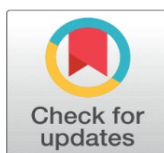


# PERCEIVED SOURCES OF STRESS AMONG UNDERGRADUATE DENTAL STUDENTS IN INDIA – A CROSS SECTIONAL SURVEY

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## ABSTRACT

**Objective:** To investigate the perceived sources of stress, the role of parents, socio-cultural background, and the learning environment on the stress levels of the student's studying dentistry in Bapuji Dental College, Davanagere, India.

**Methods:** In this cross-sectional survey 320 dental students were invited to participate, and 284 responded, resulting in a response rate of 88%. A self-administered 42 close ended Dental Environment Stress (DES) questionnaire was used to assess various sources of stress.

**Results:** The sample consisted of the subjects in the age range of 17-28 years, 59.5% of the student's joined dentistry as their self-choice followed by 9.5% due to parental choice and 31% as they had no other option. Analysis of Variance (ANOVA) revealed perceived sources of stress between classes and across all classes: final year students ranked high ( $3.32 \pm 0.87$ ) due to examinations and grades. Difficulty in learning precision manual skills for doing clinical and laboratory work resulted in highest stress among the first years ( $2.45 \pm 0.83$ ). Working on patients with dirty mouth resulted high amount of stress in final year students ( $2.84 \pm 0.95$ ).

**Conclusion:** The increased amount of stress among dental students highlights the importance of periodic interaction between the students, college faculty and educational psychologists to maximize performance of the students and minimize stress.

**Keywords:** Stress, Dental Students, Dental Environment, Academics, Patients

## 1. INTRODUCTION

Health and disease are two issues, which are integral and intimately associated with life. Modern world is witnessing significantly high prevalence of ill health. Although infectious diseases are under control, non-communicable diseases are on steady rise. Psychosomatic diseases constitute a major part of ill health; mind is the origin for these diseases which ultimately manifest in the physical body. Any amount

of treating physical manifestations of such a disease cannot eradicate the problem. The root cause being the mind, one has to treat the mind as well as the body.

Dentistry has been widely acknowledged as been associated with high levels of stress. Dentists, as professionals have a higher tendency to develop stress related disorders. Dental students are no exception to this. The term 'stress' was coined by Hans Selye in 1936, he defined it as the 'nonspecific response of the body to any demand for change'. We live in a complex world which exposes us to demanding situations expecting us to change. In fact, change is the only constant thing in this world and life. [Ganesh et al. \(2008\)](#)

In 1951 issue of the BMJ it has been that 'stress in addition to being itself, was also the cause of itself and the result of itself'. In fact, stress creates and operates as feedback with every bout of stress aggravating the existing stress to a higher level. A healthy dose of stress is always required to nudge our work and performance. It is called healthy stress but when it exceeds this limit it can be detrimental to health. The stress encountered in practicing a profession which brings its own challenges and demands is called professional stress. Most educational researchers agree that the educational process for dental students has numerous environmental features that are perceived as stressful. The topic of stress among dental students has received increasing attention in the last few decades. Academic demands, peer pressure, staying away from family, demand to excel, highly technical work, expectation of patients and teacher may create considerable stress among dental students in addition to the teenage, related stress.

Stress symptoms may include anxiety, depression, fear, tension, and assorted physical complaints example – gastrointestinal symptoms, sleeplessness, fatigue, dizziness, and tachycardia [Al-Saleh et al. \(2010\)](#) In addition to this, a negative association has been reported between stress and academic performance of dental students.

Socio-cultural factors are one set of complex factors which frequently influence the stress levels of the individuals either positively or negatively. These factors vary from region to region and Asia offers a unique socio-cultural environment which impacts stress levels among individuals differently. The family life, beliefs, traditions, values among Indians may favourably or unfavourably influence the stress among the growing students and Dental students are no exception to this. Here is an attempt to investigate the perceived sources of stress, the role of parents, socio-cultural background, and the learning environment on the stress levels of the student's studying dentistry in Bapuji Dental College, Davanagere, India.

## 2. METHODOLOGY

Study design: A descriptive cross-sectional survey, conducted to determine the level of stress suffered by the undergraduate students studying in first to final year in Bapuji Dental College.

Organization and administrative workout: prior to scheduling the survey ethical approval was obtained from IRB of Bapuji Dental College. Voluntary written informed consent was obtained from the students before the distribution of the questionnaire the objectives were discussed in clear and understandable language. The required information about the number of students studying in each year was obtained from the administrative section of college. The daily college timetable for each was also obtained in order to determine the time when they can be approached for the survey.

**Scheduling:** The data collection of scheduled in the middle of the academic year. According to the schedule prepared, the distribution and collection of the forms among the students of each year was done during college hours in two visits. One visit was for the distribution of the forms, and another visit the very next day was for the collection of the filled forms.

**Preparation of the questionnaire:** A two-part self-administered questionnaire was developed English language. The first part included 9 questions related to demographic information such as age, gender, year of study, father's occupation, number of family members, number of siblings, family's monthly income, first choice of profession, career choice decision. The second section contained modified version of Dental Environment Stress (DES) questionnaire [Acharya \(2003\)](#). It consisted of 42 close ended questions based on four-point likert scale with the response options of 1- not stressful, 2-slightly stressful, 3- moderately stressful. 4- severely stressful. A fifth possible response of 'not applicable was also there.

**Data collection:** prior to the distribution of the questionnaire, purpose, aim of the survey were discussed in detail with the students of each year. The students were requested to fill the questionnaires with interest and concentration, so as to obtain valid results. The questionnaire was distributed in the classroom or practical hall after taking permission from the concerned authorities. Those who did not return the questionnaire in the prescribed time were visited again and the duly filled questionnaires were obtained. 284 students out of 320 students returned the questionnaire. Response rate was 88.75. The common reasons for not responding were – lack of time, uninterested to participate.

**Statistical analysis:** the statistical analysis was performed using SPSS version 20 (IBM Corporation, New York, USA). Descriptive statistics such as mean, standard deviation, percentages and frequencies were calculated. Analysis of Variance (ANOVA) was used to find out the perceived sources of stress between classes and across all classes.

### 3. RESULTS

The sample consisted of 284 students studying in various years of Bachelor of Dental Surgery course in Bapuji Dental College. The sample consisted of the subjects in the age range of 17-28 years, 63.7% were of 20-22 years of age, 26.8% were of 17-19 years, and 9.5% belonged to 23 years and above age group. In our study 59.5% of the students joined dentistry as their self-choice followed by 9.5% due to parental choice and 31% as they had no other option [Figure 2](#) The data related to each question obtained from all the participants were compiled, tabulated, and stratified based on the year of studying in order to find out any statistical difference [Table 1](#). Examinations and grades constituted the main source of stress among all the students irrespective of the year in which they were studying. The final year students ranked high ( $3.32 \pm 0.87$ ) and third years were found have least stress ( $2.87 \pm 1.02$ ) due to examinations and grades. This difference was statistically significant. Difficulty in learning precision manual skills for doing clinical and laboratory work resulted in highest stress among the first years ( $2.45 \pm 0.83$ ) and lowest among final years ( $2.10 \pm 0.80$ ). This difference was statistically significant. Lack of confidence to be a successful dental student was also stressor and it resulted in highest stress among the final year students ( $2.52 \pm 1.04$ ) and least in first years ( $2.02 \pm 0.94$ ). The difference was found to be statistically significant. Working on patients with dirty mouth resulted in higher amount of stress in final year students ( $2.84 \pm 0.95$ ) when compared to third years ( $2.42 \pm 1.08$ ), this difference was statistically significant.

**Table 1**

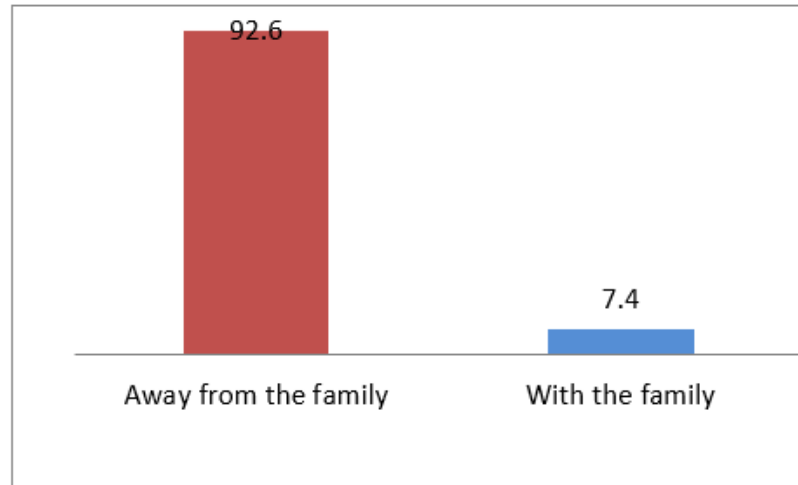
<b>Table 1 Mean scores of perceived sources of stress: Difference between classes and across all the classes</b>							
<b>Stress items</b>	<b>1<sup>st</sup> year Mean±SD</b>	<b>2<sup>nd</sup> year Mean±SD</b>	<b>3<sup>rd</sup> year Mean±SD</b>	<b>4<sup>th</sup> year Mean±SD</b>	<b>p value</b>	<b>Significant difference between classes</b>	<b>Mean score across classes</b>
1. Examinations and grades	3.20±0.81	3.01±1.01	2.87±1.02	3.32±0.87	0.03	4>1>2>3	3.05±0.97
2. Difficulty learning precision manual skills required for clinical and laboratory work	2.45±0.83	2.11±0.86	2.39±0.94	2.10±0.80	0.05	1>2>3>4	2.25±0.88
3. Lack of confidence to be a successful dental student	2.02±0.94	2.06±1.00	2.08±1.01	2.52±1.04	0.03	4>3>2>1	2.16±1.02
4. Working on patients with dirty mouths	-	-	2.42±1.08	2.84±0.95	0.02	4>3	2.58±1.05
5. Fear of having possibility to pursue a postgraduate program	2.22±1.00	2.47±1.12	2.48±1.16	3.02±1.08	0.01	4>3>2>1	2.58±1.13
6. Fear of failing a course or the year	3.03±1.04	2.96±1.16	2.95±1.12	3.45±0.81	0.03	4>1>2>3	3.07±1.08
7. Fear of unemployment after graduation	2.25±1.18	2.73±1.15	2.70±1.28	3.16±1.06	0.00	4>2>3>1	2.75±1.20
8. Financial resources	1.83±1.13	2.38±1.12	2.19±1.09	2.61±1.06	0.01	4>2>3>1	4.16±0.01
9. Fear of being unable to catch up if getting behind with work	3.00±0.86	2.64±1.01	2.58±1.03	2.40±0.88	0.04	1>2>3>4	2.63±0.98
10. Getting an ideal case for clinical examination	-	-	2.88±1.23	2.81±1.05	0.02	4>3	2.82±1.19

Fear of having possibility to pursue a postgraduate program acted as source of stress among the dental students. Maximum stress was seen among the final year students (3.02±1.08) and minimum was seen among the first years (2.22±1.00). This difference was statistically significant. Fear of failing the course was a stressor for dental students. It was found to most stressful for the final year students (3.45±0.81) and least stressful for the third-year students (2.95±1.12). The difference was statistically significant.

Financial resources were found to be a stress causing factor for the dental students which stressed the final year students to a greater extent (2.61±1.06) when compared to first year students (1.83±1.13). Lack of time to do assigned work, availability of supervisors in clinics, difficulty in understanding literature, personal physical health, attitude of staff towards women dental students, shortage of allocated clinical time, language barrier, late ending time, availability of lab technician, difference in opinion between clinical staff concerning patient treatment, fear of being unable to catch up if getting behind with work, forced

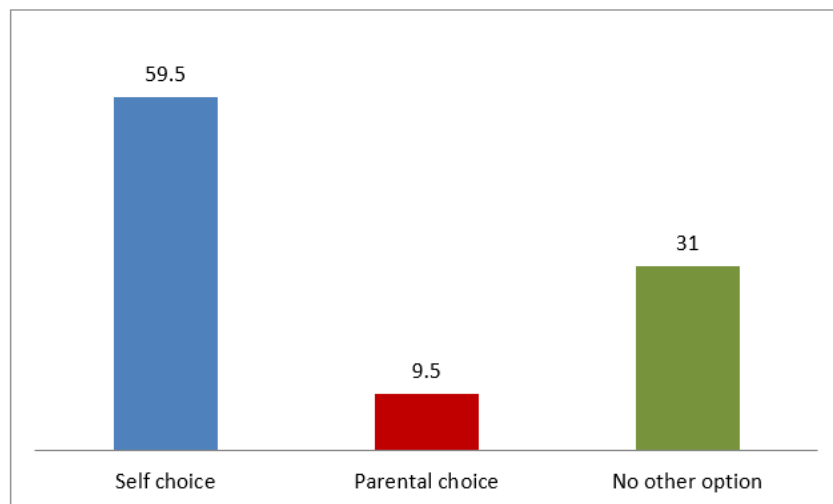
postponement of marriage or engagement and necessity to postpone having children were other associated reasons of stress among the students studying in different years of the course.

**Figure 1**



**Figure 1** Students staying with or away from the family

**Figure 2**



**Figure 2** Career choice decision

#### 4. DISCUSSION

Stress is considered to be a major source of ill health. A majority of modern diseases have their origin in stress. Dental schools are known to be highly demanding and stressful learning environments. [Lamis \(2001\)](#), [Elani et al. \(2013\)](#), [Yadav and Rawal \(2016\)](#), [Pau et al. \(2004\)](#), [Morse and Dravo \(2007\)](#), [Humphris et al. \(2002\)](#), [Harikiran et al. \(2012\)](#). Keeping these facts in view the current study was conducted to identify the perceived sources of stress among dental students of our college.

Stress was almost universally present among all the participants in the study irrespective of their year of study period. The final year students were found to be

relatively more stressed when compared to the other students with respect to the amount of work which they were supposed to do, lack of cooperation by the patient, patients coming late or breaking appointments and the responsibility to provide comprehensive care. Peer pressure was also considered as a significant source of stress by the final years. This is in disagreement with previous studies. In those studies, clinical training was found to induce less stress in final year students. The demand exerted by the curriculum, the nature of training and the constraints in the working environment differ between institutions and also between different countries. In the current study, the final year students were highly stressed probably because of curriculum overload as they are supposed to study eight clinical subjects and work in all the eight clinical departments on rotation, treating patients under supervision. They need to deliver oral health care of an expected standard and fulfil the prescribed quota of work within a fixed time schedule. They need to balance the demands of their clinical supervisors, patients and simultaneously stand up to the peer pressure.

The third year and the final year students were found to be stressed more as a result of criticism from the teachers for the academic or clinical work when compared to the other students. Although this difference was statistically not significant, in third year students it may be due to exposure to new learning environment and providing treatment to patients for the first time under the guidance of clinical supervisors.

Learning clinical work in the midst of many challenges naturally invites criticism from teachers. It takes some time for the students to receive such a criticism in sportive manner and convert the disadvantages to an advantage. Lack of confidence to be a successful dentist acted as a major source of stress among final year students when compared to all others. This may be due to overwhelming clinical work which leaves less time for academics. They are increasingly exposed to the practical problems involved in delivering oral health care of optimal standard. The students for the first time come face to face with the reality. Hence under increased stress they may lose confidence in becoming a good dentist.

The first year and the third-year students received significant stress as they faced difficulties in learning precision manual skills required for clinical and laboratory work when compared to others. This finding is obviously because of exposure to a new learning environment which happens in the first year as they are exposed to preclinical laboratories and in the third year to clinical setup which were hitherto unknown to them. Working on dirty mouths was a significant stressor among the final year students when compared to third years. Fear of failing a course or the year was a significant stressor in the first year and final year students when compared to others. It is probably because final year students if they fail, they will lose six months in becoming a house surgeon. They become juniors to their classmates. They may lose opportunities which may open up in those six months. Many of their decisions related to their professional life and personal life for instance getting admitted to higher education or to begin dental practice or to get married gets postponed. Among the first years, the probable reason is that they do not want to begin their tenure in the college by ringing a negative note right in the first year and also because many of them might not have seen failure in academics up till then, which is quite usual in India.

Fear of unemployment after graduation and fear of not having possibility to pursue a post-graduation program acted as significant source of stress for the fourth-year students. Anxiety about the future increased with every passing year and reached its peak level by the time students entered final year of their study

period. This is very much in accordance with the previous study. [Morse and Dravo \(2007\)](#). Financial resources resulted in maximum stress among final year students. It is probably because the students grow more responsible with every passing year and many of them would have availed bank loan to pay for their college fee and other expenditures which they like to repay. The responsibility of repaying the loan with its accrued interest and sometimes lack of financial support due to complete utilization of loan creates stress by the time students reach final year.

Getting an ideal case for examination was an important stressor among the third year and final year students. It was relatively high among third years when compared to final year students. In India the students are supposed to select ideal patient (as according to the criteria laid down by the university, department, or staff). A relative shortage of such ideal cases and application of straight criteria in selection of cases and obtaining approval from the staff leads to considerable stress since students have to go in search for the exams. The stress of examination compounded by the stress associated with selection of cases can lead to a crisis which may influence the performance.

Language barrier was a slightly stressful source among all students irrespective of their year of study. This is in disagreement with previous study. [Acharya \(2003\)](#). Fear of facing parents after failure was the most stressful item across all the classes. It was highest among first years and lowest among third year students. Stress due to examination was found a significant source of stress in students of all years. The final year students ranked high in the item followed by first years, second and third years respectively. Highest stress among the final years is obviously due to the strategic importance attached to the terminal phase as the students are going to be doctors once they complete the examination in the fourth year successfully. Enormous curriculum load, management of clinical work during examination probably keeps these students at a highest level of stress towards examination. The results of current study are in line with previously conducted study where stress due to examination was found to be consistently high among all the groups. Half of participants had medicine as their first choice, and they joined dentistry as they could not get medical seat. However, the data has not been stratified based on the student's option. It is interesting to know how students' admission options influence stress level. It requires further studies to unravel information related to this. From our study we would like to recommend that college environment should be balanced in such a way that students can pursue their studies with less anxiety or fever. This can be achieved by a periodic interaction between the students, college faculty and educational psychologists using latest methodologies to maximize performance of the students and minimize stress.

## 5. CONCLUSION

Difficulty in learning precision manual skills for doing clinical and laboratory work resulted in highest stress among the first years and lowest among final years. Lack of confidence to be a successful dental student was also a stressor and it resulted in highest stress among the final year students and least in the first years. Working on patients with dirty mouth resulted in higher amount of stress in final year students than the third-year students.

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## CONFLICT OF INTERESTS

None.

## REFERENCES

- Acharya, S. (2003). Factors affecting stress among Indian Dental students. *Journal of Dental Education*. 67(10), 1140-1148. <https://doi.org/10.1002/j.0022-0337.2003.67.10.tb03707.x>
- Al-Saleh, S.A. Al-Madi, E.M. Al-Angari, NS. Al-Shehri, H.A. & Shukri, M.M. (2010). Survey of perceived stress-inducing problems among dental students, Saudi Arabia. *Saudi Dental Journal*. (22), 83-88. <https://doi.org/10.1016/j.sdentj.2010.02.007>
- Elani, H.W. Bedos, C. & Allison, P.J. (2013). Sources of stress in Canadian dental students : A prospective mixed methods study. *Journal of Dental Education*. (77), 1488-1497. <https://doi.org/10.1002/j.0022-0337.2013.77.11.tb05625.x>
- Ganesh, A. John, J. & Chaly, PE. (2008). Sources of stress and psychological disturbances among dental students. *Journal of Indian Association of Public Health Dentistry*. (12), 26-33.
- Harikiran, A.G. Srinagesh, J. Nagesh, K.S. & Sajudeen, N. (2012). Perceived sources of stress amongst final year dental under graduate students in a dental teaching institution at Bangalore, India : A cross sectional study. *Indian Journal of Dental Research*. (23), 331-336. <https://doi.org/10.4103/0970-9290.102218>
- Humphris, G. Blinkhorn, A. Freeman, R. Gorter, R. Hoad-Reddick, G. Murtomaa, H. et al. (2002). Psychological stress in undergraduate dental students: Baseline results from seven European dental schools. *European Journal of Dental Education*. (6), 22-29. <https://doi.org/10.1034/j.1600-0579.2002.060105.x>
- Lamis, D.R. (2001). Perceived sources of stress among dental students at University of Jordan. *Journal of Dental Education*. (65), 232-241. <https://doi.org/10.1002/j.0022-0337.2001.65.3.tb03392.x>
- Morse, Z. & Dravo, U. (2007). Stress levels of dental students at the Fiji school of medicine. *European Journal of Dental Education*. (11), 99-103. <https://doi.org/10.1111/j.1600-0579.2007.00435.x>
- Pau, A.K. Croucher, R. Sohanpal, R. Muirhead. & Seymour, K. (2004). Emotional intelligence and stress coping in dental undergraduates - A qualitative study. *British Dental Journal*. (197), 205-209. <https://doi.org/10.1038/sj.bdj.4811573>
- Yadav, S. & Rawal, G. (2016). The current status of dental graduates in India. *Pan African Medical Journal*. (16), 23-22. <https://doi.org/10.11604/pamj.2016.23.22.7381>