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Оригинальное исследование / Research article

Depression, anxiety and stress levels among medical and dental students: a cross sectional study

S. Kumar, S. Jayachandra, S.R. Kodidala

Zydus Medical College and Hospital
India, 389151, Dahod, Nimnaliya rd.

Abstract

Introduction. In medical and dental colleges increased levels of psychological disturbances such as depression, anxiety and stress (DASS) among students which affect the way these students take care of patients. By identifying necessary modifications can be made to improve the quality of life among medical and dental students. The aim of this study is to assess DASS among undergraduate medical and dental students in Mathura city, Uttar Pradesh, India. **Material and methods.** The medical and dental college students from K.D. Medical College and K.D. Dental College students were included. A short questionnaire version of depression, anxiety and stress scale (DASS-21) was distributed and filled by students. Comparison among the variables was done using independent *t*-test with significance at $p < 0.05$. **Results.** The study group comprised 415 subjects, 164 (39.51 %) males and 251 (60.48 %) females. Among them 297 (71.56 %) were medical students and 118 (28.43 %) were dental students. Out of a total of 297 medical students, the severity of overall DASS score was 38.8 ± 10.2 while depression score was 12.6 ± 4.0, anxiety score was 13.0 ± 4.1, stress score was 13.2 ± 4.3. Out of a total of 118 dental students the severity of overall DASS score was 37.8 ± 11.1 while depression scores was 12.2 ± 4.2, anxiety score was 12.9 ± 4.0, stress score was 12.7 ± 4.5. The overall mean DASS score and its dimensions were not significant based on gender. **Conclusions.** Clinical years were more stressful than the nonclinical years. This suggests a need for special attention to the structure of the clinical program, particularly at the point of transition from the preclinical to the clinical phase.

Key words: students, anxiety, stress, depression, medical, dental.

Conflict of interests. The authors declare no conflict of interest.
Correspondence author: Kodidala S.R., e-mail: satyanath3218@outlook.com
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Уровни депрессии, тревоги и стресса среди студентов-медиков и стоматологов: перекрестное исследование

С. Кумар, С. Джаячандра, С.Р. Кодидала

Медицинский колледж и больница Зидуса
Индия, 389151, Даход, ул. Нимналия

Резюме

Введение. Среди студентов, работающих с пациентами в медицинских и стоматологических колледжах, возрос уровень психологических расстройств, таких как депрессия, тревога и стресс. Путем определения необходимых изменений можно улучшить качество жизни студентов-медиков и стоматологов. Целью этого исследования является оценка депрессии, тревоги и стресса среди студентов-медиков и стоматологов в городе Матхура, штат Уттар-Прадеш, Индия. **Материал и методы**. В исследование были включены студенты из Медицинского и Стоматологического колледжей. Студентам была роздана и заполнена краткая версия анкеты по шкале де-

прессии, тревоги и стресса (DASS-21). Сравнение между переменными проводилось с использованием независимого t-критерия со значимостью при $p < 0,05$. **Результаты**. Исследуемая группа состояла из 415 студентов, 164 (39,51 %) мужчин и 251 (60,48 %) женщины. Среди них 297 (71,56 %) были студентами-медиками и 118 (28,43 %) – студентами-стоматологами. Из общего числа 297 студентов-медиков общий балл DASS составил 38,8 ± 10,2: оценка депрессии – 12,6 ± 4,0, оценка тревоги – 13,0 ± 4,1, оценка стресса – 13,2 ± 4,3. Из общего числа 118 студентов-стоматологов общий балл DASS составил 37,8 ± 11,1: оценка депрессии – 12,2 ± 4,2, оценка тревожности – 12,9 ± 4,0, оценка стресса – 12,7 ± 4,5. Общий средний балл DASS и его размеры не зависели от пола. **Заключение**. Годы прохождения клинической практики были более напряженными, чем годы без клинической практики, что говорит о необходимости особого внимания к структуре клинической программы, особенно на этапе перехода от доклинической к клинической фазе.

Ключевые слова: студенты, тревога, стресс, депрессия, медицина, стоматология.

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Автор для переписки: Кодидала С.Р., e-mail: satyanath3218@outlook.com
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Introduction

The Depression, Anxiety, Stress Scale (DASS) was developed in 1995 to measure the presence of depression and anxiety and to address discriminating between anxiety and depression [1]. DAS have been recognized by the World Health Organization (WHO) as important mental health disorders. Among the global burden of diseases DAS are the fourth leading contributors and it has been projected that by 2020 will become the second leading contributors after the cardiovascular-related diseases [2]. Depression is a common mental disorder that presents with depressed mood, loss of interest or pleasure, feelings of guilt or low self-worth, disturbed sleep or appetite, low energy, and poor concentration [3]. Hence, depression is associated with a constellation of psychological, behavioural and physical symptoms. Anxiety is a psychological disorder that is associated with significant suffering and impairment in functioning with blend of thoughts and feelings characterized by a sense of uncontrollability and unpredictability over potentially aversive life events [4]. Stress, on the other hand, is a consequence of or a general response to an action or situation that places special physical or psychological demands, or both on a person. As such, stress involves an interaction of the person with the environment [5].

In general, everyone working or not working and employed or unemployed experiences these mental health disorders. However, students in health care are at the higher risk due to the educational and transitional nature of student's life which they are not coping up. They have to adjust themselves with life, environment which requires compliance with academic stress, dealing with patients, new social norms and new people they meet and live. Very important that increasing demand to perform well academically and professionally may contribute to increasing levels of DASS. Depression is a serious and often under-diagnosed mental health problem in college students which may have fatal consequences.

Medical and dental colleges are known to be highly demanding and stressful learning environments. These professions are one of the top professional courses chosen because of their esteemed place and financial security in the Indian society. The students are experiencing the burden of vast syllabus, high level of competition, inability to cope up with the high expectations of parents after joining the course. This usually creates stress among them which will have negative impact on their mental status of health leading to sleep deprivation, reduced concentration, lack of confidence in handling patients, loss of self-esteem, anxiety, depression, interpersonal conflict, substance abuse, suicidal attempts etc leading to elevated levels of DASS among students [6].

Retrieving knowledge about psychiatric morbidity is important as early detection and intervention may help in preventing and minimizing the effects of distress and help the students to deliver the best comprehensive care to the patients in the future. It is no surprise that mental health of medical students in India as an area of research domain has attracted the second highest attention of the faculty in medical colleges of country after medical education, learning process, and evaluation [7]. Extraordinary pressures, including a heavy schedule are responsible for depressive symptoms and major stressor for all the dental students was examination and grades and fear of facing parents after failure followed by full working day, receiving criticism from supervisors

about academic or clinical work, amount of cheating in dental faculty, rules, and regulations of the faculty and fear of unemployment after graduation [8, 9]. Hence, the present study aimed to assess the DAS among medical and dental students using DASS-21. The objectives of the study were to measure the presence of anxiety, stress and depression in medical and dental undergraduates based on gender and type of course.

Material and methods

A cross-sectional questionnaire survey was conducted among undergraduate medical and dental students studying in K.D. Medical college and K.D. Dental college, Mathura, Uttar Pradesh, India for a period of 6 months. After obtaining the Institutional Ethical Committee approval, the Dean of both medical college and dental college was met and permission was obtained to conduct the study among the medical students. The study was performed in full accordance with the World Medical Association Declaration of Helsinki. All the students studying in first year and final year spent more than six months and willing to participate in the study were included in the study. A self-administered measure was used to assess depression, anxiety and stress. DASS-21 [10] was distributed to undergraduate medical and dental students during lecture hours in the classroom. The details obtained from the students included age (in years), gender (male/female) and college (course).

DASS-21 is a 21-item short version synthesized from the original 42-item survey [11]. This prevalidated questionnaire has seven items for each of the three scales designed to measure the negative emotional states of DAS. Items 3, 5, 10, 13, 16, 17, and 21 form the depression scale; items 2, 4, 7, 9, 15, 19, and 20 form the anxiety scale and items 1, 6, 8, 11, 12, 14, and 18 are included in the stress scale. A four-point severity/frequency scale was used to rate the extent to which the respondents had applied/experienced each state/symptom over the past week from "never" (0), "some degree" (1), considerable degree (2) "most of the time" (3). The sum of the scores obtained was multiplied by 2 and then evaluated as per the severity-rating index. Details regarding socio-demographic characteristics were also collected.

Results are expressed as mean ± standard deviation. Independent *t*-test was used for comparison among the variables. Differences were tested at a significance level of $p < 0.05$.

Results

Out of 460 questionnaires distributed to medical and dental students, 415 students completed questionnaire yielding a response rate of 90.21 %. The study group comprised 297 (71.56 %) with mean age 21.26 ± 2.0 years in medical students and 118 (28.43 %) dental students with mean age of 21.43 ± 1.87 years. The severity of DASS scores according to specialty, gender and age is presented in the table.

Discussion

This study describes the depression anxiety and stress of 415 medical and dental students at Mathura, Uttar Pradesh. The DASS [1] is the only self-report scale which measures all the three negative emotional states, i.e., depression, anxiety, and stress altogether and is also designed to maximize discrimination between the three components it measures. The DASS has high reliability and a factor structure that is consistent with the allocation of the items to subscales, exhibiting high convergent validity with other measures of anxiety and depression in both clinical as well as community samples [1, 10]. In the present study, we have used DASS-21 which is a short form of the DASS-42 and having lot of advantages over the full-length version. First, and foremost is it takes very less time to complete. Second, the items retained from the full-length version are generally superior to those omitted and as a result, has a cleaner factor structure. Furthermore, it has been revealed that the short

DASS scores in medical and dental students

Variables	DASS	Depression	Anxiety	Stress
Medical students (*n* = 297)	38.8 ± 10.2	12.6 ± 4.0	13.0 ± 4.1	13.2 ± 4.3
Dental students (*n* = 118)	37.8 ± 11.1	12.2 ± 4.2	12.9 ± 4.0	12.7 ± 4.5
p	0.32	0.30	0.82	0.29
Gender				
Male (*n* = 164)	44.5 ± 14.0	14.9 ± 6.0	15.6 ± 6.1	14.0±6.3
Female (*n* = 251)	45.2 ± 13.5	14.3 ± 5.3	16.4 ± 4.9	14.5±4.8
p	0.66	0.33	0.22	0.45

form of DASS is more consistent compared to full-scale version [1, 10]. In our study, the overall mean DASS score and its dimensions between male and female students studying medical and dental course were not statistically significant. Anxiety may affect the clinical performance in professional students. A cross-sectional study by A. Obarisiagbon et al. was to determine the factors provoking clinical anxiety in the medical students and dental students from the trainers and students perspectives [12]. Medical school training is intended to prepare graduates for a personally rewarding also a socially meaningful career. However, some reports have shown that this is a time of great personal distress for physicians-in-training. Student distress may influence their professional development and adversely impact academic performance contributing to academic dishonesty, disturbance and substance abuse, also may play a role in attrition from medical school [13].

Some degree of stress is obviously helpful for individuals in meeting the new challenges especially in professional courses like M.B.B.S and B.D.S. but persistently high and unrelieved stress can lead to psychological, physical and behavioral negative impact on health. The overall score of DAS among the medical students is slightly more when compared to the dental students. This was not significant and may be an outcome of different cultural background, lifestyle and academic management. Medical profession in India is based on global best practices, and course duration is of four-and-half years followed by one year internship. The students are systematically and in structured way exposed to different subject streams (preclinical, paraclinical and clinical) through processes prescribed under regulatory body also students have to maintain record of daily activity/learning in a log book followed by formative and summative evaluation through exams [14]. It could be partly attributed to rigor of professional training and the quality of learning/ understanding environment in medical colleges of India. The development and growth potential of student is directly correlated with the depth of knowledge, positive attitude and diverse skills he/she possesses and demonstrates whether at undergraduate or higher levels [15].

Dental profession in India is through a five years course, which includes four years of study followed by one year of internship. The B.D.S. students are also systematically exposed to different subject streams (preclinical, paraclinical and clinical) through processes prescribed under regulatory body. From third year of study students are introduced to clinical training involving patients for the first time and need to concentrate on academic subjects. In addition, they are required to directly deal with patients and must have to complete certain clinical requirements. Patient being late or not showing up for their appointment may contribute to increase in the stress [8, 16].

Both medical students and dental students are most stressed by grades and performance on examinations appear to face challenges during their professional training in developing a sense of confidence in their ability to be effective clinicians and maintaining it. Very often, these challenges have been found to be affected by gender and are also linked to an imperative for students to exhibit perfection in all aspects of their behavior along clinical skills [17, 18].

Although few studies have suggested that female students from medical and dental colleges are more at risk of suffering the effects of depression anxiety and stress than men, our study found no statistically significant difference between both genders. Today, approximately half of all dental and medical students are females. This study has brought to our attention many of the risk factors that add to the DASS levels of medical and dental students. While many professional colleges offer counseling services, tutoring services, crisis intervention, ombudsmen, and time management strategies, it is difficult to measure the effectiveness of these offerings. Some dental colleges have taken steps to eliminate clinical requirements and provide more flexibility in the clinical curriculum. In medical colleges new curriculum has been implemented from 2019 batch titled Competency-based UG Curriculum for the Indian Medical Graduates focusing on practical aspects. Although these may relieve some of the burden on medical and dental students, it would not necessarily change the faculty-student relationship. Further study is indicated to determine the effects of curricular changes on overall student DASS levels.

Conclusions

The present study has a limitation such as the self-reporting and close-ended nature of the questionnaire since there is no interviewer to intervene in the case of any misunderstanding in the communication exchange between the researcher and the respondent. Close-ended questions limit the respondent for the set of alternatives being offered. Because this research was limited to one campus, it is not known whether trends found reflect local attitudes or are more widespread. Regardless, we strongly feel that it is important to continue to examine the causes and consequences of stress and how changes in medical and dental practice, affect the psychological levels of our students. It is also important that we openly discuss these results with students and explore ways

in which we can work in collaboration to limit the factors and provide appropriate support and treatment to them.

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Information about the authors:

Sanjay Kumar, professor, ORCID: 0000-0002-9113-3428
Srinivasa Jayachandra, professor, ORCID: 0000-0001-9473-8011
Satyanath Reddy Kodidala, ORCID: 0000-0001-7830-7211, e-mail: satyanath3218@outlook.com

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