



## STRESS EVALUATION BEFORE AND AFTER EXAMINATION IN UNDERGRADUATE HEALTH CARE PROFESSIONALS- AN OBSERVATIONAL STUDY.

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### ABSTRACT

**BACKGROUND:** Stress is any uncomfortable emotional experience accompanied by predictable, biochemical, physiological and behavioral changes. Education is hindered by the impact of stress.

**PURPOSE:** To check the prevalence of stress before and after university examination among undergraduate physiotherapy, MBBS, pharmacy students.

**DESIGN:** Clinical Trial.

**METHODS:** An observational study was done where 187 undergraduate students of Health Care Profession with ranging from 18-24 years were screened for before and after examination stress using TEST ANXIETY QUESTIONNAIRE (TAQ). **STATISTICAL ANALYSIS:** Statistical package of Tukey's Multiple Posthoc test and ANOVA test were done.

**RESULTS:** SPSS version 23 was used in statistical analysis. Demographic data in relation to outcome measure were also analyzed.

**CONCLUSION:** From the present study we can conclude that the prevalence of stress among MBBS and Physiotherapy students were higher before examination as compared to Pharmacy undergraduate students. Further it was noticed that the stress among undergraduate students of Physiotherapy was higher before and after examination when compared to MBBS and Pharmacy undergraduate students.

**KEYWORDS :** Stress, TEST ANXIETY QUESTIONNAIRE, Health care profession.

### INTRODUCTION

According American Psychological Association, "Stress is defined as any uncomfortable, emotional experience accompanied predictable, biochemical, physiological and behavioural changes."<sup>1</sup> Stress is common among all different sectors of the society like social, academic and work environment.<sup>3</sup>

Academic stress has been recognized as the primary cause of these alarming, explain this stress as an interaction between environmental stressors, student's consideration and reactions for the same. It has now become a grave reality that is termed as a "career stopper." It therefore, becomes a significant cause of concern as it is symptomatic of rising mental health concerns in India. Studies have reported that academic stressor is the most common cause for the occurrence of the systemic pathologies such as autonomic, cardiovascular and immune among the medical college students. These all lead to mental and physical illness such as nervousness, mood changes and menstrual disturbance in female students.<sup>9</sup>

The present study explores one such component other than academics and daily routine is an exam. Exam pressure is quite high among medical students that directly concerned with the mental and physical health and can also affect the performance of the students in the exams. The syllabus studied by the medical students is infinite and time in which have to complete their studies is short, as a result medical students are thought to be under stress, specifically before their examinations.<sup>11</sup> The pressure of meticulous academic curriculum and frequent examinations are the most common among all other factors. The factor that students face before the exams is an anxiety which is the emotional reaction, which may interfere with their abilities.

This study intends to assess the stress level among different medical fields like MBBS, Physiotherapy and Pharmacy.

### MATERIALS AND METHODS

The present study was conducted on 187 students in North Belagavi city for a duration of 3 months from (November 2018- February 2019). Data was collected from Medical college (MBBS, Pharmacy and Physiotherapy). Students of the age group 18-24yrs were included. All procedure was approved by the research and ethical clearance committee. Students were screened for stress before and after university examination using Test Anxiety Questionnaire. Students were informed about the purpose of the study and were provided a written consent to participate in the study.

Students were verbally explained about the questionnaire and were asked to fill their demographic details in the printed copies.

**1. Test Anxiety Questionnaire (TAQ):** The items in questionnaire referred to experiences that may have caused apprehension among students facing exam. For each item, there is box to be marked by

students. The questionnaire includes 48 questions. Each question carries 5 marks where, 1=Not at all, 2=A little, 3=A fair amount, 4=Much, 5=Very much. A score of 160 or higher out of 240 indicates that the stress level is high.

Students were given this questionnaire one week prior to their university examination and the same questionnaire was provided immediately after exam outside the examination hall.

### STATISTICAL ANALYSIS

The Data were analyzed using descriptive analysis, Statistical package of Social Science (SPSS) version 23 ANOVA test was used for the correlation and pairwise comparison was done using Tukeys Multiple Posthoc test.

### RESULTS

#### Prevalence of stress before and after examination in inter-group:

The mean difference is significant in the case of pre test values between group A and group B (p value = 0.046) and also between group B and group C (p value = 0.013). Considering overall pretest values, group C has recorded higher mean value among the three groups.

The mean difference is significant in case of post test values between group A and group B (p value= 0.044) and group B and group C (p value=0.058). Considering overall post test values, group B has recorded lower mean value among the three groups.

**TABLE 1: Comparison of three study group (A, B, C) with the mean age by one way ANOVA**

Groups	n	Mean	SD
Group A	45	19.33	1.35
Group B	115	19.30	1.68
Group C	27	20.78	1.72
Total	187	19.52	1.68
F-value		9.6649	
P-value		0.0001*	
<b>Pair wise comparisons by Tukeys multiple posthoc procedures</b>			
Group A vs Group B		P=0.9903	
Group A vs Group C		P=0.0007*	
Group B vs Group C		P=0.0001*	

\*p<0.05

**TABLE 2: Prevalence of stress before and after examination in three study groups (MBBS, Pharmacy and Physiotherapy): (IN PERCENTAGE):**

Groups	Time	Mean	Std. Dv.	Mean Diff.	SD Diff.	% of chnage	Paired t	P-value
Group A	Pre test	143.69	25.85					

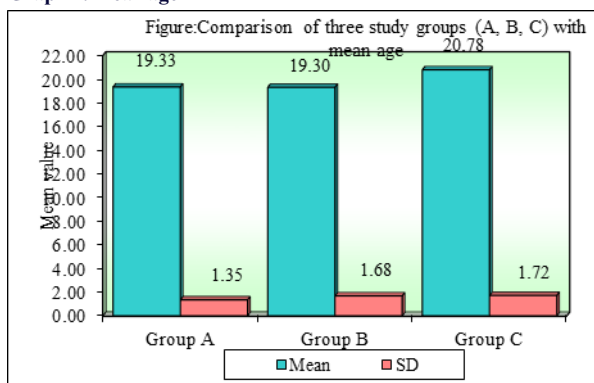
	Post test	85.73	20.70	57.96	35.10	40.33	11.0778	0.0001*
Group B	Pre test	129.06	34.28					
	Post test	76.02	18.96	53.04	37.28	41.10	15.2576	0.0001*
Group C	Pre test	150.22	47.37					
	Post test	87.26	37.43	62.96	53.36	41.91	6.1308	0.0001*

\*p<0.05

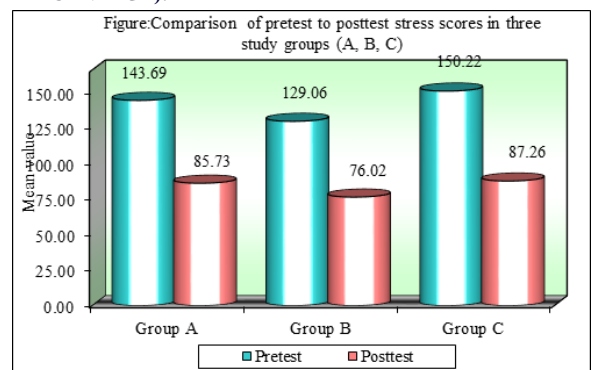
**TABLE 3: Prevalence of stress before and after examination in inter-group:**

GROUPS	PRE		POST	
	MEAN	SD	MEAN	SD
Group A	143.68	25.85	85.73	20.70
Group B	129.06	34.27	76.01	18.95
Group C	150.22	47.37	87.25	37.42
F-value	5.658		4.518	
P-value	0.004*		0.012*	
<b>Pair wise comparison of groups by Tukeys multiple posthoc procedures</b>				
Group A Vs Group B	p = 0.046*		p = 0.044*	
Group A Vs Group C	p = 0.720		p = 0.959	
Group B Vs Group C	p = 0.013*		p = 0.058**	
*Significant at 5% level and ** Significant at 10% level All values in absolute form [ignored negative sign for statistical convenience]				

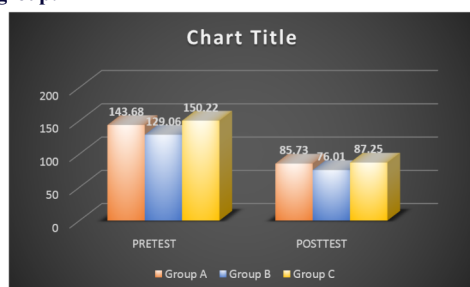
**Graph 1: Mean age**



**Graph 2: Prevalence of stress before and after examination in three study groups (MBBS, Pharmacy and Physiotherapy): (IN PERCENTAGE):**



**Graph 3: Prevalence of stress before and after examination in inter-group:**



**DISCUSSION**

The modern era has been called the age of anxiety.<sup>32</sup> Anxiety during exam is a set of response to that comprises extreme worry, depression, nervousness and unrelated thinking, to a class of stimuli from an individual's experience of assessment/test and outcome.<sup>33</sup>

The present observational study was conducted to check the prevalence of stress before and after examination phase among undergraduates of MBBS, Pharmacy and Physiotherapy students, using Test Anxiety Questionnaire.

In the present study the results showed that stress before examination and after was significantly higher in the undergraduate students of Physiotherapy as compared to MBBS and Pharmacy undergraduate students. While post examination there was significantly reduction in the undergraduate students of Pharmacy as compared to the undergraduate students of MBBS and Physiotherapy.

A study conducted in 2013, on 244 medical students in Saudi. The mean age of stressed students was 19.4 compared with mean age of unstressed students of 20.7 with a p value of 0.001.

This results correlate with our present study with a mean age of 19.3 compared with mean age unstressed students of 20.78 with a p value of 0.0001. One of the explanations for the increased stress among younger students could be that medical program may be even more competitive and stressful for students who are accepted.<sup>26</sup>

In a study conducted in 2015 on 110 professional medical students. The mean age of students was 18.58. The mean level of baseline anxiety i.e. 2 months prior to the examination was 57.2 11.74 .This results are accordance with the present study wherein the baseline anxiety data was evaluated one week prior to the examination and showed significant levels of anxiety (p=0.004).<sup>20</sup>

A cross sectional was performed which consisted of 200 students out of which 120 filled the self-administered questionnaire (60%). This study included 74.2% females and 25.8% male students. The average maximum Exam Anxiety marked on VAS was 64+28 and this study depicts moderate level of Exam Anxiety based on Visual Analogue Scale in the students of medical college.( level)This could be due to extensive course loads, lack of physical exercise and long duration of exams which could have an impact on their stress levels.<sup>33</sup>

DusanBackovic et al evaluated the gender differences in academic stress and burnout among 755 medical students in which the female students showed high vulnerability in terms of stress. Another study in which health care students were assessed for their stress levels, which consisted of 117 students, wherein there was a comparison made between the female students of Sweden and Dutch which concluded that concluded that female medical students showed more level of stress. The above results were in contradiction which the present study as the stress levels amongst our students showed no gender difference. Hence the stress is not gender specific.<sup>10</sup>

A study conducted in physiotherapy undergraduate of faculty of allied health sciences in Sri Lanka in 2015 reported, there were 30 questions in the questionnaire and 4 points Likert scale (0-3) was used to calculate stress level of students (0=20% , 1=40%, 2=60%, 3=80% stress level). Individual stress level was calculated separately. Mean stress value of total sample was 44.43 according to the analysis. Males were more stressed as compared to females in total sample.<sup>15</sup>

In a study conducted in 2003, data were collected from medical students in all academic year levels. A total of 686 medical students participated in this study. The sample size comprised an almost equal number of male (49.65) and female (50.4%) students. The mean age of students was 20.56 years (SD=1.95). showed that 61.4% of medical students felt stressed, while 59% of students were mildly stressed, and 2.4% at a high level of stress.<sup>27</sup>

**CONCLUSION**

From the present study we can conclude that the prevalence of stress among MBBS and Physiotherapy students were higher before examination as compared to Pharmacy undergraduate students. Further it was noticed that the stress among undergraduate students of Physiotherapy was higher before and after examination when compared to MBBS and Pharmacy undergraduate students.

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