Short communication

Stress among medical students and its impact on academic performance

Pratima Khatake[1], Havilah Twinkle[2], Akshay Salgar[3]

[1]Department of Physiology, [3]Department of Community Medicine, Symbiosis Medical College for Women, Symbiosis International University, Lavale, Pune, Maharashtra, India
[2] Department of Physiology, Great Eastern Medical School and Hospital, Dr NTR University of Health Sciences, Ragolu, Srikakulam, Andhra Pradesh, India

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Corresponding author: **Pratima Khatake.** Email:pratima8687@gmail.com

ABSTRACT

Introduction and Aim: Stress is the response given by the human body to various changes which needs physical, mental or physiological adaptation. The inordinate stress during medical education incline students in solving social conflicts, dropped attention, reduced mindfulness, decreased neutrality, increased errors and misconduct like negligence which leads to decrease in academic performance. Hence, this study was undertaken to know the prevalence and impact of stress in medical students' academic performance.

Materials and Methods: This was a cross sectional study organized by the Department of Physiology, Great Eastern Medical School and Hospital, Srikakulam (AP). All medical students pursuing their 2nd and 3rd MBBS were included in the study. Students on any antipsychotic medicine; not willing to participate were excluded. Informed written consent was taken from subjects. Approval was taken from the Institutional Ethical Committee prior to the study. Data were collected using K-10 questionnaire for stress and academic performance.

Results: The prevalence of stress was mild, moderate, severe among 12%, 69%, 19% subjects respectively. Statistically significant negative association was found between stress and academic performance ($p<0.05$).

Conclusion: A high prevalence of stress was found amongst medical students. Poor academic performance was seen in students associated with higher level of stress.

Keywords: Stress; K-10 scale; medical students; academic performance.

INTRODUCTION

Mental wellbeing is the key to the healthy life of individuals, their families and population as a whole. In 1930, Hans Selye an Endocrinologist first coined the term stress, and introduced a stress model (1). Stress is classified as eustress and distress by this model. Stress that improves mental or physical functions is referred as eustress. Constant stress which does not get resolved on management and that which further turns up into depression or anxiety is called as distress (1).

Stress is a key and ubiquitous part of human experience. Our bodies are physiologically designed to respond to stressful situations (2). Medical academies are identified as a stressful surrounding that can adversely affect students' academic performance, physical and mental health of the student (3). The aim of the study was to evaluate the prevalence of stress among medical college students and the impact of stress on their academic performance.

MATERIALS AND METHODS

This study was a cross sectional study among MBBS students. The study was conducted in Physiology Department of Great Eastern Medical School and Hospital, Srikakulam, Andhra Pradesh during November 2015 to February 2016. A sample size of 113 students from 2nd and 3rd MBBS were included in the study. MBBS students who refused to contribute and remained absent on the day of the study were excluded from the study. A pre-designed, pre-tested, self-administered questionnaire was used for data collection. The questionnaire was used to collect information on demography, stress and academic performance. Stress levels were measured using the Kessler Psychological Distress Scale (K-10) (4). In K10 scale, each question was provided with 5 possible responses which are given as 'none of the time' - 'all of the time' and scored as 1 to 5 respectively. This gives total scores which range from 10 to 50. As per the K-10 scale, a score of 10 to 19 is likely to be well, score 20 to 24 to have a mild complaint, score 25 to 29 to have a moderate complaint and 30 to 50 to have some severe complaints. The academic performance was scored by taking internal examination marks and graded as excellent (> 80%), good (> 60%), fair (≥ 50%) and poor (< 50%). The collected data were analyzed using statistical methods in MS excel 2010.

RESULTS

An aggregate of 113 medical students from 2nd and 3rd MBBS participated in the study. The response rate was 100%. The highest number of subjects was found in the age group 21-22 years with a mean age of 20.56 ± 1.02 years. Total subjects were divided in three age groups as 18-20, 21-22 and 23-25 with each having 52, 59 and 2 students respectively. In this study 76.11% of the 113 medical students tested were found to be stressed. The stress prevalence was mild, moderate and severe in 38.05%, 19.47% and 18.59% subjects respectively. 23.89% of the students were reported as having no stress (Table 1).

A statistically significant association was found between stress and academic performance (P<0.0001) indicating that stress to have a negative impact on academic performance (Table 2).

Table 1: Prevalence of stress among students according to age groups

Stress	Age groups (years)			Total n (%)
	18-20 n (%)	21-22 n (%)	23-25 n (%)	
Mild	25 (48. 08)	18 (30.51)	0	43 (38.05)
Moderate	11 (21.15)	10 (16.95)	1(50)	22(19.47)
Severe	5 (9.62)	16 (27.12)	0	21(18.59)
No stress	11(21.15)	15 (25.42)	1(50)	27(23.89)
Total	52 (100)	59 (100)	2(100)	113(100)

n=number of students

Table 2: Association of stress and academic performance

Academic performance	Stress		Total (%)	P value
	Present (%)	Absent (%)		
Excellent	02 (2.33)	01 (3.71)	03 (2.66)	X^2=31.59; P<0.0001 (HS)*
Good	06 (6.98)	07 (25.93)	13 (11.50)	
Fair	19 (22.09)	17 (62.96)	36 (31.86)	
Poor	59 (68.60)	02 (7.41)	61 (53.98)	
Total	86 (100)	27 (100)	113 (100)	

P<0.0001 (HS)* - Highly Significant.

DISCUSSION

In biology, the term stress is any change in the surrounding that alters or threatens to alter an existing optimal stable state. The present study was conducted to study the prevalence of stress and its impact on academic performance in medical students.

The stress prevalence among students in the present study was 76.11% the results of which was nearly analogous to the study by *Raniet al.,* (5) in Kurnool, Andhra Pradesh wherein the prevalence of stress reported was 78.19%. Similar findings were seen in studies undertaken by Melaku *et al.,* (6) in Ethiopia (52.4%), Abdulghani *et al*.,(7) in Saudi Arabia (57%) and Saipanish *et al.,* (8) in Thailand (61.4%).

The association of stress with age shows no statistically significant association (P>0.05).). The association of stress and student's academic performance was found significant in the present study. This shows stress has a negative influence on student's academic performance. Similar findings were earlier reported by Melaku *et al.,* (6) in Ethiopia and Kumar *et al*., (9) in Meerut (UP).

Stress can have both a positive and a negative influence. Stress as a eustress, will help to impel for positive effect. However, stress as a distress, will lead to feelings of anger, depression and rejection, which could lead to health issues. Inordinate stress leads to increased secretion of cortisol, a stress hormone leading to decrease in memory reclamation functions of amygdala and hippocampus due to glucocorticoid

receptors being completely blocked. This is evidenced by the report of research articles of Kuhlmann *et al.*, (10) and Oei *et al.*, (11), which states that sustained stress interferes with a capacity of the individual to render memory and recoup information.

The present study recommends developing effective time operation skills to learn the subjects of medical education and taught about the significance of self-motivation to stay positive. To relieve stress, students should be encouraged for doing meditation, yoga, involving into their hobbies and physical activity.

CONCLUSION

The study concludes that stress is a common issue among medical college students, high levels of which could have a negative impact on their academic performance.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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