

# Stress Perception Patterns among Medical and Dental Undergraduates

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## Abstract

**Aim:** This study aimed to determine various factors associated with perceived stress and to explore the impact of burnout on students' academic year among medical and dental undergraduates at Qamar Dental and Darul Sehat Hospital, Karachi, Pakistan.

**Introduction:** Stress is a state of mental or emotional anxiety. Medical and Dental student's life has been subject to different kinds of stress and sources could be academic pressure, fear of failing exams, assignments, modular system, and being criticized by supervisors in front of their own patients.

**Methods and materials:** This was a cross-sectional survey study design. It was conducted among 3rd and 4th year BDS students and 3rd, 4th, 5th year MBBS students who were officially registered in tertiary care hospital, Qamar Dental and Darul Sehat Hospital, Karachi, Sindh from 2017 December till date.

**Results:** This survey consists of 241 undergraduate students of LCMD including 52.3% dental and 47.7% medical students. Out of which 70.1% data received from females and 29.9% from male.

Majority of the medical students i.e. 49.1% were studying in 4th year while 29% from 5th year. Fear of failing exams in BDS students was 74.8% and 66.4% in MBBS students. Large number of modules, assignments, in addition to the atmosphere created by clinical faculty showed 77.4% dental and 67% medical undergraduates felt overloaded, difficulty in finding their own patients to fulfill the quota for clinical subjects increases stress levels in BDS students about 68% in contrast to MBBS students that is only 32%. In our study it was found that the stress level among dental students is relatively high compared to medical students

**Conclusion:** In comparison with medical students, dental students showed comparatively higher level of stress symptoms. They were more apprehensive, distressed, and interpersonal sensitivity because of multifactorial reasons like self-efficacy beliefs, good performance pressure and assigned workload.

**Keywords:** Perceived Stress; Dental Students; Medical Students; Clinical Rotation; Quota; Criticism; Undergraduates

## Aim

This study aimed to determine various factors associated with perceived stress and to explore the impact of burnout on student's academic year among medical and dental undergraduates at Qamar Dental and Darul Sehat hospital, Karachi, Pakistan.

## Introduction

Stress is a state of mental or emotional anxiety or tension resulting from adverse or challenging circumstances. Medical and Dental student's life has been subject to different kinds of stress and sources could be academic pressure, fear of failing in exams, assignments, modular system, being criticized by supervisors right in front of their

own patient, especially have fear of Hep B transmission while working on infected patient.

A systemic review stated that dentistry has been ranked as an extraordinary stressful profession as a student as well as a clinician after graduation [1-4]. Some studies have linked stress with academic year, gender and living territory [1,5].

Naidu et al. reported that stress among 1st and 2nd year dental students was mainly due to academic performance whereas in clinical years, clinical skills and interpersonal relationships are the main reasons [1,6].

In May 2009, Argy Polychronopoulou alleged dental education as one of the most back breaking, challenging, taxing and highly stressful domain, as presumptions with the dental students to have diverse proficiencies in academic as well as in clinical skills [7-9].

Stress during medical training is increasingly being reported in published literature. Studies have shown fairly high level of emotional distress such as depression, impairment of functioning in classroom performance among medical students [10-12].

Medical education has always been observed as a popular choice for tertiary education. Only those who have excellent academic achievements can be successful in the course. Therefore, the medical programs are more competitive and stressful for those students who are accepted [10,13,14].

Hence, the major objective of our study is to determine perceived stress among medical and dental undergraduates. This will help plan out measures to lessen stress and burnout among undergraduates.

## Materials and Methods

This was a cross-sectional survey study design. It was conducted among 3rd and 4th year BDS students and 3rd, 4th, 5th year MBBS students who were officially registered in tertiary care hospital Qamar Dental and Darul Sehat hospital, Karachi, Sindh from 2017 December till date. Both male and female students were invited to voluntarily participate in this study. The total number of dental students was 124 while medical students were 113. All the participants were provided self-administered close ended questionnaire and gathered data was analyzed using SPSS version 22.0. Count with percentages reported for qualitative data sets, whereas Pearson Chi Square test of Independence was used to explore the association of perceived stress with type of faculty. p values less than 0.05 were considered significant.

## Results

This survey consists of 241 undergraduate students of LCMD including 52.3% dental and 47.7% medical students. Out of which 70.1% data received from females and 29.9% from male.

Characteristics		n	%
Gender	Male	72	29.9
	Female	169	70.1
Age group	20-25	225	95.3
	26-30	11	4.7
Academic	3rd year	37	21.9
	4th year	83	49.1
	5th year	49	29
Program	BDS	124	52.3
	MBBS	113	47.7
Marital status	Married	32	13.3
	Single	209	86.7
Rotation	Pre-clinical rotation	65	27
	Clinical rotation	176	73

Table 1: Baseline characteristics of studied samples (n=241).

Table 1 shows 95.3% having age group between 20-25 years, from which 86.7% were single. Majority of the medical students i.e. 49.1% were studying in 4th year while 29% from 5th year. Study sample shows that 73% of medical and dental students were from clinical rotations. Table 2 reports the association of perceived stress with program, 74.8% of BDS students and 66.4% MBBS students showed that they had a fear of failing exams whereas 66.1% dental and 62.8% medical undergrads feared being unable to catch up with fellow colleagues, if left behind. Large number of modules, assignments, in addition to the atmosphere created by clinical faculty showed 77.4% dental and 67% medical undergraduates felt overloaded (Figure 1). Due to which most of the dental (82.8%) and medical students (72.6%) experienced lack of time for relaxation. Competition for grades increases the stress level of both medical and dental undergrads (59.3-69.9%) and also affects the pattern of sleep in dental (77.2%) and medical (78.8%) apprentices. Increased level of stress leads to teeth grinding in 39% dental and 28.6% medical students, as well as G.I.T discomfort in both dental and medical undergraduates with 65% and 64.6% (Table 2). The p value was found statistically significant for the created atmosphere by clinical faculty, difficulty in finding of own patients and being criticized in front of patients.

Perceived stress questions		BDS		MBBS		p values
		n	%	n	%	
Fear of failing exams affects your performances?	Yes	92	74.8	75	66.4	0.155
Do you feel overloaded due to large number of modules/assessments/assignments?	Yes	96	77.4	75	67	0.073
Fear of being unable to catch up with fellow colleague, if left behind?	Yes	82	66.1	71	62.8	0.596
Do you experience lack of time for relaxation?	Yes	101	82.8	82	72.6	0.059
Lack of co-operation by patients increased your level of stress?	Yes	82	67.2	67	59.8	0.24
Did you find yourself grinding your teeth?	Yes	48	39	32	28.6	0.091
Do you experience increased level of stress lead to greater dependency on caffeine, nicotine, and theophylline?	Yes	47	38.2	49	43.4	0.421
Do you feel insecure regarding your professional future?	Yes	62	50.8	53	46.9	0.548
Do you ever feel difficulty in learning new clinical procedures?	Yes	58	47.2	48	42.5	0.471
Competitions for grades increase your stress level?	Yes	86	69.9	67	59.3	0.088
Does increase level of stress affects your pattern of sleep?	Yes	95	77.2	89	78.8	0.778
Do you feel G.I.T discomfort as a result of increased level of stress?	Yes	80	65	73	64.6	0.944
*p<0.05 was considered significant using Pearson Chi Square test of Independence						

Table 2: Association of perceived stress with program.

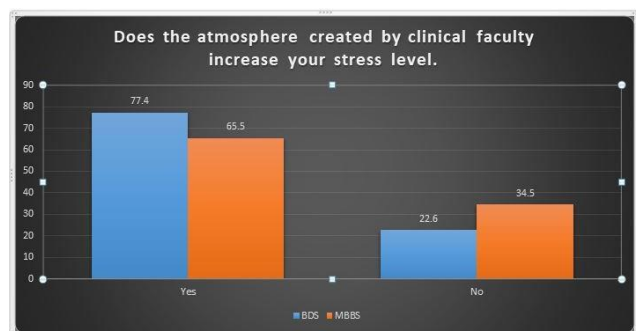


Figure 1: Shows that the atmosphere created by clinical faculty increases stress level in both undergrads 77.4% in dentistry and 65.5% in medicine.

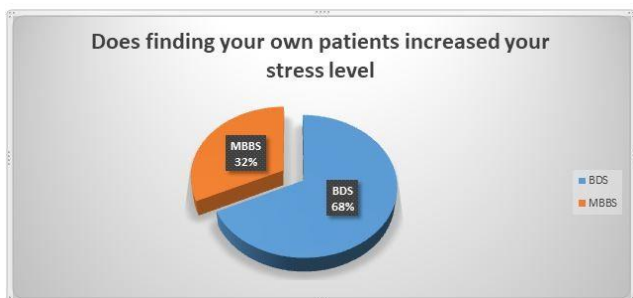


Figure 2: Difficulty in finding their own patients to fulfill the quota for clinical subjects increases stress level in BDS students about 68% in contrast to MBBS students that is only 32%.

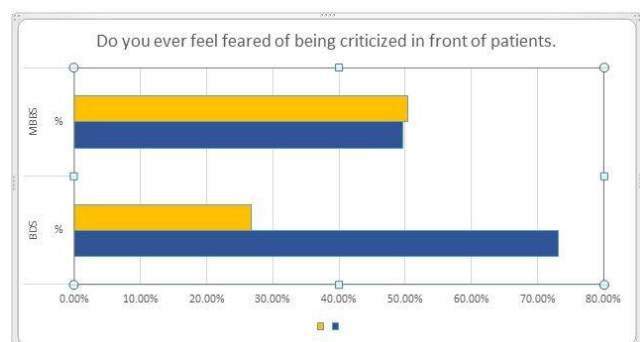


Figure 3: Fear of being criticized in front of patients is also one of the factors that increases the stress level 72.3% in dental and 49.6% in medical students.

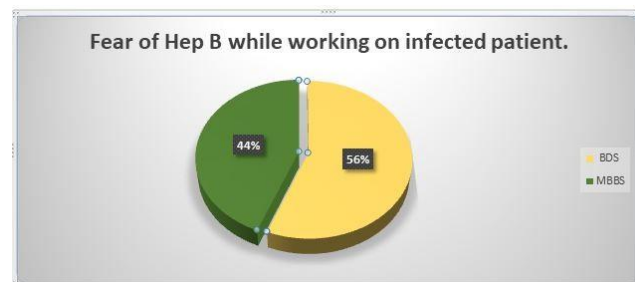


Figure 4: Illustrates 56% dental and 44% medical undergrads have fear of Hep B transmission while working on infected patient.

Ue Interpretation of Associated Perceived Stress among 3rd, 4<sup>th</sup> and 5<sup>th</sup> Medical Academic Year are as Follows

#### Among 3rd academic year

86.5% of the students agreed that the atmosphere generated by faculty raised their stress subsequently and also found less time for relaxation as compared to final year students. Whereas 73% found due to lack of co-operation from patients and feared of being criticized in front of patients increase burnout and stress level (Table 3).

78.4% reported higher levels of stress because of fear of hepatitis B from patients and overloaded due to the large number of modules. Due to which 37.8% find teeth grinding habit and mostly dependent on caffeine and felt difficulty in learning new clinical procedures. Uefore 83.8% reported stressed as they have to search for their own patients.

#### Among 4th academic year

Uis year is most likely to cite extreme workload, dependency on caffeine and professional issues as stressors. 79.3% felt overloaded due to large number of modules and 69.9% feared being unable to catch up with fellow colleagues. Due to which 55.4% felt insecure regarding their professional future while 71.1% reported that competition for grade increase their anxiety and stress level. Uis factor somehow ultimately leads to greater dependency on caffeine/nicotine therefore 47.0% reported stress due to caffeine dependency and 66.3% reported for feeling G.I.T discomfort. However 81.9% reported disturb sleep patterns due to stress.

#### Among 4th academic year

During 5th academic year, fear of failing in exams is the major cause of perceived stress, 77.6% reported fear related to exams and 51.0% felt difficulty in learning new clinical procedure.

#### Discussion

Stress is a physical/psychological phenomenon developed *via* self-cognition of provoking factors aler interacting with someone 's surroundings, it has been experienced by people of di9erent domains like in social, academic and work settings, and di9erent studies show excess stress can be debilitating [1].

Perceived stress questions		Academic						p value
		3rd year		4th year		5th year		
		n	%	n	%	n	%	
Fear of failing exams affects your performances?	Yes	25	67.6	60	73.2	38	77.6	0.585
Do you feel overloaded due to large number of modules/ assessments/assignments?	Yes	29	78.4	65	79.3	33	67.3	0.278
Fear of being unable to catch up with fellow colleague, if left behind?	Yes	20	54.1	58	69.9	34	69.4	0.205
Does the atmosphere created by clinical faculty increase your stress level?	Yes	32	86.5	57	68.7	34	69.4	0.105
Do you experience lack of time for relaxation?	Yes	32	86.5	64	77.1	34	69.4	0.176
Lack of co-operation by patients increased your level of stress?	Yes	27	73	53	63.9	29	59.2	0.411
Does finding your own patients increased your stress level?	Yes	31	83.8	50	60.2	18	36.7	<0.01*
Do you ever feel stressed because of fear of HepB, while working on infected patient?	Yes	29	78.4	52	63.4	26	53.1	0.054
Did you find yourself grinding your teeth?	Yes	14	37.8	27	32.5	17	34.7	0.85
Do you experience increased level of stress lead to greater dependency on caffeine, nicotine, and theophylline?	Yes	14	37.8	39	47	19	38.8	0.525
Do you feel insecure regarding your professional future?	Yes	12	32.4	46	55.4	24	49	0.067
Do you ever feel feared of being criticized in front of patients?	Yes	27	73	51	61.4	24	49	0.076
Do you ever feel difficulty in learning new clinical procedures?	Yes	14	37.8	40	48.2	25	51	0.447
Competition for grades increase your stress level?	Yes	25	67.6	59	71.1	26	53.1	0.104
Does increase level of stress affects your pattern of sleep?	Yes	26	70.3	68	81.9	36	73.5	0.298
Do you feel G.I.T discomfort as a result of increased level of stress?	Yes	23	62.2	55	66.3	32	65.3	0.909
*p<0.05 was considered significant using Pearson Chi Square test of Independence								

\*p<0.05 was considered significant using Pearson Chi Square test of Independence

Table 3: Reports the association of perceived stress among 3rd, 4th and 5th medical academic year.

In our study, we evaluated perceived stress among dental and medical students including its sources such as academic performance, psychosocial and familial factors [10]. Uis study was conducted among 124 dental and 113 medical students. In our study it was found that 74.8% dental and 66.4% medical students has the fear of failure in exams as one of the most perceived stress similarly another studies conducted in Malaysia, South Africa and Indian outlook also reported fear of failure as most stressful element among undergraduates [1, 15,16]. Stress of being unable to catch up with fellow colleague, if getting behind in studies was also one of the fear reported 66.1% in dental students and 62.8% in medical students, studies of Malaysia, Greek and other multi-country also described fear of stress if lel behind as one of the main basis [1,7,9,17]. Uis may be due to the demanding schedule with their objective to be competent both academically as well as clinically [1]. Competition for grades increases the stress level of both medical and dental undergrads (59.3%-69.9%) and also a9ects the pattern of sleep in dental (77.2%) and medical (78.8) apprentices and this may be the reason that 83% dental and 73% medical students experience lack of time for relaxation as a stress factor.

Study conducted in South Africa shows 64% responded that sleeping help them to cope with stress [15].

Students of both MBBS and BDS programs feel overloaded due to large number of assignments/modules and assessments. Among academic stressors, test/ exams were the main basis of stress. Uose who perceive test/exam as a burden may experience stressful situations, while for others, who consider exams valuable, assist them in learning [10].

In our study greatest stress level was found among third and fourth year students owing to transition from preclinical to clinical training phase. Uis explanation is consistent with the studies done in Malaysia and Saudi Arabia perhaps in ability for time management adequately and students may become incompetent to focus on their studies [1,18] and maybe due to the atmosphere created by clinical faculty increases stress level in both undergraduates to fulfil clinical quotas for which they may need to manage their own patients which shows peak stress 68% in BDS students (Figure 2). Another explanation is that senior undergraduates reported more stress in education and clinical skills by

increased interaction with faculty members and patients as well as high hopes from faculty members as they enter clinical phase [1]. Increased level of stress leads to teeth grinding in 39% dental and 28.6% medical students, as well as GIT discomfort in both dental and medical (Figure 3) undergraduates.

Most of BDS students 56% and also MBBS students 44% feel stressed in treating hepatitis B patients while working on infected patients, possibly due to transmission from sharp dental instruments or lack of knowledge or information regarding infection control (Figure 4) [18].

Concerning their professional future after graduation was perceived as stressful as they progress to the final year, studies of India, Saudi Arabia and Nigeria also shows the similar stress factor. This may be due to job insecurity, less job opportunities, unfavorable dentist-population ratio and limited postgraduate courses especially for dental graduates. Study done in Malaysia shows reverse trend for professional future due to job security by paid compulsory government service [1,7,17].

In our study it was found that the stress level among dental students is relatively high 66% compared to medical students that is 56% as to fulfil clinical quotas, managing their own patients and overloaded due to large number of assignments.

As an outcome, many authors have proposed the dental as well as medical curriculum should include lectures on stress management, time management, communication skills and behaviour management [15,19,20]. These lectures must be conducted earlier in session to assist students to cope with the stress issues [15].

## Conclusion

In comparison with medical students, dental students show comparatively higher levels of stress. During the study were more apprehensive, distressed and interpersonal sensitivity because of multifactorial reasons like self-efficacy beliefs, good performance pressure, assigned workload,

While, dental students often deals with stress particularly related to clinical sessions, patient management which encompass late patient's appointment, clinical quotas, tackling uncooperative patients, highly skilled technical work and financial factor. All these factors somehow contributes to pathetic academic results, absenteeism, stress induced disorder, disoriented performance.

In comparison with university education, medical and dental schools have unique stresses, medical training declared to have higher level of psychological toxicity and ultimately have negative impact on physical and mental health of student, this toxic stress affects their patient care. On contrary excessive educational workload burden with higher level of educational demand limited time for friends and family. Lack of spare time plays vital role in creating burnout levels among medical and dental student.

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