assessment, 13% of the students had severe financial stress, 91% had mild environmental stress,61% of them had moderate personal stress, 77% had mild psychological and almost equal level of stress found in academic and physical components.

For positive items scoring given as 4,3,2,1 which are Always, Often, Sometimes and Never respectively and for negative items 1,2,3,4 the scores are in reverse respectively. When scores increase their coping skill would be rated as High coping, Moderate coping and Low coping. The scores for academic stress level were interpreted as Mild for ≥50% stress level, Moderate for 51- 75% stress level, and Severe for > 75 % stress level. While scores for self-coping were interpreted as Low for ≥ 50% score, Moderate for 51-75% score and High for > 75% score.

OBSERVATION AND RESULTS

The data collected through various methods has been compiled and by adopting appropriate statistical techniques and inferences were drawn. The results are inferred through statistical techniques like paired 't' test and simple correlation coefficient. The comparison of level of stress before and after coping measures is interpreted through Paired 't' test and the

influence of variables like family income and course, with level of stress is calculated through simple correlation coefficient. In the pre-test survey, i.e. before the implementation of relaxation breathing techniques, it was found that out of 106 students 58% had mild stress, 42 % had moderate stress and only one student had severe stress. In relation to academic stress, among 106 students 61 % had mild stress, 39% had moderate stress and only one student was identified with severe level of stress. While 60 % had reported mild physical stress and 40 % moderate physical stress. It was also found that 73 % of students had mild Psychological stress, 25% had moderate Psychological stress, and 2 % had severe psychological stress. In terms of Personal stress 40 % of the students had mild personal stress, 58% had moderate personal stress, and 2% of students had severe personal stress. Further the study showed that the medium of instruction have a positive relationship on pretest level of academic stress. A significant relationship was established between pre-test and post-test academic stress scores (p<0.001). The study showed that among B.Pharm students, the paired 't' test value is 10.1 in pre-test which is greater than the table value of 4.22 at degree of freedom 13 and is significant at the level of 0.001 level. Among BPT students the paired 't' test value is 9 in pre-test which is greater than the table value of 3.97 at degree of freedom 17 and is significant at the level of 0.001 level. Among Nursing students, the paired 't' test value is 10.48 in pre-test which is greater than the table value of 3.77 at degree of freedom 23 and is significant at the level of 0.001 level. Among MBBS students, the paired 't' test value is 12 in pre-test which is greater than the table value of 3.29 at degree of freedom 49and is significant at the level of 0.001 level. These values suggest that there is a significant difference between the pre-test and post-test academic stress among the group. While it is also found out that hobbies of students, family income etc. has a negative relationship with stress among healthcare professional students.

Ethical consideration and Human rights

The Research proposal was approved from Ethical committee of the PSG Institute and formal permission was obtained from respective Principals of various disciplines. The undergraduate students were informed about the purpose of the study and about their right to refuse or withdraw at any time.
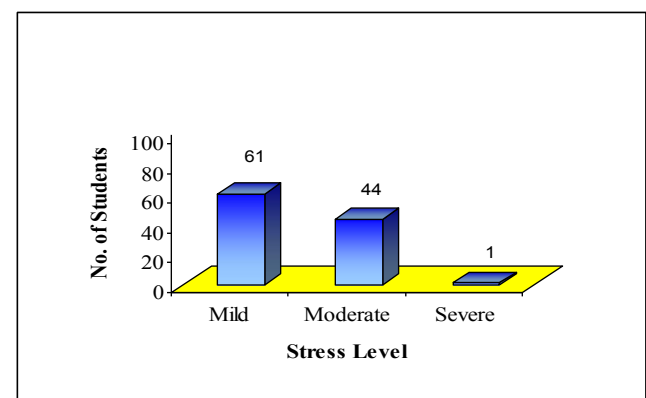
Figure 1. Comparison of Stress Level Before Implementation of Coping Measures (n= 106)

Figure 1 shows, stress level during pre-assessment. Majority of students, 61students had mild stress, 44 had moderate stress and 1 student had severe stress.
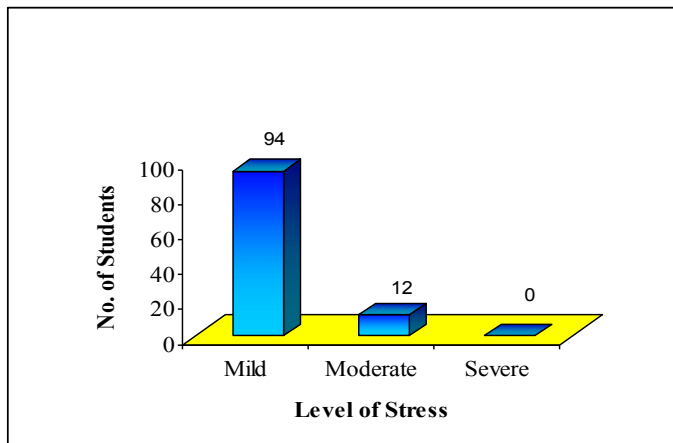

Figure 2. Comparison of Stress Level after the Implementation of Coping Measures (n= 106)

Figure 2 depicts stress level after implementing specific coping measures. Majority of the students' (94 students) stress level changed into mild level and only12 students had moderate stress while none of them had severe level of stress.
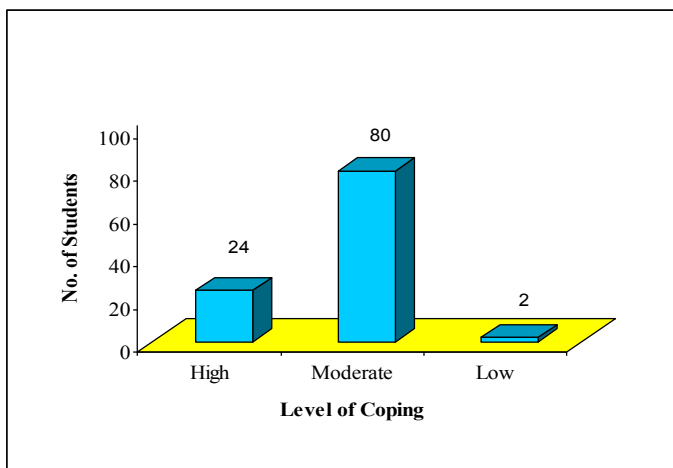

Figure 3. Comparison of Level of Self Coping Before Implementation of Stress Management Techniques (n = 106)

Figure 3 illustrates level of coping before implementing stress management techniques. 24 students had high level of self-coping, 80 students had moderate coping, whereas only 2 had low self-coping.

DISCUSSION

After conducting the specific coping strategies by the healthcare students, i.e. doing the breathing and relaxation exercises regularly for 7 days, the study showed that the stress level was reduced from severe to moderate and moderate to mild. Out of 89% of the healthcare students who had reported mild stress before implementing the coping strategies, showed significant decrease in their stress level, i.e. only 58% of students showed mild stress after regularly doing the breathing

and relaxation techniques and none of the students were identified as having severe level of stress after implementation of coping measures.
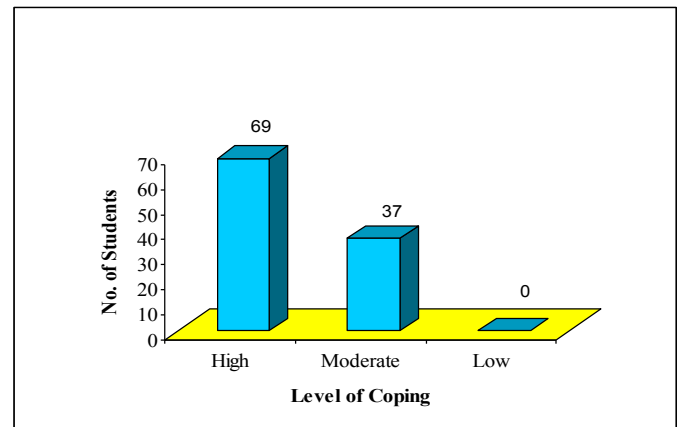

Figure 4. Comparison of Level of Coping After Implementation of Stress Management Techniques (n =106)

Figure 4 depicts level of coping after implementing specific stress management techniques. 69 students had high level of coping and 37 students had moderate level of coping and none had identified with low level of coping.
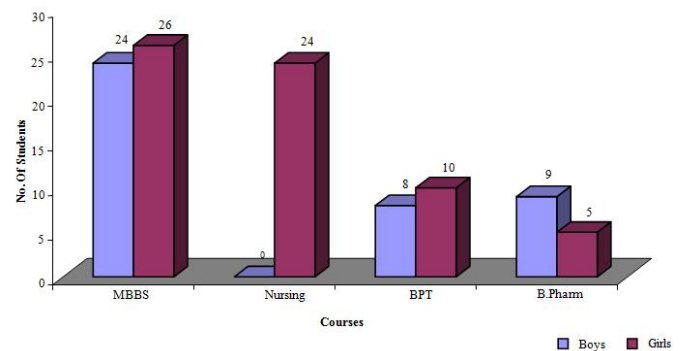

Figure 5. Students Distribution in each Course (n= 106)

Figure 5 shows distribution of course among 106 students. Majority of students' (50 number) were from Medicine stream, while 24 girls were from Nursing stream, and 18 &14 students from Physiotherapy and Pharmacy respectively.

Since the medium of instruction has a positive relationship with academic stress level, and since English is the medium of instruction, English language teaching and learning in our educational system should be given priority, which indirectly reduces the stress level among students. So it can be considered that English language learning is one kind of self-coping strategies against the management of academic stress. More study should be conducted in this field to ascertain the effect of language on stress level on students. Although this study was done only to first year healthcare professional students, there is a wide scope for this study among other student communities like, science and arts students, management students, post graduate students and also among various types of employees. Since this was a short period study, it is yet to confirm the effect of relaxation breathing techniques on a long period.

Conclusion

The study showed that breathing and relaxation exercises had reduced the academic stress considerably. Apart from the academic stress, these techniques also helped the healthcare students to overcome their physical, personal and psychological stress levels. But it is necessary for the students to continue doing these relaxation techniques regularly in order to have a proper control on their stress levels. The easiest method to maintain doing these relaxation techniques daily is to incorporate them into each one's daily routines, means; everybody can do it while they are doing other routine things. At the same time, students should learn well, the English language in the primary educational level, so that the medium of instruction should not be a stimuli to stress while they are doing their professional degrees. Hence it can be concluded that education provided to students on effective use of coping measures, breathing and relaxation exercises certainly helped them to overcome various type of stresses that influenced the academic programme and hence improved their level of self-coping.

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