

## Stress Perception of Second-year Dental Undergraduate Students - A Cross-Sectional Study

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### ABSTRACT

**Background and Objective:** The dental undergraduate students are trained intensely on preclinical skills in their second year added to the regular academic workload. A study on the perception of the stress by these students will provide feedback for the faculty members to do necessary curricular modifications if needed. The aim of this study was to assess the overall stress of the students and the contributing factors.

**Material and Methods:** The modified dental environmental stress questionnaire was administered to 55 second-year undergraduate dental students. The questionnaire had 25 items with the responses on a Likert scale of 0 to 4 for each item. Data analysis was done by descriptive statistics with frequencies and one-way ANOVA with posthoc analysis using SPSS.

**Results:** Majority of the students were having no stress (21.8%) to mild stress (70.9%). Only 7.3% had moderate stress and none were highly stressed in the study population. The academic factors, personal life issues, and professional identity were contributing equally and the faculty relations were significantly less stressful than other factors. The fear of facing parents after failure was perceived to be the top stressor with a mean stress score of  $2.1 \pm 1.5$ . The difficulty in learning precision manual skills contributed lesser stress ( $1.25 \pm 0.7$ ) and was not in the top five stressors.

**Conclusion:** Within the limitations of the study, the second year dental students were not highly stressed. Milder grades of stress cannot be prevented completely. Stress is not always bad as eustress motivates positive functioning of the students.

### Keywords:

Dental Environmental Stress, Dental student, Eustress, Stress perception, Positive academic environment

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### INTRODUCTION

An educational environment will be considered ideal when the teaching-learning process happens with greater support to the students with minimal stress. In dentistry, such environment would enable students to develop good theoretical and clinical skill acumen internalized with ethical values. It would also inculcate cooperative and collaborative skills to be a good team member. Such an environment would be termed as a positive academic environment.<sup>1</sup>

However, the educational system has the integrated assessment part that determines the success or failure of the students, which demands the students to work harder for improving

their performance. Though the purpose of these rigorous training, high expectation from the faculty, academic workload and sense of competitiveness are meant for securing a good future for the students, often they are perceived as stressful by the students. In addition to the academic factors, several other factors like the relations with faculty members, personal and family issues and future professional plans can vividly influence the academic performance of the students as well as their threshold for coping up with the stress.

The undergraduate dental students need to develop their skills as well as gain their theoretical medical and dental knowledge before they step into clinical years. The real tough part of the

curriculum is skill acquisition. Unlike other countries, there is no foundation course for the dental course after school and hence the students are exposed to new challenges after they join the dental colleges. In Indian dental curriculum governed by Dental Council of India, apart from the basic medical science subjects, the second year of undergraduate dental education deals maximally with the training of undergraduates in the skills of Dental materials, Prosthodontics and Conservative Dentistry with minimum prescribed practical working hours of 200 hours for each respectively.<sup>2</sup> Though the training involves chiefly of these three zones, it forms a basic training approach to use proper instrument grasps, finger rests and manipulation of several dental materials. They are also taught the basics in instrumentation.

The preclinical skills are given more weightage in the second year of undergraduate dentistry and are also assessed both formatively and summatively with an external examination before they proceed to third year BDS clinical dentistry. Though several studies have been done on the perception of stress by dental students using modified dental environmental stress questionnaire, the second year Indian dental students stress level has not been assessed.<sup>3,4</sup> The major difference from the curriculum of the school and the first year dentistry would be massive skill training which imposes additional workload to the second year students. The aim of this study was to assess the perception of stress by the second year undergraduate dental students and also to assess the contributing factors as perceived by them using a modified dental environmental stress questionnaire. The study was conducted at Indira Gandhi Institute of Dental Sciences, Sri Balaji Vidyapeeth, a private dental college located in South India.

## MATERIAL AND METHODS

The study was permitted by the Institutional Review Board and Institutional Ethical Committee. Informed consent was obtained from the students. Certain modifications were done in the Dental Environmental

Stress questionnaire originally developed by Garbee *et al* to make it suitable for the study participants, second year dental undergraduates.<sup>5</sup> The pre-validation of the modified version was done with another batch of students and it was then adopted. The questionnaire had twenty-five items. Each item response was designed in a Likert scale of 0 to 4 that ranged from not applicable to very stressful. The data from the Google form was collected in Microsoft Windows Excel format and analyzed using Microsoft Excel and SPSS software. Descriptive statistics with frequencies and One-way ANOVA with posthoc analysis was done. The overall stress score was calculated by the sum of the scores of all 25 items by the student. In that manner, each item can have a minimum possible score as 0 and maximum possible score as 100. Hence the overall stress score can range from 0 to 100. The items were grouped into four factors namely academic factors, faculty relations, personal life issues and professional identity.

All the second year undergraduate dental students conducted at Indira Gandhi Institute of Dental Sciences, Sri Balaji Vidyapeeth, a private dental college located in South India. The total sample size was 55 students. All the items in the questionnaire were verbally explained to the students to enable an authentic and flawless response. The questionnaire was designed as Google form (electronic format) and administered to the students. The data was collected and analyzed. The stress score of the students was calculated individual item wise as well as factors wise in addition to the total stress score.

## RESULTS

For the purpose of interpretation, the values were split into four equal ranges as follows < 25 – Not stressed; 25 to < 50 – Mild stress; 50 to < 75 – Moderate stress; > 75 – Highly stressed. The overall stress score is tabulated in Table 1. Majority of the students were having no stress (21.8%) to mild stress (70.9%). Only 7.3% had moderate stress and none were highly stressed (>75) in the study sample.

**Table 1 :** Overall stress score

Range of stress score	No. of students	Percentage
< 25	12	21.8
25 to <50	39	70.9
50 to <75	04	07.3
Total	55	100.0

**Table 2 : ANOVA and Post hoc analysis of stress factors**

ANOVA	Sum of Squares	df	Mean Square	F	Sig.*
Between Groups	07.953	3	2.651	6.288	0.001
Within Groups	91.066	216	0.422		
Total	99.019	219			

  

Descriptive			Posthoc analysis			
Factors	Mean	Std. Deviation	Factors	Factors	Mean difference (I-J)	Sig.*
Academic factors	1.458	0.5858		Faculty relations	0.4733	0.001
Faculty relations	0.985	0.5650	Academic factors	Personal life issues	0.1552	0.678
Personal life issues	1.303	0.5976		Professional identity	0.0158	1.000
Professional identity	1.442	0.8166	Faculty relations	Personal life issues	-0.3182*	0.029
Total	1.297	0.6724		Professional identity	-0.4576*	0.006
	N = 55		Personal life issues	Professional identity	-0.1394	0.892

\*. The mean difference is significant at the 0.05 level.

The descriptive statistics of the factors and the data analysis of the various factors using one-way ANOVA with posthoc analysis (Table 2), revealed that the academic factors, personal life issues, and professional identity were contributing to the equal amount of stress and the faculty relations were significantly less stressful than all the other three factors.

Of all the individual items, the fear of facing parents after failure was perceived to be the top stressor with a mean stress score of  $2.1 \pm 1.5$ . It was followed by fear of failing the year ( $1.95 \pm 1.2$ ), financial resources for paying fees ( $1.89 \pm 1.2$ ), fear of being unable to catch up if left behind ( $1.75 \pm 1.1$ ) and fear of unemployment after graduation ( $1.64 \pm 1$ ). The difficulty in learning precision manual skills contributed lesser stress ( $1.25 \pm 0.7$ ) and was not in the top five stressors. The other factors tabulated in Table 3 were contributing to less stress as perceived by the students.

## DISCUSSION

The results revealed that the participants of the study, the second year dental undergraduates were not highly stressed. Majority of them (70.9%) were slightly stressed. Among the factors that contributed to stress, the academic factors, personal life issues, and

professional identity were contributing equally whereas the faculty relations had a negligible effect on stress as perceived by the students.

An earlier study among Indian dental students identified the fear of facing parents after failure as the top stressor that is in consensus with the results of the current study also.<sup>6</sup> The reason could be the same as discussed by the author that India has stronger family values and most of the times it is the Parents decision to admit their wards in the dental college. This creates an innate fear in the students' life. More than the failure, fear of facing the parents creates more stress.

Astill *et al* discussed that the Australian dental students of the second year and third year had a significant probability of high stress due to the transition from preclinical to clinical exercises, difficulty in approaching and communicating with the faculty members and also due to the difference of opinion between the staffs.<sup>7</sup> In India, the transition phase happens in the third year only. Moreover, 81.9% of the students of the current study were not stressed with approachability and communicating with the faculty members. 18.1% had only slight to moderate stress with regard to the same. The author also discussed that the difficulty in learning precision manual skills

**Table 3 :** Stress score of individual items from highest to lowest

Individual items	Mean	Std. Dev	Lower Bound	Upper Bound
Fear of facing parents after failure	2.11	1.474	1.71	2.51
Fear of failing a course or the year	1.95	1.208	1.62	2.27
Financial resources for paying fees	1.89	1.197	1.57	2.21
Fear of being unable to catch up if getting behind with work	1.75	1.075	1.45	2.04
Fear of unemployment after graduation	1.64	1.043	1.35	1.92
Amount of assigned work is more	1.55	0.689	1.36	1.73
Examinations and grades	1.49	0.858	1.26	1.72
Lack of time to do assigned work	1.49	0.92	1.24	1.74
Lack of home atmosphere in living quarters if not staying with parents	1.49	1.2	1.17	1.82
Lack of time for relaxation	1.44	0.811	1.22	1.66
Lack of confidence to be a successful dentist	1.44	1.032	1.16	1.72
Rules and regulations of the course	1.33	0.771	1.12	1.54
Lack of confidence to be a successful dental student	1.27	0.932	1.02	1.52
Difficulty in learning precision manual skills required for clinical and laboratory work	1.25	0.726	1.06	1.45
Fear of not having possibility to pursue a postgraduate program	1.25	0.886	1.01	1.49
Competition with batchmates for grades	1.2	0.826	0.98	1.42
Difficulty in understanding failed subjects	1.15	0.891	0.9	1.39
Receiving criticism from staff for academic or clinical work	1.13	0.904	0.88	1.37
Availability of supervisors in clinic/ lab	1	0.745	0.8	1.2
Personal physical health	0.98	0.972	0.72	1.24
Unapproachability of the teaching staff	0.96	0.744	0.76	1.16
Dental faculty partial to students	0.76	0.693	0.58	0.95
Relations with members of opposite sex	0.75	0.673	0.56	0.93
Attitudes of staff towards women dental students (Girls only)	0.73	0.679	0.54	0.91
Language barrier (English)	0.65	0.584	0.5	0.81

was perceived to contribute more stress whereas in the current study the students perceived it to contribute lesser ( $1.25 \pm 0.7$ ).

An earlier Indian study carried out among all four-year undergraduate dental students, found that the fear of failing ( $3.07 \pm 0.72$ ) was the top stressor followed by the fear of unemployment after graduation ( $2.73 \pm 0.74$ ) at the second level and at third level by the financial sources for payment of fees ( $2.71 \pm 0.83$ ).<sup>8</sup> Whereas in the current study, the top stressor was fear of facing parents after failure ( $2.1 \pm 1.5$ ) followed by fear of failing ( $1.95 \pm 1.2$ ) and financial resources ( $1.89 \pm 1.2$ ). Though the score was less than the previous study, the fear of failing and financial resources were still there in the top three stressors of second-year students of the current study. Fear of unemployment after graduation ( $1.64 \pm 1$ ) takes the fifth place in the current study. The

study by Babar *et al* also found the fear of failing to be the topmost stressor among the Malaysian students.<sup>9</sup>

The results of the present study are in correlation with the results of Harikiran *et al* where the final year dental undergraduates perceived the academic factors and professional identity along with clinical factors to be contributing to more stress and the faculty relations contributing to the least.<sup>10</sup> However, in the current study, the personal life issues was found to be an equal stressor as academic factors whereas in the study discussed it was contributing far lesser.

Amit *et al* studied the dental students' motivations and perceptions of dental professional career in India.<sup>11</sup> In their study, 35.5% of the students responded to be discontented with dental profession and 64.5% responded to be contented. Increase in the dentist's population and

expected decrease in the financial gain were discussed to be the frustrating factors for the students which were also said to be a reason for fewer students selecting the course in the future irrespective of the good quality teaching and approachable faculty members. In favour of the above-stated discussion, the students of the current study were also stressed about the unemployment factor after graduation though they were in the second year of the course only. This is unlike the perception by the Malaysian dental students where they show an opposite trend of less fear about unemployment as discussed by Babar *et al.*<sup>9</sup> This decline of the dental professions future in India is highly debateable and invites the authorities of the dental field to act proactively. Curriculum modifications as discussed by Shivasakthy *et al* like the introduction of Choice Based Credit System in dentistry with a possibility of lateral exit, in-depth training in the interested branch facilitated by the provision of electives can make dentistry more versatile and student friendly.<sup>12,13</sup> Mentoring and just in time feedback after every formative assessment can help the students Though such modifications were proposed from the educationists stand point, the alarming rise in unemployment of dental graduates demands the attention of policymakers and stakeholders.

The findings of the current study support the finding of Naidu *et al* that the second year students do not experience high stress as evident from the overall mean stress score. The results of the current study also align with their results that the fear of failing the course, fear of catching up if left behind among the top-rated stressors for first and second-year dental students.<sup>14</sup> The transition from school to college and the variations in the teaching-learning process contributing to the fear of failure as stated by the author is worth a mention. Similar to their study, the professional future is rated among the top five stressors in the current study also.

In the study by Alzahem *et al*, individual item level analysis revealed the examinations and grades as the top stressors in contrary to the current study where fear of facing parents after failure was the top stressor.<sup>15</sup> Though the item may be different, failing can be considered as an indirect fear towards the exam component.

The items concerned with faculty relations in contrary to the results of Kumar *et al* were the least stressors in the current study.<sup>16</sup> The author found three among the top stressors to be related to the faculty which is in contrary to the present study results. This explains the prevalence of positive academic environment in the present study Institute. Moreover, the findings of

Kumar *et al* also showed the examinations and grades to be the top stressor, unlike the present study.

The increased academic overload and the dental preclinical procedures were discussed to be increasing the stress and causing burnout to the preclinical dental students by Atalayin *et al.*<sup>17</sup> The perception of academic workload by the study participants showed a moderate contribution to stress ( $1.55 \pm 0.68$ ) in the current study.

Harris *et al* explored the stress and wellbeing of the dental hygiene and the undergraduate dental students in the UK and reported that the participants were functioning positively though they had a perception of the training to be highly stressful.<sup>18</sup> Eustress is beneficial in most occasions especially in a process that involves the personal and professional development of an individual.<sup>19</sup>

As rightly mentioned by Roy *et al*, slight to moderate stress is inevitable to lead a meaningful life though could not be happier always.<sup>20</sup> The sense of satisfaction and achievement can be perceived only when the life is made meaningful. Hence the students should be supported to handle the stress effectively and prevented from burnout. It is not possible to completely eradicate stress, not needed too as stress is not always bad. A little amount of stress works for the betterment of the individual and can motivate them.

The study was limited to only the second year dental undergraduate students of a single private dental institution. Multi centric studies can be done in future for more generalization of the results.

## CONCLUSION

Within the limitations of the study, the second year dental students were not highly stressed. Majority of them were only slightly stressed (70.9%). Among the factors that contribute to stress the academic factors, personal life issues and professional identity were contributing more than the faculty relations. The topmost stressor was identified to be fear of facing parents after failure ( $2.1 \pm 1.5$ ). The difficulty in learning precision manual skills contributed lesser stress ( $1.25 \pm 0.7$ ) and was not in the top five stressors. All the items corresponding to faculty relations contributed to lesser stress.

## CONFLICTS OF INTEREST

None.

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### US FDA approves Second gene therapy

The US Food and Drug Administration (FDA) has approved Axicabtagene ciloleucel (marketed as Yescarta), a cell-based gene therapy, to treat adult patients with certain types of large B-cell lymphoma who have not responded to or who have relapsed after at least two other kinds of treatment. Yescarta, a chimeric antigen receptor (CAR) T cell therapy, is the second gene therapy approved by the FDA and the first for certain types of non-Hodgkin lymphoma (NHL).