

ASSESSMENT OF STRESS IN UNDERGRADUATE DENTAL STUDENTS- A PROSPECTIVE STUDY

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Article Received on
22 May 2018,

Revised on 12 June 2018,
Accepted on 02 July 2018,

DOI: 10.20959/wjpr201814-12751

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ABSTRACT

Background: The stress which is experienced by students may adversely affect their academic achievement, personal well being and longterm professional capabilities. The dental profession is one of the most stressful health professions. The purpose of this study was to investigate perceived sources of stress on undergraduate dental students. **Methods:** Modified version of the Dental Environment Stress (DES) questionnaire which was used to assess perceived stress among undergraduate dental students. Means and standard deviations were determined for stress scores of individuals for each item. Student's t, one way ANOVA, and Tukey multiple comparison post hoc tests were used to analysed the data at the significant level of p- value of ≤ 0.05 . **Results:** The top stressor for all years was my colleagues in college and hostel are not friendly and I chose dentistry with my parents interest. For most of these items, second and final year students

reported more stress than first and third year but the final year students shows maximum stress among all academic years. Following theory lectures and completion of clinical quota is more stressful for final year students where as I don't enjoy mess food and financial

problems were more stressful for the first and second years respectively. **Conclusion:** The findings suggested that high levels of perceived stress existed in the professional students during the period of their courses. To manage the most common sources of stress in dental students, strategies for stress management must be implemented in dental education.

KEYWORDS: Dental education, students, perceived stress, study year.

INTRODUCTION

Stress is a complex, dynamic process of interaction between a person and his or her life.^[1] The term stress describes external demands (physical or mental) on an individual's physical and psychological well-being.^[2] It is the way one reacts physically, mentally and emotionally to the various conditions. The stress which is experienced by students may adversely affect their academic achievement, personal well being and longterm professional capabilities. The students from professional courses do feel a great amount of pressure in dealing with academic stress and anxiety. The dental profession is one of the most stressful health professions.^[1,3]

In India, the duration of the Bachelor of Dental Surgery programme is of four calendar years with progression examination at the end of each year, followed by 1 year paid rotatory internship in dental colleges and is governed by the Dental Council of India. During the first 2 years of graduation, students are taught basic science and liberal arts whereas the later years are dedicated for imparting clinical education.^[2,4]

In a previous study, conducted by Hoad-Reddick et al,^[5] concluded that many factors led to dentistry being particularly stressful such as: the combination of time pressure, frightened patients, financial problems, staff supervision, and the routine and boring work regime. These stressors have been categorized into different factors, ie, academic, clinic-related, social, and financial, or a combination of these factors. These stressors affect dental students differently according to their year of study.^[3] Baldwin et al^[6] and Gorter et al^[7] in their study stated that dentists suffer from especially high degrees of stress even when compared with other health professions. The objectives of this study were to identify the perceived sources of stress among dental students and to investigate whether specific stressors were related to year of study and gender; and compare the findings with those reported by other investigators.

MATERIALS AND METHODS

The study population comprised all undergraduate students from first to fifth year dental students enrolled with the Tatyasaheb Kore Dental College, Kolhapur, Maharashtra, India. Verbal consent was obtained from the respondents and ethical approval for performing the survey was obtained from institutional ethical committee. Stress was measured using a modified dental environment stress (DES)^[8] questionnaire which consisted of 20 questions applicable to the Indian dental education background. The chosen questions were closed ended with yes or no answers.

The study was conducted in middle of the academic term. All undergraduate students were requested to participate in the study including interns attending the compulsory rotatory internship. Questionnaires were distributed during one lecture for first to final year students and the interns were told to gather in one lecture hall with prior permission from the dean of the institution. The aims and the purpose of the study were communicated well in advance to the students. Participation in the research was on voluntary basis and no incentives were used for the respondents. Students present on the days of the survey were included.

STATISTICAL ANALYSIS

All the data collected were tested for normality before analysis using version 20.0, SPSS software. Means and standard deviations were determined for stress scores of individuals for each item and were used to compare the classes, genders, and choices. Student's t-test was used for two group comparisons and a p-value of ≤ 0.05 was considered statistically significant. Comparison of different reasons for joining dentistry with respect to their stress was done by one way ANOVA and Tukey multiple comparison post hoc procedure.

RESULTS

Out of a total of 300 students, 243 participated in the study giving an overall response rate of 81 percent. Age of the study population ranged from seventeen to twenty-four years. From study population, 62 (25.51%) were males and 181(74.49%) were females; female students outnumbered the male students in all the years. The difference between genders was found to be statistically significant and it was noteworthy that female students had higher mean DES scores than their male counterpart. The lack of overall gender differences may be a reflection of the growing number of female students entering the dental program. Response rates by year of study were 91.66% for the first-year students, 81.66% for the second, 85.00% for the third, 100% for the fourth and 46.66% for the fifth (Table 1).

Table 2 shows the 20 questions chosen from a modified dental environment stress (DES) applicable to the Indian dental education background. Table 3 shows mean scores for each of the 20 stressors across each of the five years of academics.

The top stressor for all years was My colleagues in college and hostel are not friendly (0.95 ± 0.23), followed by I chose dentistry with my parents interest climbed to second top stressor (0.72 ± 0.45), then Time management during the course for study gives me stress (0.64 ± 0.48), Lack of time for relaxation gives me stress (0.62 ± 0.49), Completion of preclinical / clinical quota is stressful (0.60 ± 0.49), and Securing good marks/ grade gives stress (0.51 ± 0.50) were placed.

For most of these items, second and final year students reported more stress than first and third year but the final year students shows maximum stress among all academic years. There was a significant difference between all the academic years except for the items like I chose dentistry with my parents interest, Staying in hostel/outside rooms is stressful, My colleagues in college and hostel are not friendly, To reduce my stress I depend on smoking/alcohol/party/ outings with friends and Fear of failing in exam.

For the first year students I don't enjoy mess food and course is more difficult than I imagined are more stressful compared to others. Financial problems/ lack of money gives more stress to second year students than others (0.47 ± 0.50).

Following theory lectures is difficult and stressful (0.47 ± 0.50), completion of preclinical / clinical quota is stressful (0.74 ± 0.44), participating in discussions during clinical postings gives stress (0.50 ± 0.50), time management during the course for study gives more stress (0.77 ± 0.42), behavior of teaching staff gives more stress (0.47 ± 0.50), approaching the teaching staff for doubts/ problems is stressful (0.35 ± 0.48) Securing good marks/ grade gives more stress (0.27 ± 0.45), uncertainty about dental career gives more stress (0.42 ± 0.50) and lack of time for relaxation gives more stress (0.46 ± 0.51). All these items were more stressful to final year students as compared to others. ANOVA showed significant differences among these reasons ($P < 0.05$). Pair wise comparison by Tukey multiple comparison post hoc procedure showed significant differences between various two pairs ($P < 0.05$).

Table 1: Distribution of study subjects according to academic years and gender.

Year of the study	Total	No. Students attended	Gender		Response rate (%)
			Male (%)	Female (%)	
1 st	60	55	8 (14.54)	47 (85.45)	55 (91.66)
2 nd	60	49	12 (24.48)	37 (75.51)	49(81.66)
3 rd	60	51	15 (29.41)	36 (70.58)	51 (85.00)
4 th	60	60	18 (30.00)	42 (70.00)	60 (100)
Intern	60	28	9 (32.14)	19 (65.51)	28 (46.66)
Total	300	243	62 (25.51)	181 (74.48)	243 (81%)

Table 2: List of 20 questions chosen modified dental environment stress (DES) questionnaire.

S.No.	Questions
1	I chose dentistry with my parents interest
2	Staying in hostel/outside rooms is stressful
3	My colleagues in college and hostel are not friendly
4	I don't enjoy mess food
5	Rules and regulation of the campus gives me stress
6	Understanding of the course subject in English language is stressful
7	Financial problems/ lack of money gives me stress
8	Following theory lectures is difficult and stressful
9	I feel difficulty in learning preclinical /clinical procedures
10	Completion of preclinical / clinical quota is stressful
11	Participating in discussions during clinical postings gives stress
12	Time management during the course for study gives me stress
13	Behavior of teaching staff gives me stress
14	Approaching the teaching staff for doubts/ problems is stressful-
15	To reduce my stress I depend onsmoking/alcohol/party/ outings with friends
16	Fear of failing in exam
17	Securing good marks/ grade gives stress
18	Uncertainty about dental career gives me stress
19	Lack of time for relaxation gives me stress
20	Course is more difficult than I imagined

Table 3: Sources of stress and differences in the mean stress scores according to the classes.

Descriptive Statistics	First Year	Second Year	Third Year	Final Year	Interns	All	F statistic	p value
	Mean± SD	Mean± SD	Mean± SD	Mean± SD	Mean± SD	Mean± SD		
Q1	0.78±0.42	0.71±0.46	0.82±0.39	0.65±0.48	0.62±0.50	0.72±0.45	1.75	0.14
Q2	0.18±0.39	0.29±0.46	0.31±0.47	0.35±0.48	0.19±0.40	0.28±0.45	1.42	0.23
Q3	0.98±0.13	0.90±0.31	0.92±0.27	0.97±0.18	0.96±0.20	0.95±0.23	1.23	0.30
Q4	0.62±0.49	0.22±0.42	0.06±0.24	0.21±0.41	0.19±0.40	0.27±0.45	14.51	0.00
Q5	0.13±0.34	0.39±0.49	0.37±0.49	0.40±0.49	0.31±0.47	0.32±0.47	3.37	0.01
Q6	0.05±0.23	0.20±0.41	0.06±0.24	0.08±0.27	0.00±0.00	0.09±0.28	3.17	0.02

Q7	0.15±0.36	0.47±0.50	0.31±0.47	0.37±0.49	0.38±0.50	0.33±0.47	3.55	0.01
Q8	0.11±0.31	0.33±0.47	0.18±0.39	0.47±0.50	0.42±0.50	0.29±0.46	6.49	0.00
Q9	0.20±0.40	0.35±0.48	0.25±0.44	0.11±0.32	0.00±0.00	0.20±0.40	4.52	0.00
Q10	0.45±0.50	0.73±0.45	0.65±0.48	0.74±0.44	0.27±0.45	0.60±0.49	7.18	0.00
Q11	0.13±0.34	0.24±0.43	0.31±0.47	0.50±0.50	0.19±0.40	0.29±0.46	5.95	0.00
Q12	0.64±0.49	0.61±0.49	0.67±0.48	0.77±0.42	0.35±0.49	0.64±0.48	3.90	0.00
Q13	0.11±0.31	0.39±0.49	0.29±0.46	0.47±0.50	0.46±0.51	0.33±0.47	5.46	0.00
Q14	0.13±0.34	0.27±0.45	0.14±0.35	0.35±0.48	0.15±0.37	0.22±0.41	3.28	0.01
Q15	0.13±0.34	0.20±0.41	0.20±0.40	0.31±0.46	0.31±0.47	0.22±0.42	1.72	0.15
Q16	0.40±0.49	0.37±0.49	0.53±0.50	0.61±0.49	0.46±0.51	0.48±0.50	2.24	0.07
Q17	0.58±0.50	0.41±0.50	0.57±0.50	0.60±0.49	0.27±0.45	0.51±0.50	3.03	0.02
Q18	0.22±0.42	0.31±0.47	0.47±0.50	0.42±0.50	0.42±0.50	0.38±0.49	2.42	0.05
Q19	0.71±0.46	0.49±0.51	0.49±0.50	0.73±0.45	0.46±0.51	0.62±0.49	3.61	0.01
Q20	0.60±0.49	0.39±0.49	0.24±0.43	0.39±0.49	0.12±0.33	0.37±0.48	6.43	0.00

DISCUSSION

Admissions to professional courses like dentistry have become highly competitive, requiring increased motivation on the part of applicants. It is natural that new students work hard toward excellence, helping them not only during the program, but also giving them a competitive edge for postgraduate programs.^[9,10] Previous studies have reported that dental education induces considerable stress on students and almost universal phenomena in different countries with different education systems and curricula.^[11-16] These findings are in accordance with those of our study, wherein students perceived high levels of stress. The main objective of this study was to identify the perceived causes of stress among dental students at the Tatyasaheb Kore Dental College, New Pargaon, Kolhapur, Maharashtra, India. Results of the present study showed that overall females perceived more stress than male students. Modern society has provided greater representation of women in all disciplines. This overall gender differences may be a reflection of the growing number of female students entering the dental education where female students outnumbered the male students in all the years. So the percentage of stress perceived by females was more than males in our study and the difference between genders was found to be statistically significant.

Similar results have been reported by other researchers^[11,12,17-20] Sanders and Lushington^[11] attribute the high stress levels in females to their psychological makeup and greater expressivity of thoughts and feelings. Alzahem AM et al^[21] and Al-Saleh SA et al^[22] reported that higher stress reported by females may be due to the way they respond to stressful events and males being less expressive of their worries. In contrast to this Kumar et al^[2] Tangade et al^[4], Acharya^[14] in their study reported that overall males perceived more stress than female

students. However, Sofola et al^[23] reported that stress levels were not different between genders.

In the present study, the top stressor for all years were, colleagues in college and hostel are not friendly followed by I chose dentistry with my parents interest then time management during the course, lack of time for relaxation, completion of preclinical / clinical quota and securing good marks/ grade. Different studies have shown different top stressors for all years.^[4,14,24,25]

Fear of failure in a course was ranked as the most stressful item across all professional years and appeared similar to what was reported by Tangade and Colleagues.^[4]

For most of these items, second and final year students reported more stress than first and third year. For final year students, following theory lectures, completing clinical quota, participating in discussions time management, behavior of teaching staff, approaching the teaching staff and securing good marks and uncertainty about dental career were more stressful as compared to others. This was in contrast to the Tangade et al^[4], Acharya et al^[14], Polychronopoulou A et al^[26] and Rajab et al^[27] showed items dealing with anxieties about the future- namely uncertainty about the dental carrier, fear of unemployment after graduation, and fear of not having possibility to pursue a postgraduate program, became the top stressors in final year.

Stress related to clinical items was generally more for the fourth-year students. This increase in stress levels in the fourth year may be because the students were required to complete certain quotas in terms of patients treated in order to be eligible to appear for the final exams.^[14] These findings were in agreement with previous studies and suggest that clinical years are more stressful than the nonclinical years.^[8,11,14,17]

In the present study third year students perceived overall less stress compared to other years. These findings are in accordance with study conducted by Babar et al.^[28] However, our study was in contrast to other studies where third year students showed high level of stress.^[2, 9,14, 18,24] This confirms anecdotal evidence that the third years with the transition from pre-clinical to clinical phase (with the onset of patient care) may be a critical period in dental school training, and students may require additional academic support at this time. Westerman et al^[12] reported nonclinical years were more stress full than the clinical years.

Toward their final years, students are more anxious about their future prospects. This tendency is clearly seen in our study, where fourth- and fifth-year students found ‘‘Fear of not having possibility to pursue a post graduate dental education program’’ significantly more stressful and it is in accordance with other studies.^[2,9]

In India, the reason for uncertainty about dental career may be the present trend of dental education in India where approximately 16 000 dentists pass out from 205 dental institutions each year. Even though the current oral health situation in India features huge unmet treatment needs, job opportunities are scanty as there is no oral health policy in India at the national level, and in many states there are no dental services provided under the public health sector. Consequently, job opportunities for fresh undergraduates are solely concentrated in the private sector where there is an increased competition that would limit their earnings. Heavy competition still exists to gain a job abroad or to achieve admission for postgraduate studies.^[9]

In contrast to this Babaer et al^[28] in his study reported that students were more anxious about their future in their initial years compared to later years. The reason may be greater job security in Malaysia caused by paid compulsory government service and vacancy in private practice may explain the relatively lower fear of unemployment.

The present study showed that those students who joined dentistry due to parental pressure showed higher stress than those whose first choice was dentistry and it became the second top stresser for all the years which is in accordance with the previous study done by Tangade et al^[4] and Acharya et al.^[14] This may be due to the fact that these students had both a lack of interest in dentistry and its future scope or were not confident of completing the course, which in turn could have made them have a pessimistic outlook and also due to behavior of the faculty, academic load, fear of unemployment after graduation, and a general lack of confidence, availability of lab technicians.

In the present study financial problems were more stress to second year students than others. Tangade et al^[4] reported a gender difference for financial concerns that male students were more concerned than females, where as Heath et al^[15] reported no such gender difference. Stress due to financial constraints can be explained by the fact that the cost of studying professional course like dentistry is high. Some parents finance their children through bank loans, books and instruments used during the academic tenure also costs very high. All these

give the students the anxiety about the financial resources. The academic overload also results in a lack of time for relaxation, resulting in stress.^[25]

While investigating the nature of accommodation, it is found that hostellers are under elevated levels of stress than their counterpart those who stay at their homes which is in accordance with other studies mentioned above.^[2-4, 9,11, 18,24] This fact may be due to: in times of emergency and hardship, a person can fall back upon his or her family for emotional and material support, which exists in those students who are staying with their family during the course tenure.

CONCLUSION

The findings suggested that high levels of perceived stress existed in the professional students during the period of their courses. To manage the most common sources of stress in dental students, we suggest including stress prevention and intervention programs within the dental curriculum. Strategies for stress management must be implemented in dental education by advocating health promotion policies and interactive academic session on stress control which improve their performance. Students should be taught positive coping strategies and various stress managing techniques to improve the ability to cope with the demanding professional course.

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