

Original Research Article

COMPARISON OF STRESS LEVELS BETWEEN MEDICAL AND PARAMEDICAL STUDENTS

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ABSTRACT

Background: Stress is an emotional response to any situation which challenges one's physical, mental and emotional levels. Medical and paramedical students develop stress due to academic and professional pressures which can be deleterious if not managed at an early stage. **Aim:** The aim of present study was to compare stress and coping mechanisms between medical and paramedical students.

Materials and Methods: This cross-sectional questionnaire based survey was conducted on 200 medical and paramedical students selected by random sampling method. General health related questionnaire-12, perceived stress related scale-10 and COPE were used for obtaining study data. Informed consent as per Helsinki's declaration was followed and permission was obtained from the Institutional Ethical Committee before starting the survey. Statistical analysis: Observations were recorded percentages. Data analysis was performed by employing the SPSS 20.0 statistical software (IBM, NY, US). Chi square test was used for comparing values. Statistically significant difference was set as P values which were less than 0.05.

Results: 01% medical and 02% paramedical students had no distress (P=0.08). In 56% medical and 58% paramedical students, distress was visible, however no statistical significance was observed (P=0.07). 43% Medical and 40% students of paramedical courses were found to have severe psychological distress however, no statistical significance (P=0.06) was found.

On analysis of stress, 28% medical students and 56% paramedical students were suffering from average stress with statistical significance (P=0.05). 45% Medical and 24% paramedical students suffered from moderate stress levels (P=0.05). 27% medical and 80% paramedical students were found to have severe stress levels (P=0.04).

Conclusion: Present study reported moderate to severe stress levels in studied medical and paramedical students with optimal coping strategies.

Keywords: stress, psychological, medical, paramedical, distress.

INTRODUCTION

"Stress" can be defined as a cognitive response towards any particular event that has been perceived to cause any alteration or may threaten one's well-being. It can present as a response in the form of physical, psychological and emotional response.^[1] Medical and paramedical students undergo rigorous educational training and face an intensive examination system which transforms into stress within them.^[1] Besides this, a Health Science student faces a busy routine due to clinical hours and exposure to critical patients' suffering for the

first time.^[1] High stress levels along with psychological effects can drastically affect morbidity among health-care students.^[2] Graduate level medical and paramedical studies are one of the stress causing professional level courses to be learned.^[3,4]

Also, a high amount of expectations from one's family members along with extensive training directed at fulfilling one's responsibility for a patient's well-being apply extreme stress on an individual.^[5] Due to the heavy load of academics, most health science students are unable to spare any time for following their hobbies or taking out time

for entertainment or any other pursuits for relaxation in comparison with other professions' peers.^[6] Thus, slow accumulation of stress results in ill-effects over mental health of healthcare students which poorly influences academic performance as well as one's quality of life.^[7] Hence, there are multiple stressors which result in psychological problems in students of medical and paramedical branches.^[9,10]

Various stressors can be perceived as subjective experience leading towards degradation of quality of life and self-esteem leading to lowered self-confidence and a compromise in ability in coping with day to day life which drastically influences academics.^[10] Stress fosters development of anxiety, drug abuse and mental burnout which may eventually lead towards abandoning studies and sometimes, development of suicidal tendencies.^[11]

Hence, the important thing is to identify stress followed by subsequently managing or coping with it.^[12] "Coping" can be defined as "a process which makes use of strategies dealing with emotions, cognition and behaviors for managing stress for reducing its harmful effect over psychology."^[13]

There is a paucity of studies that compare levels of stress and coping strategies in medical and paramedical students in India. Hence, this study was designed to compare stress levels and coping between medical and paramedical students.

MATERIALS AND METHODS

1) Study design and settings: This was a cross-sectional and survey based study conducted in a tertiary health- care hospital center associated with a teaching institute in India. Required ethical approval was taken from the Institute's Ethical Committee before starting the questionnaire distribution. Study was conducted from October 2024 to December 2024, for a period of four months.

2) Study participants and sampling: Total 200 students were selected using randomization from graduate medical and paramedical courses. Sample size was determined using the "Sample XS software at 95% confidence interval with maximum 5% error having an estimated 50% prevalence rate. Total sample size of 200 was rounded-off.

Selected participants were then explained the study's purpose following which a pre-validated questionnaire was circulated using social media platforms such as- electronic mail, WhatsApp and/or Telegram. All participating students gave their informed written consent before answering the questionnaire. Guidelines approved by the Helsinki declaration were followed in order to keep the identity of study participants hidden. All participants were provided instructions regarding the method of marking responses in the questionnaire.

3) Selection criteria for study participants: Inclusion criteria for subject selection were- 1) All questionnaire items must be answered; 2) Students

must be from medical and paramedical streams and 3) Consent should be provided before participating in study. On the other hand, exclusion criteria were- a) non- Health Science students; b) those who had provided incomplete forms, c) those with any past medical history of psychological disorders.

4) Tools used: A pre-validated questionnaire comprising the following components: a) General health related questionnaire-12 (GHQ-12), b) perceived stress related scale-10 (PSS-10) and c) COPE. All items of the questionnaire were explained to the students before circulating.

5) Statistical Analysis: Observations were recorded as descriptive data in form of percentages and further data analysis was performed by employing the SPSS 20.0 statistical software (IBM, NY, US). Chi square test was used as a statistical test for comparison of values obtained. Statistically significant difference was set as P values which were less than 0.05.

RESULTS

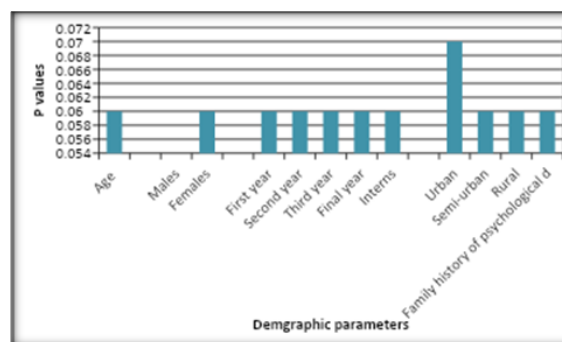
a) Demographics of population studied: The median age of medical students was found to be 22.5 years with an age range of 19 to 27 years whereas that of paramedical students was found to be 28 years (age range: 19 to 30 years). This was found to have no statistical significant difference ($P=0.06$). Among medical students, 56% were males while 44% were females. On the other hand, 76% of paramedical students were of male gender while 34% were females. Statistically significant difference ($P=0.05$) among males pursuing respective courses was found with male predilection towards paramedical sciences. On the other hand, no statistically significant difference ($P=0.06$) was obtained between female medical and paramedical students. On comparing responses received from each class, amongst first year, 45% and 55% students from medical and paramedical streams, respectively responded to the questionnaire. In second years, 35% students from Medical and 25% from paramedical courses participated in the study. 15% and 10% medical and paramedical students, respectively, participated from third year. In fourth year, only 04% and 06% medical and paramedical students, respectively responded to the questionnaire study while an extremely low participation was seen during the internship period with only 01% and 04% medical and paramedical students from medical and paramedical sciences participation. However, no statistically significant differences were obtained on comparing the percentage of student participation in each of the study years in either medical or paramedical sciences ($P=0.06$, respectively). On analyzing residence status, 58% of medical students and 43% of paramedical subject students were found to be living in urban areas. Although, it was having no statistically significant difference ($P=0.07$). 39% students from Medical while 49% from Paramedical

field belonged to semi-urban locations with no statistical significance ($P=0.06$). There were 13% students from rural areas following medical while only 08% students in Paramedical were from rural areas. However, again no statistical significance ($P=0.06$) was found in comparison. On analyzing any family history of psychological issues, only 12% from Medical and 10% from Paramedical had a positive history with no statistically significant difference ($P=0.06$) (table 1 and graph 1).

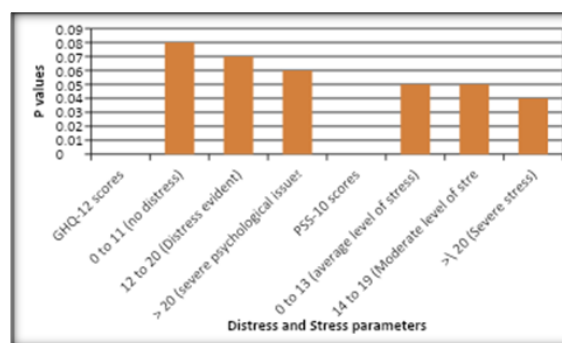
b) Comparison of stress and coping levels in studied medical and paramedical students: On comparison of GHQ-12 scores, 01% medical and 02% paramedical students were found to have no distress which was having no statistically significant difference ($P=0.08$). In 56% medical and 58% paramedical students, distress was visible, however it was found to have no statistical significance ($P=0.07$). 43% of Medical and 40% of students of paramedical courses were found to have severe psychological distress with no statistically significant difference ($P=0.06$).

On analyzing stress levels, 28% of medical students and 56% of paramedical students were found to be suffering from average levels of stress which was found to be statistically significant ($P=0.05$). 45% Medical and 24% paramedical students were found to suffer from moderate stress levels which were statistically significant ($P=0.05$). 27% medical and 80% paramedical students were found to have

severe stress levels which were statistically significant ($P=0.04$) (table 2 and graph 2).



Graph 1: Graph showing P values obtained on comparing demographic observations



Graph 2: Graph demonstrating P value scores of stress associated parameters

Table 1: Table demonstrating demographic data derived from the study observations

Demographic features	Medical students (%)	Paramedical students (%)	P values
Age range (median value)	19 to 27 years (22.5 years)	19 to 30 years (28 years)	0.06
Gender:			
a) Males:	56%	76%	0.05
b) Females:	44%	34%	0.06
Level of education:			
a)First year	45%	55%	0.06
b) Second year	35%	25%	0.06
c) Third year	15%	10%	0.06
d) Final year	04%	06%	0.06
e) Interns	01%	04%	0.06
Residential background:			
a) Urban:	58%	43%	0.07
b) Semi-urban:	39%	49%	0.06
c) Rural:	13%	08%	0.06
Family history of psychological disorders:	12%	10%	0.06

Table 2: Table showing comparison of GHQ-12 and PSS-10 scores in medical and paramedical students

GHQ-12 scores	Medical students (n=100)	Paramedical students ((n=100)	P values
a) 0 to 11 (no distress)	01%	02%	0.08
b) 12 to 20 (Distress evident)	56%	58%	0.07
c) Greater than 20 (severe psychological issues)	43%	40%	0.06
PSS-10 scores			
a) 0 to 13 (average level of stress)	28%	56%	0.05
b) 14 to 19 (Moderate level of stress)	45%	24%	0.05
c) More than 20 (Severe stress)	27%	80%	0.04

DISCUSSION

Medical and paramedical students are subjected to rigorous academic and clinical training programs which can lead to development of stress and subsequent, psychological morbidity that affects academic performance as well as reduced quality of life. Several studies have reported the downswing in emotions of students who, most of the time, are far away from their homes and face professional hardships alone which when combined with academic pressure tend to cause extreme levels of stress. Some students can understand the dynamics involved in health science academics and can accordingly cope while at the same time, some give in to the pressure and can develop extreme stress and anxiety. Present study was conducted on Medical and Paramedical students who were found to have statistically significant values of stress. More of the students were found to suffer from moderate to severe stress. However, all were observed to cope well in the professional environment. The students of paramedical courses were found to have significantly higher stress levels when compared with those following medical courses. Our study observations have been supported by Kumar et al (2020) who reported higher psychological distress among paramedical and high stress levels in medical students.^[14] However, Abatayo et al (2023) found moderate levels of stress in paramedical students who used problem-based strategies for coping with stress. However, no significant association between coping strategies and stress was obtained.^[15]

In contrast to our findings, Kamtam et al (2020) reported that 21.6% and 16.1% of medical and paramedical students, respectively had severe levels of stress, of which females were found to have high stress when compared with males. Also, stress was higher among students over 20 years. Less amount of stress was observed in students who exercised and practiced yoga in comparison to those who abstained from these.^[16]

Hence, most studies as evident have demonstrated moderate to severe levels of stress levels in medical students. Similar observations have been reported for paramedical students. However, one limitation of present study was its small sample size due to less numbers of students who responded to the study questionnaire.

CONCLUSION

Development of psychological problems such as anxiety, distress and stress are common in students

or the healthcare profession. It is important to identify the symptoms in initial stage so that severe morbid conditions can be prevented as these can easily lead to development of suicidal tendencies. Encouraging coping mechanisms such as exercising or indulging in hobbies can help in managing stress.

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