

# Factors Affecting Stress Among Indian Dental Students

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*Abstract:* The aim of this study was to investigate the perceived sources of stress and the role of parents in its etiology among dental students in a private dental school in India. A modified Dental Environment Stress (DES) Questionnaire was administered to 256 dental students. The main sources of stress were found to be fear of facing parents after failure, full loaded day, and fear of failing course or year. Students whose first choice of admission was dentistry experienced less stress than students whose first choice was another field. Also the students who joined dentistry due to parental pressure showed greater stress than those who joined of their own accord. Male students experienced greater stress than females. The results of this study indicate that a congenial environment needs to be created for dental education and parents also need to be counseled against forcing their children to join an educational program that is not of their choice.

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Dentistry has been widely acknowledged as being associated with high levels of stress.<sup>1-2</sup> Stressors associated with dentistry include time and scheduling pressures, managing uncooperative patients, commercial issues, and the highly technical and intensive nature of work. The origins of this stress may also lie in the process of dental education.<sup>3-5</sup> In recent years, the injurious effects of stress experienced by dental students have received much attention. Stress has been shown to manifest as fatigue, tension, dizziness, sleeplessness, tachycardia, gastrointestinal symptoms, irritability, anxiety, and cynicism.<sup>6-11</sup> In addition to this, a negative association has been reported between stress and academic performance of dental students.<sup>10,11</sup> Since the perception of stress is frequently influenced by sociocultural factors, the results of studies in one region cannot necessarily be generalized to the others.

The role of parents has not been investigated in previous studies on dental students' stress. A very strong family bond exists among Asians and generally lasts a lifetime. In times of emergency and hardship, a person can fall back upon his or her family for emotional and material support. This may be one of the reasons for the very low suicide rates among Asian countries. The downside of such strong family bonds is that one sometimes has to sacrifice his or her own interests for the sake of family.

India is a typical Asian country with a strong sense of family values. Respect for elders and heeding their advice are considered sacrosanct. Professional education—especially medicine, dentistry, and technical education—is held in very high esteem by Indians. Parents who cannot fulfill their dreams of professional education try to fulfill it through their children. In many cases, the children are forced by their parents to pursue a career that is not of their choice. Parents' willingness to finance their children's higher education contributes to this phenomenon. Since admission to professional courses is largely on the basis of merit, the competition is intense, and many students may have to settle for an educational program (medicine, dentistry, pharmacy) that is not their first choice. Previous studies have shown that these students may experience higher stress than those who have enrolled in their preferred educational program.<sup>5</sup>

In the last decade, the Asian region has been witness to high growth rates, which has in turn led to social and economic turmoil. There is need for dental educators to understand how stress factors can be affected by sociocultural backgrounds. The Indian dental education system has evolved from the British model of dental education. However, no study has been reported on perceived sources and factors

affecting stress among Indian dental students. The objectives of this study were to:

1. identify the perceived sources of stress among dental students;
2. investigate whether specific stressors were related to year of study and gender;
3. determine whether parents contributed to the stress levels of students; and
4. compare the findings with those reported by other investigators.

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## Materials and Methods

The study was carried out in Bapuji Dental College and Hospital, Davangere, Karnataka State, India, which is a private dental school affiliated with the Rajiv Gandhi University of Health Sciences, Bangalore, India. The undergraduate course is four years with the third and fourth years consisting of clinical training along with didactic courses. Clearance was obtained from the ethical committee and the dean of the college prior to initiating the study. Data collection took place in February in the middle of the academic term for the year 2002-03. To investigate the possible sources of stress, a modified version of the Dental Environment Stress (DES) questionnaire<sup>12</sup> was used in the study, keeping in mind the Indian situation.

The survey consisted of forty-two questions relating to possible sources of stress. The purpose of the study was communicated well in advance to the students, and student participation in the research was voluntary. The responses to the questionnaire were based on a four-point Likert scale with response options of 1 = not stressful, 2 = slightly stressful, 3 = moderately stressful, and 4 = severely stressful, as well as a fifth possible response of not applicable. In addition to the DES item responses, students were asked whether attending dental school was their own choice or their parents' choice and whether dental school was their first choice of admission. Demographic information (class, gender, and age) was also obtained. Consent forms from the respondents were obtained to collect the above information.

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## Statistical Analysis

Means and standard deviations were determined for stress scores of individuals for each item and were used to compare the classes, genders, and

choices. Multiple group comparisons of stress of different classes between the first choice of admission were made by ANOVA followed by post hoc Tukey's test (for pairs). Students' t-test (unpaired) was used for two group comparisons like gender difference and career choice decision. A p value of less than 0.05 was considered statistically significant. All the data analysis was done on Minitab Statistical Software (Version 13) package.

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## Results

Out of a total of 290 students, 256 participated in the study for a participation rate of 88.2 percent. Age of the study population ranged from seventeen to twenty-eight years, with 49.6 percent (n=127) in the seventeen to nineteen years age group, 48.5 percent (n=124) in the twenty to twenty-two years age group, 1.2 percent (n=3) in the twenty-four years age group, 0.3 percent (n=1) in the twenty-six years age group, and 0.3 percent (n=1) in the twenty-eight years age group. Gender distribution of the study population was 110 (43 percent) males and 146 (57 percent) females. There was no significant difference found between the number of males and females (p=0.76).

Fifty-seven percent of males (n=63) and 50 percent of females (n=73) said that their first choice was medicine. Thirty-three percent of males (n=36), and 39 percent of females (n=57) said their first choice was dentistry, whereas it was neither for 10 percent of males (n=11) and 11 percent of females (n=16). A higher percentage of males indicated that their first choice of admission was medicine and a higher percentage of females said their first choice was dentistry, but the differences were not statistically significant (p=0.51). When asked if joining dentistry was their own choice, 174 students said yes (male=73, females=101), but eighty-two students (males=37, females=45) indicated they selected dentistry due to parental pressure.

Mean DES scores for each item were compared with different classes, career choice decision, first choice of admission, and gender. There was a significant difference between classes (Table 1) for amount of assigned work, receiving criticism from staff, lack of confidence to be a successful dentist, fear of not having the possibility to pursue a post-graduate program, fear of unemployment, attitudes of staff towards women students, language barrier, and late ending time. For all these items, third- and

fourth-year students reported more stress than the first and second years. The only item where stress was highest for first-year students was lack of time to do assigned work. It was also seen that there was a statistically significant jump in the stress levels from the second year to the third year.

The main stressor for each year (Table 1) was facing parents after failure. The stressor of fear of

unemployment after graduation climbed from the sixth spot to fifth and finally to the second spot for the second, third, and final years respectively.

Fear of facing parents after failure was the highest stressor when responses for males and females were combined. Fear of failing was the second top stressor for males, but was ranked fifth for females.

**Table 1. Mean scores of perceived sources of stress: differences between classes and across all classes**

Stress Items	1 <sup>st</sup> Year Mean (SD)	2 <sup>nd</sup> Year Mean (SD)	3 <sup>rd</sup> Year Mean (SD)	4 <sup>th</sup> Year Mean (SD)	Significant Differences Between Classes	Mean Score Across Classes Mean (SD)
1. Amount of assigned work	<b>2.74</b> 0.89	<b>2.72</b> 0.97	<b>2.24</b> 0.85	<b>2.07</b> 0.77	1,2 > 3,4	<b>2.5</b> 0.9
2. Lack of cooperation by patients in their home care	-	-	<b>1.8</b> 0.8	<b>2.2</b> 1.0	NS	<b>2.0</b> 0.9
3. Full loaded day	<b>3.12</b> 1.05	<b>2.81</b> 1.24	<b>3.14</b> 0.86	<b>2.96</b> 1.07	NS	<b>3.0</b> 1.1
4. Responsibilities for comprehensive patient care	-	-	<b>2.0</b> 1.0	<b>1.8</b> 1.1	NS	<b>1.9</b> 1.1
5. Competition with peers for grades	<b>2.45</b> 1.10	<b>2.07</b> 1.07	<b>2.14</b> 1.01	<b>2.30</b> 1.11	NS	<b>2.3</b> 1.1
6. Patients being late or not showing for their appointments	-	-	<b>2.6</b> 1.0	<b>2.8</b> 0.9	NS	<b>2.7</b> 1.0
7. Examinations and grades	<b>2.95</b> 1.13	<b>2.65</b> 1.3	<b>3.1</b> 1.0	<b>3.1</b> 1.0	NS	<b>2.9</b> 1.1
8. Difficulty in learning clinical procedures	-	-	<b>2.2</b> 1.0	<b>2.3</b> 0.9	NS	<b>2.3</b> 0.9
9. Atmosphere created by clinical supervisors	-	-	<b>2.5</b> 1.1	<b>2.4</b> 1.1	NS	<b>2.5</b> 1.1
10. Relations with members of opposite sex	<b>1.50</b> 0.82	<b>1.51</b> 0.95	<b>1.50</b> 0.91	<b>1.52</b> 0.89	NS	<b>1.5</b> 0.9
11. Receiving criticism from staff for academic or clinical work	<b>2.46</b> 1.08	<b>2.37</b> 1.09	<b>2.82</b> 1.02	<b>2.76</b> 0.92	3,4 > 1,2	<b>2.6</b> 1.1
12. Difficulty in learning precision manual skills required for clinical and laboratory work	<b>2.10</b> 0.98	<b>2.26</b> 1.09	<b>2.24</b> 1.00	<b>2.33</b> 0.92	NS	<b>2.2</b> 1.0
13. Lack of confidence to be a successful dental student	<b>2.17</b> 1.13	<b>1.97</b> 1.09	<b>2.22</b> 1.20	<b>2.35</b> 1.04	NS	<b>2.2</b> 1.1
14. Lack of confidence to be a successful dentist	<b>2.28</b> 1.21	<b>1.99</b> 1.15	<b>2.18</b> 1.19	<b>2.67</b> 1.16	4 > 2, 4 > 3	<b>2.3</b> 1.2
15. Lack of time for relaxation	<b>2.61</b> 1.11	<b>2.79</b> 1.24	<b>2.28</b> 0.97	<b>2.39</b> 1.13	NS	<b>2.6</b> 1.1
16. Amount of cheating in dental faculty	<b>1.87</b> 1.12	<b>1.79</b> 1.13	<b>2.24</b> 1.17	<b>2.48</b> 1.19	4 > 1, 4 > 2	<b>2.0</b> 1.2
17. Rules and regulations of the faculty	<b>2.30</b> 1.14	<b>2.34</b> 1.17	<b>2.52</b> 1.15	<b>2.41</b> 0.93	NS	<b>2.4</b> 1.1
18. Working on patients with dirty mouths	-	-	<b>2.64</b> 0.96	<b>2.43</b> 1.09	NS	<b>2.5</b> 1.0
19. Lack of home atmosphere in living quarters/hostel	<b>2.26</b> 1.20	<b>2.12</b> 1.28	<b>2.62</b> 1.26	<b>2.25</b> 1.12	NS	<b>2.3</b> 1.2
20. Completion of clinical requirements	-	-	<b>2.36</b> 1.05	<b>2.65</b> 1.02	NS	<b>2.5</b> 1.0
21. Fear of not having possibility to pursue a postgraduate program	<b>2.47</b> 1.24	<b>2.35</b> 1.28	<b>2.88</b> 1.10	<b>3.04</b> 1.09	3,4 > 1,2	<b>2.6</b> 1.2
22. Unapproachability of the teaching staff	<b>2.10</b> 1.03	<b>2.01</b> 1.10	<b>2.50</b> 1.05	<b>2.13</b> 0.93	NS	<b>2.2</b> 1.0

Table 2 reports the correlations between the DES scores and students' responses to the career choice questions.

In matters regarding first choice of admission (Table 2), fear of facing parents after failure was also the top stressor. Fear of failing a course or year was the lowest ranked stressor for those who chose dentistry as their first choice but was high for other two

groups respectively. It was also seen that fear of unemployment after graduation was high for those whose first choice was neither medicine nor dentistry.

For career decision (Table 2), fear of facing parents after failure was again the top stressor. It was also seen that the stress due to workload (full loaded day), fear of failing course or the year, and examination and grades was higher for those students who

**Table 1. Continued**

Stress Items	1 <sup>st</sup> Year Mean (SD)	2 <sup>nd</sup> Year Mean (SD)	3 <sup>rd</sup> Year Mean (SD)	4 <sup>th</sup> Year Mean (SD)	Significant Differences Between Classes	Mean Score Across Classes Mean (SD)
23. Lack of confidence in clinical decision making	-	-	<b>2.44</b> 1.05	<b>2.52</b> 0.96	NS	<b>8.5</b> 1.0
24. Fear of failing a course or the year	<b>2.92</b> 1.22	<b>2.91</b> 1.30	<b>3.12</b> 1.21	<b>3.13</b> 1.11	NS	<b>3.0</b> 1.2
25. Fear of unemployment after graduation	<b>2.65</b> 1.24	<b>2.68</b> 1.26	<b>2.90</b> 1.22	<b>3.30</b> 0.99	4 > 1,2	<b>2.8</b> 1.2
26. Financial resources	<b>2.14</b> 1.14	<b>2.22</b> 1.20	<b>2.16</b> 1.15	<b>2.61</b> 0.98	NS	<b>2.3</b> 1.1
27. Lack of time to do assigned work	<b>2.87</b> 0.99	<b>2.28</b> 1.06	<b>2.42</b> 0.93	<b>2.50</b> 0.96	1 > 2, 1 > 3, 1 > 4	<b>2.6</b> 1.0
28. Availability of supervisors in clinic	-	-	<b>1.64</b> 0.92	<b>1.61</b> 0.83	NS	<b>1.6</b> 0.9
29. Difficulty in understanding literature	<b>1.80</b> 0.88	<b>1.66</b> 0.89	<b>1.80</b> 0.97	<b>1.72</b> 0.75	NS	<b>1.8</b> 0.9
30. Personal physical health	<b>1.74</b> 0.88	<b>1.54</b> 0.84	<b>1.92</b> 0.92	<b>1.67</b> 0.82	NS	<b>1.7</b> 0.9
31. Attitudes of staff towards women dental students	<b>1.55</b> 0.92	<b>1.66</b> 1.09	<b>1.86</b> 1.14	<b>1.90</b> 1.07	4 > 1,2,3	<b>1.7</b> 1.0
32. Shortage of allocated clinical time	-	-	<b>2.06</b> 0.93	<b>2.28</b> 1.03	NS	<b>2.2</b> 1.0
33. Language barrier	<b>1.66</b> 0.88	<b>1.57</b> 0.95	<b>2.44</b> 1.11	<b>2.02</b> 1.20	3 > 1,2	<b>1.9</b> 1.1
34. Late ending time	<b>2.55</b> 1.21	<b>2.06</b> 1.17	<b>2.58</b> 0.93	<b>1.72</b> 1.07	1,3 > 2,4	<b>2.3</b> 1.2
35. Availability of lab technicians	<b>1.52</b> 0.88	<b>1.57</b> 1.07	<b>1.72</b> 0.90	<b>1.70</b> 1.05	NS	<b>1.6</b> 1.0
36. Differences in opinion between clinical staff concerning patient treatment	-	-	<b>2.12</b> 0.94	<b>2.24</b> 0.90	NS	<b>2.2</b> 0.9
37. Fear of being unable to catch up if getting behind with work	<b>2.48</b> 1.08	<b>2.47</b> 1.09	<b>2.66</b> 0.96	<b>2.67</b> 1.02	NS	<b>2.5</b> 1.0
38. Forced postponement of marriage or engagement	<b>2.00</b> 1.20	<b>1.78</b> 1.09	<b>1.76</b> 1.15	<b>1.69</b> 1.03	NS	<b>1.8</b> 1.1
39. Necessity to postpone having children	<b>1.00</b>	<b>1.00</b>	<b>1.00</b>	<b>1.17</b> 0.41	NS	<b>1.1</b> 0.3
40. Having dual role of wife/mother/father/dental student	-	-	-	<b>1.80</b> 1.30	NS	<b>1.9</b> 1.4
41. Getting an ideal case for clinical examination	-	-	<b>2.98</b> 1.19	<b>2.98</b> 1.20	NS	<b>3.0</b> 1.2
42. Fear of facing parents after failure	<b>3.43</b> 1.01	<b>3.26</b> 1.19	<b>3.32</b> 0.96	<b>3.33</b> 0.97	NS	<b>3.3</b> 1.1
Overall mean and SD	<b>2.3</b> <b>(0.4)</b>	<b>2.2</b> <b>(0.5)</b>	<b>2.4</b> <b>(0.3)</b>	<b>2.4</b> <b>(0.3)</b>	3 > 2, 4 > 2	

NS: Not significant

SD: Standard deviation

joined dentistry due to parental pressure. Also working on patients with dirty mouths was considered a stressor among the students of the parental pressure group.

Item wise comparison between males and females (Table 2) showed that there was a significant

difference between genders for the following items: amount of assigned work, rules and regulations of the faculty, financial resources, late ending time, and availability of lab technicians. For all these items, stress levels were greater for males. For the item on shortage of allocated clinical time, females showed higher stress than males.

**Table 2. Perceived sources of stress and differences in mean stress scores according to gender, career choice decision, and first choice of admission**

Stress Items	Gender Differences			Career Choice Decision			First Choice of Admission			
	Male Mean (SD)(M)	Female Mean (SD)(F)	Significant Difference Between Genders	Parent Choice	Student Choice	Significant Difference Between Choices	Medical (1) Mean (SD)	Dental (2) Mean (SD)	Others (3) Mean (SD)	Significant Difference Between Choices
1. Amount of assigned work	<b>2.72</b> 0.93	<b>2.36</b> 0.89	M > F	<b>2.67</b> 0.90	<b>2.44</b> 0.93	NS	<b>2.62</b> 0.90	<b>2.42</b> 0.94	<b>2.33</b> 0.96	NS
2. Lack of cooperation by patients in their home care	<b>1.90</b> 0.83	<b>2.05</b> 0.99	NS	<b>1.75</b> 0.84	<b>2.09</b> 0.94	NS	<b>1.93</b> 0.98	<b>1.97</b> 0.88	<b>2.18</b> 0.88	NS
3. Full loaded day	<b>3.01</b> 1.07	<b>3.01</b> 1.08	NS	<b>3.10</b> 1.06	<b>2.97</b> 1.08	NS	<b>3.08</b> 0.99	<b>2.91</b> 1.19	<b>3.00</b> 1.07	NS
4. Responsibilities for comprehensive patient care	<b>2.00</b> 1.14	<b>1.85</b> 0.91	NS	<b>1.86</b> 0.97	<b>1.94</b> 1.03	NS	<b>1.98</b> 1.09	<b>1.73</b> 0.91	<b>2.12</b> 0.99	NS
5. Competition with peers for grades	<b>2.22</b> 1.14	<b>2.29</b> 1.04	NS	<b>2.34</b> 1.07	<b>2.22</b> 1.09	NS	<b>2.35</b> 1.10	<b>2.16</b> 1.05	<b>2.19</b> 1.11	NS
6. Patients being late or not showing for their appointments	<b>2.61</b> 0.89	<b>2.76</b> 1.02	NS	<b>2.46</b> 0.92	<b>2.79</b> 0.97	NS	<b>2.43</b> 0.98	<b>2.94</b> 0.83	<b>2.94</b> 1.03	2 > 1
7. Examinations and grades	<b>2.81</b> 1.20	<b>3.02</b> 1.10	NS	<b>2.95</b> 1.17	<b>2.92</b> 1.14	NS	<b>3.01</b> 1.12	<b>2.87</b> 1.13	<b>2.70</b> 1.32	NS
8. Difficulty in learning clinical procedures	<b>2.41</b> 1.09	<b>2.15</b> 0.80	NS	<b>2.43</b> 1.00	<b>2.19</b> 0.92	NS	<b>2.33</b> 1.06	<b>2.06</b> 0.90	<b>2.47</b> 0.62	NS
9. Atmosphere created by clinical supervisors	<b>2.46</b> 1.21	<b>2.47</b> 0.96	NS	<b>2.29</b> 0.94	<b>2.54</b> 1.11	NS	<b>2.63</b> 1.02	<b>2.30</b> 1.13	<b>2.35</b> 1.06	NS
10. Relations with members of opposite sex	<b>1.66</b> 0.99	<b>1.39</b> 0.77	M > F	<b>1.50</b> 0.95	<b>1.51</b> 0.85	NS	<b>1.58</b> 0.93	<b>1.35</b> 0.73	<b>1.67</b> 1.04	NS
11. Receiving criticism from staff for academic or clinical work	<b>2.55</b> 1.08	<b>2.56</b> 1.04	NS	<b>2.60</b> 1.11	<b>2.54</b> 1.03	NS	<b>2.54</b> 1.06	<b>2.44</b> 1.01	<b>3.04</b> 1.13	NS
12. Difficulty in learning precision manual skills required for clinical and laboratory work	<b>2.20</b> 1.00	<b>2.22</b> 1.01	NS	<b>2.29</b> 1.06	<b>2.17</b> 0.98	NS	<b>2.29</b> 1.01	<b>2.15</b> 0.98	<b>2.00</b> 1.04	NS
13. Lack of confidence to be a successful dental student	<b>2.14</b> 1.15	<b>2.18</b> 1.11	NS	<b>2.26</b> 1.22	<b>2.11</b> 1.07	NS	<b>2.24</b> 1.11	<b>2.02</b> 1.08	<b>2.22</b> 1.28	NS
14. Lack of confidence to be a successful dentist	<b>2.15</b> 1.25	<b>2.34</b> 1.15	NS	<b>2.28</b> 1.25	<b>2.24</b> 1.17	NS	<b>2.44</b> 1.19	<b>1.94</b> 1.11	<b>2.41</b> 1.31	NS
15. Lack of time for relaxation	<b>2.66</b> 1.14	<b>2.47</b> 1.13	NS	<b>2.73</b> 1.13	<b>2.47</b> 1.13	NS	<b>2.50</b> 1.14	<b>2.59</b> 1.12	<b>2.70</b> 1.17	NS
16. Amount of cheating in dental faculty	<b>2.06</b> 1.14	<b>2.01</b> 1.19	NS	<b>2.18</b> 1.15	<b>1.96</b> 1.17	NS	<b>2.12</b> 1.16	<b>1.75</b> 1.10	<b>2.56</b> 1.25	1 > 2, 3 > 2
17. Rules and regulations of the faculty	<b>2.70</b> 1.14	<b>2.13</b> 1.03	M > F	<b>2.46</b> 1.11	<b>2.33</b> 1.11	NS	<b>2.38</b> 1.14	<b>2.37</b> 1.07	<b>2.37</b> 1.11	NS
18. Working on patients with dirty mouths	<b>2.46</b> 1.03	<b>2.60</b> 1.03	NS	<b>2.89</b> 0.83	<b>2.40</b> 1.07	P<.05	<b>2.67</b> 1.01	<b>2.27</b> 0.98	<b>2.71</b> 1.10	NS
19. Lack of home atmosphere in living quarters/hostel	<b>2.17</b> 1.23	<b>2.39</b> 1.22	NS	<b>2.39</b> 1.25	<b>2.24</b> 1.21	NS	<b>2.34</b> 1.24	<b>2.22</b> 1.17	<b>2.31</b> 1.38	NS
20. Completion of clinical requirements	<b>2.51</b> 1.00	<b>2.49</b> 1.07	NS	<b>2.68</b> 1.02	<b>2.43</b> 1.04	NS	<b>2.61</b> 1.08	<b>2.42</b> 0.97	<b>2.35</b> 1.06	NS
21. Fear of not having possibility to pursue a postgraduate program	<b>2.49</b> 1.25	<b>2.72</b> 1.19	NS	<b>2.50</b> 1.18	<b>2.68</b> 1.24	NS	<b>2.75</b> 1.18	<b>2.47</b> 1.26	<b>2.48</b> 1.22	NS
22. Unapproachability of the teaching staff	<b>2.09</b> 1.02	<b>2.21</b> 1.06	NS	<b>2.24</b> 1.05	<b>2.12</b> 1.04	NS	<b>2.31</b> 1.05	<b>1.94</b> 0.98	<b>2.19</b> 1.14	NS

For career decision (Table 2), significant differences between the parental choice and student choice groups were found for the items on working on patients with dirty mouths and availability of lab technicians, where stress levels were higher for the parental choice group. The students' choice group showed higher stress levels for the item on getting an ideal clinical case for examination.

When item wise comparison was done for students' first choice of admission (Table 2), the dental group (students who selected dentistry as their first choice) showed significantly more stress than the medical group for the item on patients being late or not showing for appointments. Also a significant difference was seen for the item on cheating in dental faculty where the "others" group showed higher

**Table 2. Continued**

Stress Items	Gender Differences			Career Choice Decision			First Choice of Admission			
	Male Mean (SD)(M)	Female Mean (SD)(F)	Significant Difference Between Genders	Parent Choice	Student Choice	Significant Difference Between Choices	Medical (1) Mean (SD)	Dental (2) Mean (SD)	Others (3) Mean (SD)	Significant Difference Between Choices
23. Lack of confidence in clinical decision making	<b>2.27</b> 0.90	<b>2.64</b> 1.06	NS	<b>2.54</b> 1.04	<b>2.46</b> 1.00	NS	<b>2.63</b> 0.97	<b>2.09</b> 0.84	<b>2.82</b> 1.19	1 > 2, 3 > 2
24. Fear of failing a course or the year	<b>3.03</b> 1.26	<b>2.97</b> 1.19	NS	<b>3.07</b> 1.19	<b>2.96</b> 1.23	NS	<b>3.06</b> 1.22	<b>2.85</b> 1.22	<b>3.19</b> 1.21	NS
25. Fear of unemployment after graduation	<b>2.68</b> 1.30	<b>2.93</b> 1.15	NS	<b>2.89</b> 1.21	<b>2.79</b> 1.23	NS	<b>2.91</b> 1.20	<b>2.58</b> 1.23	<b>3.22</b> 1.15	1 > 2, 3 > 2
26. Financial resources	<b>2.42</b> 1.10	<b>2.12</b> 1.15	M > F	<b>2.15</b> 1.13	<b>2.30</b> 1.14	NS	<b>2.40</b> 1.14	<b>2.08</b> 1.10	<b>2.11</b> 1.19	NS
27. Lack of time to do assigned work	<b>2.66</b> 1.05	<b>2.48</b> 0.98	NS	<b>2.55</b> 1.06	<b>2.56</b> 1.00	NS	<b>2.54</b> 1.02	<b>2.63</b> 1.01	<b>2.41</b> 1.05	NS
28. Availability of supervisors in clinic	<b>1.66</b> 0.96	<b>1.60</b> 0.81	NS	<b>1.43</b> 0.63	<b>1.71</b> 0.95	NS	<b>1.70</b> 0.96	<b>1.55</b> 0.79	<b>1.59</b> 0.80	NS
29. Difficulty in understanding literature	<b>1.80</b> 0.91	<b>1.71</b> 0.85	NS	<b>1.74</b> 0.89	<b>1.75</b> 0.87	NS	<b>1.73</b> 0.84	<b>1.73</b> 0.91	<b>1.93</b> 0.96	NS
30. Personal physical health	<b>1.81</b> 0.93	<b>1.64</b> 0.81	NS	<b>1.74</b> 0.89	<b>1.70</b> 0.86	NS	<b>1.71</b> 0.89	<b>1.73</b> 0.87	<b>1.63</b> 0.74	NS
31. Attitudes of staff towards women dental students	<b>1.82</b> 1.12	<b>1.61</b> 0.97	NS	<b>1.73</b> 1.08	<b>1.66</b> 1.00	NS	<b>1.81</b> 1.15	<b>1.54</b> 0.84	<b>1.65</b> 1.02	NS
32. Shortage of allocated clinical time	<b>1.93</b> 0.88	<b>2.35</b> 1.02	F > M	<b>1.96</b> 0.92	<b>2.21</b> 0.95	NS	<b>2.13</b> 1.02	<b>2.09</b> 0.91	<b>2.41</b> 1.00	NS
33. Language barrier	<b>1.93</b> 1.12	<b>1.80</b> 1.00	NS	<b>1.87</b> 1.05	<b>1.85</b> 1.06	NS	<b>1.90</b> 1.08	<b>1.77</b> 1.01	<b>1.89</b> 1.09	NS
34. Late ending time	<b>2.51</b> 1.22	<b>2.10</b> 1.09	M > F	<b>2.30</b> 1.24	<b>2.26</b> 1.13	NS	<b>2.53</b> 1.17	<b>1.97</b> 1.06	<b>2.07</b> 1.24	NS
35. Availability of lab technicians	<b>1.75</b> 1.08	<b>1.50</b> 0.87	M > F	<b>1.73</b> 0.95	<b>1.49</b> 0.87	P<.05	<b>1.70</b> 1.08	<b>1.46</b> 0.79	<b>1.63</b> 0.93	1 > 2
36. Differences in opinion between clinical staff concerning patient treatment	<b>2.24</b> 0.89	<b>2.13</b> 0.94	NS	<b>2.32</b> 0.86	<b>2.12</b> 0.94	NS	<b>2.33</b> 1.01	<b>1.94</b> 0.75	<b>2.24</b> 0.90	NS
37. Fear of being unable to catch up if getting behind with work	<b>2.58</b> 1.10	<b>2.52</b> 1.01	NS	<b>2.44</b> 1.12	<b>2.58</b> 1.00	NS	<b>2.60</b> 1.04	<b>2.54</b> 1.03	<b>2.30</b> 1.14	NS
38. Forced postponement of marriage or engagement	<b>2.00</b> 1.21	<b>1.48</b> 0.87	NS	<b>1.46</b> 0.78	<b>1.95</b> 1.22	NS	<b>1.70</b> 1.08	<b>2.00</b> 1.21	<b>1.64</b> 1.03	NS
39. Necessity to postpone having children	<b>1.14</b> 0.38	<b>1.00</b> 0.00	NS	<b>1.00</b> 0.00	<b>1.17</b> 0.41	NS	<b>1.00</b> 0.00	<b>1.00</b> 0.00	<b>1.25</b> 0.50	NS
40. Having dual role of wife/mother /father/dental student	<b>1.25</b> 0.50	<b>2.50</b> 1.73	NS	<b>1.50</b> 0.71	<b>2.00</b> 1.55	NS	<b>1.67</b> 1.21	<b>2.50</b> 2.12	--	NS
41. Getting an ideal case for clinical examination	<b>2.85</b> 1.26	<b>3.07</b> 1.14	NS	<b>2.50</b> 1.26	<b>3.18</b> 1.11	P<.05	<b>2.78</b> 1.26	<b>3.27</b> 1.01	<b>2.94</b> 1.25	NS
42. Fear of facing parents after failure	<b>3.18</b> 1.17	<b>3.40</b> 0.99	NS	<b>3.35</b> 1.09	<b>3.29</b> 1.07	NS	<b>3.31</b> 1.10	<b>3.29</b> 1.04	<b>3.37</b> 1.11	NS
Overall mean and SD	<b>2.34</b> (0.39)	<b>2.28</b> (0.40)	NS	<b>2.35</b> (0.38)	<b>2.29</b> (0.40)	NS	<b>3.38</b> 0.38	<b>2.21</b> 0.39	<b>2.32</b> 0.42	1 > 2

NS: Not significant SD: Standard deviation M: Males F: Females

stress than the medical and dental groups. For the item on lack of confidence in clinical decision making, stress was low for the dental choice group when compared to the two other groups. For the fear of unemployment after graduation, stress was low for the dental choice group as compared to the two other groups. Availability of lab technicians was a higher stressor for the medical choice group than the dental choice group.

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## Discussion

The objectives of this study were to identify the perceived sources of stress among Indian dental students and the role of their parents in the etiology of stress. It was seen that the stress related to clinical items was generally more for the fourth-year students than that of the third years, except for working on patients with dirty mouths where the third years showed higher stress levels. However, there was no significant difference found between classes for any of these items. 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. Working on patients with dirty mouths may be more stressful for the third years because clinical training involving real patients starts in that year. This was in disagreement with previous studies,<sup>3,5,11</sup> in which items linked to clinical training tended to induce less stress in final-year students. Variations in the curriculum between schools may explain this difference.

Stress associated with the faculty's behavior was more in third- and fourth-year students than first and second years. However, significant differences between classes were found only for receiving criticism from staff for academic and clinical work, amount of cheating in dental faculty, and attitudes of staff towards women dental students where stress was more for the fourth-year students. This may be due to the increased student-staff interaction in the clinics and also for the reason that the student may feel humiliated when he or she is criticized by the staff in front of the patients, which is all too common. These findings were in agreement with previous studies<sup>3,5,12-14</sup> and suggest that clinical years are more stressful than the nonclinical years. However, these are in contrast to the findings reported by Westerman et al.<sup>3</sup> where the nonclinical years were more stressful.

Stress due to academic factors was found to be high in the first year, then decreased in the second year and again increased in the third and fourth years. This may be due to the sudden change in curriculum and subject, which the new students find difficult to cope with initially. The increase in stress in the third and fourth years may be due to the clinical training, which leaves less time for academics.

A significant difference between classes was seen for the language barrier where stress was higher for the third year. Since interaction with patients starts in this year, the students have to communicate with their patients in the local dialect, which can prove to be a little difficult in the initial stages. This was unlike the results obtained in previous studies, where the whole population spoke only one language. However, India is a multicultural country with fifteen official languages and hundreds of dialects.

There were significant differences between classes for the three items dealing with anxieties about the future—namely, lack of confidence to be a successful dentist, fear of not having the possibility to pursue a postgraduate program, and fear of unemployment after graduation, where stress was consistently higher for the fourth-year students. It was seen that anxiety about the future increased with each passing year and became the second top stressor in the fourth year. This was in agreement with a previous study,<sup>5</sup> where final-year students showed greater anxiety about the future.

Facing parents after failure was the most stressful item across all classes. It was observed that stress due to workload was consistently high from the first to the third years with a slight dip in the second year. It may have something to do with the fact that in both the first and third years the students are exposed to a new dimension in education. It was also seen that stress associated with examinations was high across classes. This abrupt increase in stress was also reported by other authors,<sup>4,12-15</sup> but was not reported by Westerman et al.<sup>3</sup>

Getting an ideal clinical case for exam was an important stressor in the third and fourth years. Although it is the responsibility of the institution to provide ideal clinical cases, e.g., ideal class II cavities, for the university examinations, there is usually a shortage of such cases, and many times the students themselves have to go out and seek such cases. This can cause a lot of stress as it is always associated with examinations, which themselves are a major stress factor.

Female students in this study perceived more stress due to examinations than males. But overall, males perceived more stress than female students. Significant differences between males and females were found for the items on amount of assigned work, relations with members of opposite sex, rules and regulations of faculty, financial resources, shortage of allocated clinical time, late ending time, and availability of lab technicians. For all the items except shortage of allocated clinical time, males showed higher stress than females. These findings were in disagreement with previous studies, which showed females to suffer from higher stress than males. This finding suggests that females did not feel they were a minority or consider that they were in a male-dominated profession. This is reflected by the distribution of the study population where females outnumbered males.

Previous research has shown that students whose first choice was medicine showed higher stress levels than those whose first choice was dentistry.<sup>5</sup> Since a student may have wanted to join a course that is neither medicine nor dentistry, a third option of “others” was included. It was seen that fear of unemployment after graduation was high for those whose first choice was neither medicine nor dentistry. Also the fear of failing was high for both the medical and “others” choice groups. This may be due to the fact that these students had either a low opinion of dentistry and its future scope or were not confident of completing the course, which in turn could have made them have a pessimistic outlook.

It was observed that stress caused by the faculty’s behavior was higher among those whose first choice was not dentistry. The reason for this may be that the general dissatisfaction of joining a course that was not of their first choice may manifest through reduced tolerance of the faculty’s behavior. Stress due to clinical items was more among those who didn’t want to join medicine or dentistry.

Significant differences between the dental choice and the medical choice groups were found for these items on amount of cheating (lack of fairness) in dental faculty, lack of confidence in clinical decision-making, fear of failing course or the year, and availability of lab technicians. For all these items, stress was the least for those whose first choice was dentistry. This showed that those who chose dentistry as their first choice were better equipped to deal with stress than the other two groups. This was demonstrated by the significant difference between overall

mean scores for the three groups where stress score was least for the dental group. This was in agreement with a previous study where it was shown that stress for those whose first choice was dentistry was the lowest when compared to the other two groups.<sup>5</sup>

When comparisons were made for career decision, it was seen that those students who joined dentistry due to parental pressure showed higher stress due to behavior of the faculty, academic load, fear of unemployment after graduation, and a general lack of confidence. Significant differences between groups were seen for the items on working on patients with dirty mouths, availability of lab technicians, and getting an ideal clinical case for examination. It is possible that students saw the faculty as a mirror image of their overbearing parents and hence the higher dissatisfaction with the faculty.

It was noted that stress due to financial concerns was low in this study. This can be explained by the fact that the government largely subsidizes dental education, and many parents finance their children’s education, which spares the student any anxiety about financial resources.

The downside of this parental influence is the student’s acute anxiety about facing them after failure, which was demonstrated in this study. This coupled with peer pressure may lead to various behavioral problems.

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## Conclusions and Recommendations

This study was done to assess the perceived sources and factors affecting stress among students in a private dental school in India. Some of the conclusions that could be drawn from the study are:

- Fear of facing parents after failure was found to be the most stressful item among the students.
- Stress showed an upward trend from the first to the final year with a jump from the second to the third years.
- Males suffered from higher stress than females.
- Stress for those whose first choice of admission was dentistry was lower than the other groups.
- Those students who joined dentistry due to parental pressure tended to show greater stress.

It was observed that the “corporal” mindset of the faculty, a legacy of British rule, continues to exist in India. A congenial environment needs to be

created by the dental faculty so that students can pursue their studies with less anxiety or fear. This can be achieved by periodic interaction of the dental faculty with trained educational psychologists who can train the faculty in the latest educational methodologies to maximize student performance and minimize stress. Also, parents should be counseled during their children's pre-university period about the ill effects of pressuring them to join an educational program against their wishes. This can be done by seeking the help of the high school authorities in conducting workshops involving parents and teachers on a regular basis. Career fairs can also be used as a forum for parent counseling.

If these improvements are introduced, hopefully stress on dental students will be reduced—helping them to be more successful as students and, eventually, as dentists.

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