

RESEARCH ARTICLE

Quantitative analysis of mental stress in newly joined undergraduate medical students

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ABSTRACT

Background: The present study was aimed to estimate and compare the level of mental stress in newly joined 1st-year undergraduate medical students. **Aims and Objectives:** The objectives of this study were to estimate and compare the level of mental stress in 1st-year undergraduate medical students at joining and after 2 months of joining the course. **Materials and Methods:** Newly joined 98 1st-year undergraduate MBBS students of either gender (female = 54 and male = 44) were selected as study participants. At joining and after 2 months of joining the course, baseline and post-counseling perceived stress scale (PSS) scores were measured using PSS, respectively. For the first 2 months, after joining counseling and yoga interventions were given for all the study participants. The data collected were statistically analyzed by paired *t*-test. **Results:** Regular counseling based interventions and yoga sessions for the initial 2 months of the course caused a significant reduction in post-counseling PSS score ($P < 0.0001$) compared to its baseline value. **Conclusion:** Significant reduction in post-counseling PSS score is suggestive of the effectiveness of the proper counseling sessions and yoga workout.


KEY WORDS: Perceived Stress; Counseling; Yoga; Medical Students

INTRODUCTION

Among health-care education, the medical course is intrinsically challenging and stressful professional education. The hype regarding the level difficulty of the course created by the public and society is putting enormous mental pressure on the newly joined undergraduates. Awareness of the depth of the syllabus, tight academic, and assessment sessions brings newly joined undergraduate under extra pressure and anxiety. Continued teaching, practical, and examination schedule leave students with no time for mental relaxation. Mental

stress, anxiety, and depression have been often associated with mental and physical health effects.^[1] The newly joined young students are quite susceptible to the stress of higher professional education due to an extremely competitive and demanding environment. When compared, literature review shows that medical graduates perceive higher stress than non-medical graduates.^[2]

If remained unnoticed and unattended, any level of mental stress modulates the behavior, sleeping pattern, burnout the basic nature, and potential of the student; it increases the dropout number, a fact presented by Dyrbye *et al.* in their numerous studies.^[2,3] Canadian and US-based studies suggest a high prevalence of depression anxiety and psychological distress among medical students than in the general population.^[3] Medical undergraduate students are usually suffering from stress due to academic pressure, strict criteria, and tough nature of medical practice which requires

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involvement with painful sufferings, death, sexuality, and fear.^[4-9]

Medical students are exposed to different types of stressors. It is reported that stress among the undergraduate can be related to their academic, financial, and social status. Sometimes stress arises from pressure demand for success, also from finding difficulties in integrating the education system.^[10,11] Further, the researcher identified stress in medical students is mainly due to curricular overload but not due to personal difficulties.^[12-14] It is due to the demanding, intense environment of medical education has created excessive pressure on medical students.^[15] There are number of reports available that indicates that the medical school's environment is not congenial and friendly to enhance the psychological and physical health of students.^[16]

Data pertaining to mental stress in undergraduate medical students during their initial 2 months of their course are highly valuable for the administrative authority and teachers to avoid unwanted happenings. Academicians as well as administrative authorities need to be aware of the prevalence, various causes, and levels of mental stress and anxiety among medical students, which affect not only their mental and physical health but also their academic performance. Various student-friendly interventions need to be implemented to provide the opportunity for students to perceive their studies without any undue stress, pressure, and fear. In general, the information available in this regard is college specific. Therefore, the objective of the present study was to quantify and compare the level of perceived stress among newly joined 1st-year undergraduate medical students immediately after joining the course in Sree Narayana Institute of Medical Sciences, Ernakulam, Kerala. It is also to see the possible stress-reducing effects of counseling and various student-related activities.

MATERIALS AND METHODS

Place and Approval of Study

The present pre- and post-counseling interventional study was conducted in the Department of Physiology, Sree Narayana Institute of Medical Sciences, Ernakulam, Kerala, India. The study was approved by the Institutional Research Ethical Committee.

Sample Size and Selection

Newly joined 1st-year undergraduate healthy MBBS students ($n = 98$) of both the genders (male = 54 and female = 44) were selected for the study. Written consent was taken from the students for their voluntary participation in the study. However, only two out of 100 students were excluded due to their nonwillingness.

Procedure

All the participants were made aware of the study objectives and methodology for the quantification of the mental stress. The level of stress was measured using a questionnaire-based perceived stress scale (PSS).^[17] Baseline PSS score was measured on the very 2nd day of the beginning of the course by providing questionnaire PSS to answer. Post-counseling perceived stress score was measured after 2 months at the beginning of the course. During 2 months, there were various types of activities such as counseling sessions by psychologists, academic orientation programs by the teachers, junior-senior student interactions, parent-teacher-student meeting, anti-ragging program by local police personnel for their safety, weekly yoga sessions, and meditation by yoga expert to get relieved from the anxiety, and stress conducted to provide the opportunity to the students to get settle down and adjust with the college environment and academic schedule. To assure the safety of the newly joined students, a special vigilance team was deployed in the hostel to avoid any menace by the seniors, especially during nights. Through all these deliberate activities, students were made aware of their college campus, fellow batch mates, teachers, seniors, academic, and assessment schedule and pattern.

Statistical Analysis

The data collected were analyzed using SPSS (version 24). A paired *t*-test was applied to compare the baseline and post-counseling PSS scores. In this analysis, *P*-value was established at a 5% level of significance.

RESULTS

Mean PSS scores at baseline and post-counseling, i.e., after 2 months of the beginning of course are measured and summarized in Table 1. It shows a significant reduction in mean post-counseling PSS scores compared to their mean baseline score.

DISCUSSION

In the present study, the level of perceived stress on joining the course and the possible effect of various counseling types of interventions, including yoga and meditation on level of perceived stress among newly joined 1st-year MBBS students of Sree Narayana Institute of Medical Sciences, Ernakulam, Kerala, India, were assessed. The baseline mean PSS score

Table 1: Baseline and post-counseling PSS scores

PSS score	Mean±SD (<i>n</i> =98)	Mean difference (%)	<i>P</i> -value
Baseline	29.6±2.019	17.46 (42)	<0.0001***
Post-counseling	12.14±1.980		

SD: Standard deviation, ****P*<0.0001: Highly significant

was found to be 29.6 ± 2.019 , while the post-counseling PSS score was found to be 12.14 ± 1.980 . The result clearly indicates that the mean post-counseling PSS score was reduced by 41% and was found to be highly statistically significant ($P < 0.0001$) compared to its respective baseline score.

Stress and depression have been consistently linked to mental and physical health effects in medical students.^[1] The findings of the present study are similar to the findings of Anuradha *et al.* and Nivetha *et al.* Their study showed various academics, psychological, and environmental factors as stressors as the reason for the stress among newly joined undergraduate medical students.^[18,19] Similar kinds of stressors were also been observed by other researchers, which potentially causes psychological stress among newly joined medical undergraduates.^[20,21]

Further, despite the higher prevalence of stress among the newly joined medical undergraduate students, various counseling sessions for the students do impact the level of stress during the course of study. In the present study, with the intervention of repeated counseling sessions by an student psychologist, adopting mentorship program, deploying anti-ragging committee for their security, academic and assessment orientation programs by subject experts, weekly yoga and meditation workouts, fresher's welcome party, and student-parent-teacher meeting were impacted the overall psychology of the student. The positively altered psychology and behavior resulted in a significant reduction in stress level when measured after 2 months. Our results are well supported with similar findings by Abraham and Angela.^[22]

The studies conducted earlier reported that psychological support through various stress relieving interventions, academic support through various academic and assessment orientation and mentorship programs, junior-senior student positive interaction through welcome ceremony for juniors, and yoga and meditation intervention for mental stability were proved to be some of the stress reliever techniques among the undergraduate students.^[23,24]

Saoji^[25] and Fares and Fares^[26] have reported the role of yoga and meditation as a strategic tool to relieve the stress in medical students. The outcome of the present study, therefore, partially could be attributed to the practice of yoga and meditation.

We presume that the significant reduction in the level of perceived stress post-counseling is multifactorial. It might be the collective result of various stress-relieving activities. Increased awareness of the college campus, seniors, teachers, depth of syllabus, and academic schedule though interventions might have proved to be a confidence booster among undergraduate medical students. In addition, yoga and meditation might have balanced autonomic activity to feel

calm, composed, and balanced to have better control over the emotions.

Strength and Limitation of the Study

As the study was a single campus-based and specific group of medical students, the outcome cannot be generalized. Due to the multiple interventions, attributing the result to specific intervention was not possible. The gender-based analysis was not done due to the consideration of a single cohort study. Being it was a pre- and post-interventional study design of the study, the control group was excluded from the study. However, the present study was conducted on a large sample size.

CONCLUSION

A high level of mental stress is prevalent among the newly joined undergraduate medical students. However, stress-relieving strategic interventions during the initial 2 months of joining of the course were extremely critical in significantly reducing the level of perceived stress. These interventions could also be used as an effective preventive measure to avoid untoward events among newly joined undergraduate medical students.

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