

# ASSESSMENT OF STRESS AND ITS ASSOCIATED FACTORS AMONG UNDERGRADUATE STUDENTS OF A DENTAL COLLEGE, ISLAMABAD

Naveen Farooq<sup>1</sup>, Izza Rubab<sup>2</sup>, Khadija<sup>3</sup>, Misbah Maryam<sup>4</sup>, Fouzia Aslam<sup>5</sup>

<sup>1</sup>Assistant professor, Department of Preventive and Community Dentistry, HBS Medical and Dental College, Islamabad, Pakistan, <sup>2,3,4</sup> Student of BDS, HBS Medical and Dental College, Islamabad, Pakistan. <sup>5</sup> Assistant professor, Department of Oral and maxillofacial surgery, HBS Medical and Dental College,

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## ABSTRACT

**Background:** Dental practice and education are associated with stress that usually affects the wellbeing of the students. It is crucial to manage stress effectively since it can lead to psychological morbidity and health-damaging behaviours. The purpose of this research was to determine the frequency of stress along with its contributing factors and coping strategies among undergraduate dental students of HBS Medical and Dental College, Islamabad.

**Objective:** To determine the frequency of stress along with its contributing factors and coping strategies among the undergraduate dental students of HBS Medical and Dental College, Islamabad.

**Study Design:** Cross-sectional study.

**Place and Duration of Study:** HBS Medical and Dental College, Islamabad. 03 months (November 2022-Feb 2023).

**Materials and Methods:** This study was conducted using a self-administered questionnaire that was shared with students via link for online submission. PSS-10 (Cohen's Perceived stress scale) was used to assess the level of stress. SPSS 21 was used for data analysis.

**Results:** There were 26.1% males and 73.8% females in this study. Total 86% dental students reported with moderate level stress while 9% with high level stress. The main causes of the stress among dental students were frequent exams/ tests (85.4%), insomnia, (65.7%) studies pressure (56%) and home environment (49.1%). Sleeping (49%) and spiritual practices (34%) were the most prevalent coping strategies to reduce stress among students.

**Conclusion:** Dentistry is taken as a stressful profession among health careers. Though stress cannot be eradicated among students, but it can be managed through suitable measures. The results of this research will help the clinical and non-clinical staff and administration to make changes in the academic schedule and build a learning environment that would be more constructive for the students. Dental schools should create stress management programs, as well as measures to increase psychological support services that would either reduce stress or improve stress coping skills among students.

**Key words:** *Contributing factors, coping strategies, dental student, stress.*

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## INTRODUCTION

Stress is defined as an organism's pattern of specific and nonspecific responses to stimuli that disrupt its equilibrium and surpass its ability to cope<sup>1,2</sup>. Stress has been associated with anxiety, depression and psychological symptoms plausibly having a negative impact on students' academic performance<sup>3</sup>. Academics, examination, clinical practice, financial resources, fear of failure, anxiety of facing parents after failure and distress of unemployment after studies are the major causes associated

with stress in students<sup>4</sup>. Evidence shows that dental practice and education are associated with stress that usually affects the wellbeing of students<sup>5</sup>. Dentistry is taken as a stressful profession among health careers<sup>6</sup>.

A multi-centred survey in Europe concluded that academic burden may have a negative effect on students' overall health<sup>7</sup>. A study conducted in Malaysia revealed that heightened levels of stress can lead to psychological issues among dental students. This research emphasized that by identifying factors that contribute to stress among students, should be adjusted to enhance the overall well-being of dental students<sup>8</sup>. The results of a research in Nishtar Medical College, Multan showed elevated levels of anxiety and depression in medical students<sup>9</sup>. The findings of a research indicated that first-year dental and medical students are more susceptible to depression, stress, and anxiety. Similarly this research indicated that females are more predisposed to stress than males<sup>10</sup>.

A research among Australian dental students exhibit elevated

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Correspondence to: Dr. Naveen Farooq, HBS Medical and Dental College, Islamabad.

Email: [dr.naveenwajid@gmail.com](mailto:dr.naveenwajid@gmail.com)

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levels of depression and stress than the general population. Examinations, rivalry for grades and worry about failing the year were shown to be the primary academic stressors among dental college students in a number of studies. The most significant sources of stress are academic; as a result, focused stress-reduction strategies are required in medical and dental colleges<sup>11</sup>. It is crucial to manage the stress effectively since it can lead to psychological morbidity and health-damaging behaviours<sup>12</sup>. A research<sup>13</sup> concluded that students who chose dentistry as their first choice had less stress than those whose first priority was not dentistry.

Evidence shows that dental schools have highly stressful learning environment. Dental students have higher level of stress than general population<sup>14</sup>. This shows that it is very important to determine the factors causing stress among undergraduate dental students. The results of this research will help the administration and clinical & non-clinical staff to make changes in academic schedule and build an learning environment that would be more beneficial for the students.

The purpose of this research was to determine the frequency of stress along with its associated factors. This research also determined the coping methods of stress in undergraduate dental students of HBS Medical and Dental College, Islamabad.

### MATERIAL AND METHODS

This cross sectional study was conducted in HBS Dental College, Islamabad. This study was approved by the ethical review board (ERB) of HBS Medical and Dental College, Islamabad. Students from first to final year (4<sup>th</sup>) BDS were invited to participate in this research by submitting responses through an online survey. The participation in this study was voluntary and anonymous. The total population size was 185. The sample size was calculated by taking anticipated frequency of 50% and computed using OpenEpi version 3.03 at a 90% confidence interval<sup>15</sup>. The sample size was 111. Convenient sampling technique was used. The questionnaire was shared with students via link in their official WhatsApp groups for online submission. Informed consent was obtained from the students, who were willing to participate.

PSS-10 (Cohen's Perceived stress scale) was used to assess the level of stress<sup>16</sup>. A self-constructed questionnaire was designed to address the demographics of participants, items about factors associated with stress and their coping methods. The questionnaire was pretested to check its validity in a similar setting. The reliability of the questionnaire was checked by using Cronbach's alpha. The value of Cronbach's alpha was 0.705.

**CAPSULE SUMMARY**

- Frequency of stress & its contributing factors along with the coping strategies were determined among the undergraduate dental students.
- A large number of students had moderate-level stress.
- Frequent exams, insomnia and home environment were the main causes of stress and the major coping strategies to reduce stress were sleeping and spiritual practices.
- Dental schools should create stress management programs for the students

### Perceived stress scale (PSS-10):

The Perceived Stress Scale is a stress assessment tool with the following Likert scale response options: 0= Never, 1=Almost never, 2= Sometimes, 3= Fairly often, 4= Very often. For determining PSS score, firstly, reverse your scores for questions 4, 5, 7, and 8 like this: 0 = 4, 1 = 3, 2 = 2, 3 = 1, 4 = 0. Then sum up your scores for each item to get a total. The range of scores on PSS is from 0 - 40. The stress level<sup>17</sup> is categorized as low (0-12), moderate (13-19) and high (≥20) on PSS-10.

### DATA ANALYSIS

SPSS 21 was used for data analysis. Summary statistics for continuous variables and frequency and percentages were calculated for categorical variables. The mean scores of the entire sample's responses on the items of the PSS-10 were calculated and organized in a table. Additionally, the level of stress (low, moderate, high) was determined using frequency method. The response of the positively stated items (item 4, 5, 7 and 8) of PSS-10 is reversed i.e. 0=4, 1=3, 2=2, 3=1 and 4=0. After that the score of all scale items is summed to determine the stress level. 13 score on PSS is taken as average<sup>18</sup>.

### RESULTS

There were 26.1% males and 73.8% females in this study. Most of the study participants were from 20–22 years age group as shown in Table 1. Mostly students were from 2nd year BDS. Descriptive statistics of the Perceived Stress Scale-10 (PSS-10) among undergraduate dental Students have been given in below Table 2.

**Table 1: Characteristics of the study population (n=111)**

Variable	n (%)
Gender	
Male	29(26.1)
Female	82(73.8)
Age (Yrs.)	
17-19	14(12.6)
20-22	85(76.5)
23-25	12(10.8)
Year in Dental School	
1 <sup>st</sup>	12(10.8)
2 <sup>nd</sup>	47(42.3)
3 <sup>rd</sup>	37(33.3)
4 <sup>th</sup> (final)	15(13.5)

Figure 1 given below states the prevalence of perceived stress among undergraduate dental students. There was 9% high level stress, 86% moderate level stress while 5% low level stress. Table 3 given below describes the different factors associated with stress among study participants. Total 85.4% students were stressed due to frequent exams/ tests, 65.7% mentioned insomnia, 56% named studies pressure, 49.1% were stressed due to home environment while 37% students told that they were stressed due to hectic routine. The financial issue contributing to stress was 17.5%. Total 75.2% dental students agreed that stress affected their mental health. Only 5.6% students indicated that they were using some medicine for their stress.

Figure 2 below displays the coping methods among dental students to manage their stress. The most common coping method was sleeping (49%), while 34.2% students believed in spiritual practices to cope with their stress. The role of parental help to reduce stress was very low i.e. 7% only.

### DISCUSSION

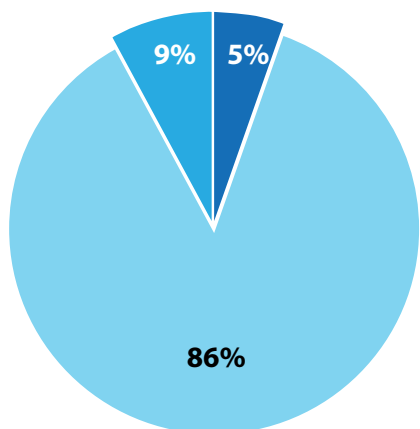
The main concept behind this research was to determine the prevalence of stress among undergraduate dental students. The novel idea of our study was to explore different factors that are responsible for stress. Thirdly, our research also

**Table 2: Descriptive Statistics of the Perceived Stress Scale-10 (PSS-10) among the undergraduate dental Students**

Scale items	Mean ±SD	% Distribution of item score				
		0	1	2	3	4
1. How often have you been upset because of something that happened unexpectedly?	2.27±1.03	8.3	7.4	44.4	28.7	11.1
2. How often do you feel that you are unable to control the important things in your life?	2.11±1.13	13	9.3	41.7	25.9	10.2
3. How often do you feel nervous and stressed?	2.23±.892	3.7	10.2	54.6	22.2	9.3
4. How often do you feel confident about your ability to handle your personal problems?	2.54±1.02	1.9	13.9	33.3	30.6	20.4
5. How often do you feel that things are going your way?	2.07±1.07	9.3	16.7	40.7	24.1	9.3
6. How often have you found that you could not cope with all the things that you had to do?	1.99±.891	7.4	13.0	57.4	17.6	4.6
7. How often have you been able to control irritations in your life?	2.15±.975	6.5	13.9	45.4	26.9	7.4
8. How often do you feel that you are on top of things?	1.79±1.00	13.9	17.6	48.1	16.7	3.7
9. How often have you been angered because of things that are outside of your control?	2.03±.952	6.5	18.5	46.3	23.1	5.6
10. How often do you feel difficulties are piling up so high that you could not overcome them?	1.86±.961	11.1	15.7	53.7	14.8	4.6

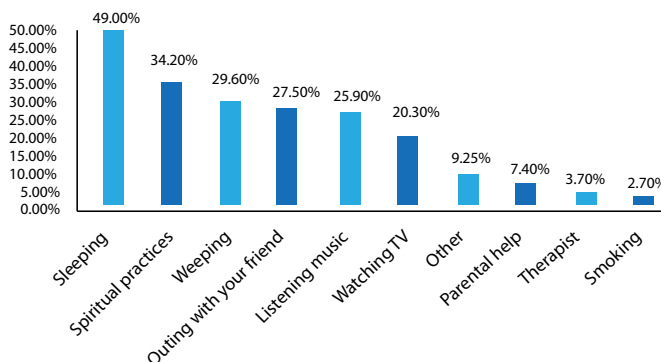
**Note:** The table 2 presents the items of Perceived stress scale. The respective columns are Mean±SD show the data central tendency & spread, Item scores given in percentages where Likert scale response options were as follow 0= Never, 1=Almost never, 2= Sometimes, 3= Fairly often, 4= Very often.

■ Low stress    ■ Moderate stress    ■ High stress



**Figure 1: Prevalence of Perceived stress among dental students (n = 111)**

**How would you cope with your stress?**



**Figure 2: Coping mechanisms to manage stress**

**Table 3: Factors associated with stress among undergraduate dental Students at HBS Dental College, Islamabad**

Scale items	Response in percentage (%)
What is the main cause of stress in dental college?	
Studies pressure	56
Hectic routine	37
Strict rules and regulations	32
Financial issues	17.5
Peers' attitude	14
Teachers' attitude	10
Homesickness	36.1
Basic needs (water, food electricity)	30.5
Hostel environment	27.7
Financial issues	19.4
Issues related to room-mate	10.1
Do you feel stress due to your home environment?	49.1
Do you feel any stress regarding faculty members?	20.4
Do you feel stress due to insomnia?	65.7
Do you feel any stress due to frequent exams/ tests?	85.4
Does stress affect your health?	
Mental health	75.2
Physical Health	51.8
Social Health	31.4
Have you ever used any medicine for your stress management?	
Yes	12
No	88
Are you currently using any medicine for your stress?	
Yes	5.6
No	94.4
Have you ever visited to any therapist (psychologist/psychiatrist) for your stress?	
Yes	8.3
No	91.7

investigated the coping mechanisms among dental students to manage their stress. Our study indicated 86% moderate level of stress while 9% of dental students were suffering from high level of stress. These results are a bit different from a study conducted in Karachi among dental surgeons, which showed that 44.59% dental surgeons were suffering from high level stress while 41.4% were affected from moderate level stress<sup>17</sup>. The results of another research were consistent with our study reported moderate level of stress in the dental students of Syria University<sup>19</sup>.

Frequent exams/ tests (85.4%) were the main cause of stress among undergraduate dental students in the present study. These results are consistent to a research conducted by Saipanish presented that the most prevalent cause of stress was the test/examination<sup>20</sup>. All the dental students agreed that stress affected their health. Total 75% students linked stress with mental health issues while 51.8% added that physical health

was also affected by stress. Some dental students believed that social life is also disturbed due to stress and depression. These results are consistent with a study done in Malaysia among undergraduate dental students<sup>8</sup>.

In the present study, sleeping was the main coping technique to relieve their stress. Other relaxing techniques shared by dental students to manage their stress and anxiety were spiritual practices (34.2%), outing with friends (27.50%) and listening to music (25.90%). Another research done in Karachi also shown meditation/ praying (64.4%) and sleeping (63%) as stress management techniques<sup>21</sup>. A study by Ahmad MS et al presented "Talking to friends" as the top stress reduction method for the students<sup>8</sup>. Another research conducted by Paudel S et al mentioned "Listening to music" the most effective strategy for stress reduction. The other methods for stress reduction like our study were talking to friends, sleeping and watching movies<sup>22</sup>.

It is very important to address all the factors associated with stress among undergraduate dental students. Students from one dental college of Islamabad participated in this study so results cannot be generalized to all undergraduate dental students in Islamabad. A multicenter design would be the recommendation for future research.

### CONCLUSION

Dentistry is taken as a stressful profession among health careers. Though stress cannot be eradicated among students, but it can be managed through appropriate measures. The results of this research will help the clinical and non-clinical staff and administration to make changes in academic schedule and build a learning environment that would be more constructive for the students. Dental schools should create stress management programs as well as measures to increase psychological support services that would either reduce the stress or improve stress coping skills among students.

### AUTHORS' CONTRIBUTION

Naveen Farooq, Fouzia Aslam	Drafting the Article
Naveen Farooq	Analysis and interpretation of data
Naveen Farooq, Izza Rubab, Khadija	Conception and design
Naveen Farooq, Izza Rubab, Khadija, Misbah Maryam	Acquisition of data
Naveen Farooq, Fouzia Aslam	Critical revision

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