



Research Article

Stress among Dental Students in Saudi Dental Colleges: Cross-Sectional Study

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Abstract

Aim: The aim of this study is to investigate the prevalence and causes of stress among dental students and interns in Saudi dental colleges. **Materials and Methods:** A self-administered questionnaire was designed, tested in pilot sample, ethically approved from King Saud University Medical City IRB Committee. **Subjects:** All dental students and interns in all Saudi Dental Colleges were included. The questionnaire was distributed to all students and interns using a web link survey conducted through SurveyMonkey during the period of June to September 2022. **Statistical Analysis:** The data collected was entered using the Statistical Package of Social Sciences (SPSS) program. **Results:** A total of 509 dental students and interns participated, more than half of the participants (58.2%) are males. The majority of the participants (95.7%) indicated having stress. Most dental students participated in the study have multiple sources of stress, mainly related to academia, clinical requirements and professional future. **Conclusion:** Stress is highly present among dental students and interns in Saudi Dental colleges and have different sources and factors. It can lead to harmful results, such as depression, anxiety, substance misuse, diminished work efficiency, and burnout. Knowing the source and causes of stress can help students and officials need to cope and resolve the issues, this will lead to better students' performance and outcome.

Introduction

The term stress describes external demands (physical or mental) on an individual's physical and psychological well-being, leading to a deleterious effect on academic performance [1]. According to a report of the Global Congress in Dental Education (2008), "Dental Education is regarded as a complex, demanding and often stressful pedagogical exposure. It involves acquisition of required academic, clinical and interpersonal skills during the course of learning." Dental education is considered most stressful and was significantly found to intensify among undergraduate students as they gradually move on to successive years of study [2].

Practicing dentistry requires clinical and patient management skills, characteristics that also add to the stress perceived by the

students [3]. Stressors associated with dentistry include time and scheduling pressures, highly technical and intensive nature of work, and managing uncooperative patients. This resulting stress can lead to depression, anxiety, substance misuse, absenteeism, diminished work efficiency, and burnout. The roots of this occupational stress may have their origin in the educational process as dental students experience high levels of stress during training [4,5].

In chronic or extreme circumstances, occupational stress can precipitate a state of "burnout" in the susceptible practitioner. Maslach and Jackson [6] elucidated "burnout" as a unique response to frequent and intense clinician-patient contacts consisting of the following three components: emotional exhaustion (mental fatigue), depersonalization (psychological distancing from others), and reduced personal accomplishment [4]. Professional burnout shows symptoms such as fatigue, sleeplessness, risk of infectious

diseases (such as Hepatitis B, Hepatitis C, And Human Immunodeficiency Virus), headaches, low resistance, irritation, suspicion, overconfidence, drug abuse, negative attitude, boredom, and lack of challenge [7].

In Saudi Arabia, there are 25 dental colleges (Table 1). The duration of the Bachelor of Dental Surgery (BDS) program is six academic years, followed by one-year internship program. During the first year preparatory (foundation), students study basic sciences courses and extensive English courses. The second year, students are taught basic medical courses. In the third year, students are taught preclinical dentistry, whereas the later years are dedicated for imparting clinical education. The internship has three components, namely, clinical, research, and community requirements.

Characteristics		N	%
Gender	Male	296	58.2
	Female	213	41.8
Academic Level in the College?	1 ST Year in the Dental College, (3 RD and/or 4 TH Semesters)	44	8.6
	2 ND Year in the Dental College, (5 TH and/or 6 TH Semesters)	35	6.9
	3 RD Year in the Dental College, (7 TH and/or 8 TH Semesters)	69	13.6
	4 TH Year in the Dental College, (9 TH and/or 10 TH Semesters)	107	21.0
	5 TH Year in the Dental College, (11 TH and/or 12 TH Semesters)	121	23.8
	Intern	133	26.1
Cumulative Grade Point Average (GPA) out of 5	Less than 2.75	20	3.9
	2.75 and less than 3.75	135	26.5
	3.75 and less than 4.25	161	31.6
	More than 4.25	193	37.9

Table 1: Demographic Characteristics of participants (N=509).

Cooper, et al. [8] reported that the dental profession was ranked the most stressful when compared to other health-care professions. Previous investigators have found that 10% of dental students suffered from severe emotional exhaustion, 17% complained about a severe lack of accomplishment, and 28% reported severe depersonalization symptoms [9]. The ability to cope well with stress is important because stress can result in health-damaging behaviors and psychological morbidity. Recent research indicates that psychological morbidity, pathological anxiety, and emotional exhaustion in dental students are not uncommon [10].

Several studies identified the major academic stressors among dental college students to be demanding curriculums, examinations, competition for grades, and clinical requirements, handling anxious patients fear of failing the year, higher expectations and profound expectations with academic performance, and inadequate time for relaxation [11-13].

Clinical training for dental college student is considered the most critical phase of dental education. Some issues related to clinical training are quantitative adequacy of the patients, the professionalism of the faculty and “bureaucratic issues which may lead to loss of chair-side time, patient discomfort and adding to student stress” [14].

In Saudi Arabia, several studies investigated the stress among dental students. Khanagar, et al. [15] did a systemic review and they found that dental students in Saudi Arabia experience higher levels of depression, stress and anxiety during their education period, with a higher stress for female students compared to male students. They recommended an urgent need to introduce interventional programs and preventive strategies to overcome the long-term effects. Basudan, et al. [16] suggested that more attention should be provided to the susceptible individuals such as female students. So, the faculty and the students should be aware of how to identify those conditions to ensure early intervention.

The previous studies done in Saudi Arabia were researchers’ college centered, and a wider study that include students in all dental colleges in Saudi Arabia is needed. Therefore, the aims of this study are (1) to investigate the prevalence of stress among dental students in Saudi dental colleges, and (2) to investigate factors that cause stress among dental students in Saudi dental colleges.

Materials and Methods

Questionnaire

For this study, a self-administered questionnaire was designed. It consists of 2 parts. Part 1 consist of demographic characteristics of the participants. The second part consist of

questions related to the presence or absence of stress and factors that are perceived by participants to cause the stress. The questionnaire was tested in pilot sample of 20 students, and based on their reply, modifications on the questionnaire was done. The research is approved by King Saud Medical City Institutional Review Board (No. E-22-6866) and registered in King Saud University College of Dentistry Research Center (No. FR 0642).

Subjects

The study population included all dental students and interns from the 25 dental Colleges in Saudi Arabia. They consist of the undergraduate dental students from (1) the first to fifth years enrolled in the Bachelor of Dental Surgery (BDS) program, and (2) interns. The study population didn't include any students from the university preparatory year.

From every dental college, a representative was contacted and selected. The representative was responsible to distribute the questionnaire to students and interns in their colleges. The questionnaire was sent to college's representatives who was met using On-Line meeting program (zoom.us). The objective of the study and the method of distributing the questionnaire was explained and discussed to the representative. The purpose of the study was communicated in advance to subjects through their selected representatives. The representatives distributed the self-administered questionnaire using a web link survey through Google Forms. The subjects' participation in the research was voluntary and anonymous. Inclusion criteria consist of any dental interns and students in a Saudi Dental College. The exclusion criteria consist of dental interns who studied BDS in Non-Saudi Dental College.

The web link questionnaire was sent to the subjects by the representatives to their emails and/or WhatsApp accounts between June 17, 2022 and September 8, 2022. Their approval to participate was gained in the beginning of the questionnaire as a pre-requisite to answer the questions.

Statistical Analysis

All data from the online questionnaire was transferred to Statistical Package for the Social Sciences statistical software (SPSS version 16.0). Descriptive statistics will be presented in tables and future publication will be on analytical statistics.

Results

A total of 509 participants answered the online survey. The demographic characteristics of participants are shown in Table 1. More than half of the participants (58.2%) are males. Regarding their level in dental college, the majority are interns (26.1%), while (23.8%) are in fifth year, (21%) are in fourth year, (13.6%) are in third year, (6.9%) are in second year, and (8.6%) are in first year. For their Cumulative Grade Point Average (GPA) out of 5, the majority of participants (37.9%) had a GPA more than 4.25, followed by (31.6%) of participants had GPA between 4.25 and 3.75, and (26.5%) of participants had GPA between 3.75 and 2.75. Only (3.9%) of the participants had GPA less than 2.75.

Almost all of the participants (95.7%) indicate having some sort of stress from being in dental school (Table 2). The potential sources of stressors are divided into academic and social sources. In Tables 3 and 4 the potential sources of stressors results faced by the participants are shown. The rating from 1 to 5 have been used with rating 1 indicate (Not Relevant) to rating 5 indicate (Very stressful) in relation to different sources of stress.

Question	Yes (%)	No (%)
Do you have stress from being in the dental college?	487 (95.7)	22 (4.3)

Table 2: Participants' response to having stress in the dental college (N=509)

Regarding source of stress related to academia (Table 3), the majority of participants (53.4%) stated that examinations and grades are "very stressful" source of stress. Less than half of participants stated that completing courses' requirements and patients missing appointments for treatment (45.6%) and (48.9%) respectively are "very stressful" source of stress. Around one third of the participants mentioned that number of course assignments, responsibilities towards patient's care, and fear of failing a course (32.4%), (35%), (36.7%) respectively are "very stressful" source of stress. Competition with class mate was not relevant to be source of stress for (19.84%) of participants and while (22.20%) of participants considered it as not stressful factor. When participants were asked about "Difficulty in learning precision manual skills required in clinical and laboratory work" only 16.70% considered it "very stressful" source of stress while 16.31% and 22.20% considered it as "not relevant" and "not source of stress" respectively.

Source of Stress	1*		2*		3*		4*		5*	
	N	%	N	%	N	%	N	%	N	%
Number of course assignments	19	3.73	72	14.15	128	25.15	125	24.56	165	32.42
Completing courses' requirements	16	3.14	36	7.07	111	21.81	114	22.40	232	45.58
Unable to keep up with day to day workload	30	5.89	110	21.61	129	25.34	112	22.00	128	25.15
Responsibilities towards Patient's care	34	6.68	47	9.23	123	24.17	127	24.95	178	34.97
Difficulty in learning precision manual skills required in clinical and laboratory work	83	16.31	113	22.20	137	26.92	91	17.88	85	16.70
Rules and regulations of the college	71	13.95	127	24.95	131	25.74	78	15.32	102	20.04
Patients missing appointments for treatment (inability to complete the clinical requirements)	52	10.22	25	4.91	77	15.13	106	20.83	249	48.92
Competition with classmates	101	19.84	113	22.20	126	24.75	93	18.27	76	14.93
Examination and grades	8	1.57	27	5.30	88	17.29	114	22.40	272	53.44
Fear of failing a course	44	8.64	69	13.56	109	21.41	100	19.65	187	36.74
Learning environment created by the college	56	11.00	138	27.11	114	22.40	86	16.90	115	22.59
Receiving criticism about my work	66	12.97	114	22.40	132	25.93	97	19.06	100	19.65
Attitudes of faculty towards students	34	6.68	107	21.02	122	23.97	103	20.24	143	28.09
Inconsistency of feedback on your work among different instructors	27	5.30	53	10.41	125	24.56	109	21.41	195	38.31

*1: Not Relevant; 2: Not stressful; 3: Slightly stressful; 4: Moderately stressful; 5: Very stressful

Table 3: Participants' responses to academic sources of stress (N=509).

For the source of stress related to social factors (Table 4), the majority of participants (57.6%) answered that marital adjustment problems are “not relevant” to them as source of stress. Less than half of participants answered that insecurity concerning your professional future (45%) are “very stressful” source of stress, while (44.8%) stated that having children at home is “not relevant”

source of stress. Around one third of the participants (36.5%) mentioned that lack of time for relaxation and extracurricular activities is “very stressful” source of stress. While (31.6%) and (31.6%) of participants stated that relationships with other members of the class is “not relevant” and “not stressful” source of stress. The rest of the results are shown in Table 4.

Source of Stress	1*		2*		3*		4*		5*	
	N	%	N	%	N	%	N	%	N	%
Discrimination due to race, class status, ethnic group	146	28.68	148	29.08	71	13.95	52	10.22	92	18.07
Having children at home	228	44.79	137	26.92	85	16.70	29	5.70	30	5.89
Marital adjustment problems	293	57.56	126	24.75	43	8.45	25	4.91	22	4.32
Financial Constraints	120	23.58	93	18.27	112	22.00	76	14.93	108	21.22
Relationships with other members of the class	161	31.63	161	31.63	106	20.83	37	7.27	44	8.64
Lack of time for relaxation and extracurricular activities	20	3.93	75	14.73	125	24.56	103	20.24	186	36.54
Insecurity concerning your professional future	33	6.48	44	8.64	109	21.41	94	18.47	229	44.99

*1: Not Relevant; 2: Not stressful; 3: Slightly stressful; 4: Moderately stressful; 5: Very stressful

Table 4: Participants’ responses to social sources of stress (N=509)

Discussion

Currently there are 25 dental colleges distributed all over the kingdom of Saudi Arabia. Every academic year, many newly high school graduates join these colleges after passing the foundation preparatory year. After joining, the students are required to obtain the academic knowledge and clinical skills to be successful dentists. During the academic years of the dental students, stress and its related consequences might develop which may have a negative impact on the dental student [17].

The result of the study demonstrates a view of stress in dental students in the Kingdom of Saudi Arabia. The self-reported stress by subjects in this study was high (95.7%) in comparison to the study of Basudan, et al. [16] and the study of Aboalshamat, et al. which was (54.7%) and (70.9%) respectively. This may be attributed to the difference in population studied and timing of the study.

In a multi-country study, Alhaji, et al. [18] found that examination and quizzes are among the top perceived source of stress. Moreover, a systematic literature review done by Smolana, et al. [19] found that the highest level of stress was caused by grades and examinations. The finding of this study showed that examination and grades source of stress scored the uppermost result to be “very stressful” according to the participants. This might be explained as examination are stressful in nature and require preparation and understanding of the exam materials. Moreover, grades have a direct effect on the GPA of the students which may affect the final GPA that plays a major role in the professional future of the dental student. Basudan, et al. [16] recommended to include early courses in dental curriculum to help the dental students in studying and test

taking skills. These courses might help the students in improving their grades and reduces exam related stress.

Patients missing appointments for treatment (inability to complete the clinical requirements) source of stress scored the second uppermost result to be “very stressful”. This might be justified as if the patients missed their appointments, the student will be late for completing their clinical requirements and it ultimately affect their clinical grades. Missed appointment is not uncommon in dental practice. Shabbir, et al. [20] reported that the percentage of dental missed appointments was 58.1%. and main reason for missing appointment was un-able to get of work/school.

Al-Sowygh, et al. [21] noted that workload from dental school account for most of the stress experienced by dental students. Completing courses’ requirements is part of the work load needed in dental school. In this study, the third uppermost result to be “very stressful” source was completing courses’ requirements. The dental students are required to finish courses’ requirements in timely fashion. Failure of completing the requirement might affect directly the student’s performance and grades. Due to the nature of the academic year and type of education in dentistry, most of the students may found themselves in a race to finalize the needed requirements before the end of the academic year.

Many of the dental students are worried about their professional future. This might be justified due to the limited number of governmental jobs offered for general dentists each year, lack of sufficient experience by the newly graduate to compete in private sector and the nature of the postgraduate programs in dentistry which is highly competitive and have limited number of admission seats.

Marital adjustment problems and having children at home sources of stress had high score to be “not relevant”. Most of dental students at dental college are probably not married and/or they are not taking care of any children. Other studies conducted in Saudi Arabia found similar results Basudan, et al. [16] and Al-Saleh et al. [22].

Stress and stress related issues can lead to harmful results. Such as, depression, anxiety, substance misuse, absenteeism, diminished work efficiency, and burnout. The decision makers in dental colleges including college administrators and officials should make plans to deal with these factors to reduce stress among their students by implementing stress management strategies.

Conclusion

Results from this cross-sectional study showed that:

1. Most participants reported being stressed in dental college.
2. Stress related sources varies between participants.

Recommendation:

It is important that dental colleges’ academic officials investigate sources of stress among their students and make constructive plans to lower the stress among their students.

References

1. Muirhead V, Locker D (2007) Canadian dental students’ perceptions of stress. *J Can Dent Assoc* 73: 323.
2. Uraz A, Tocak YS, Yozgatligil C, Cetiner S, Bal B (2013) Psychological well-being, health, and stress sources in Turkish dental students. *J Dent Educ* 77: 1345-1355.
3. Harikiran AG, Srinagesh J, Nagesh KS, Sajudeen N (2012) Perceived sources of stress amongst final year dental under graduate students in a dental teaching institution at Bangalore, India: A cross sectional study. *Indian J Dent Res* 23: 331-336.
4. Humphris G, Blinkhorn A, Freeman R, Gorter R, Hoad-Reddick G, et al. (2002) Psychological stress in undergraduate dental students: Baseline results from seven European dental schools. *Eur J Dent Educ* 6: 22-29.
5. Tangade PS, Mathur A, Gupta R, Chaudhary S (2011) Assessment of stress level among dental school students: An Indian outlook. *Dent Res J (Isfahan)* 8: 95-101.
6. Maslach C, Jackson SE (1981) The measurement of experienced burnout. *J Occup Behav* 2: 99-113.
7. Gorter RC, Albrecht G, Hoogstraten J, Eijkman MA (1999) Professional burnout among Dutch dentists. *Community Dent Oral Epidemiol* 27: 109-116.
8. Cooper CL, Watts J, Kelly M (1987) Job satisfaction, mental health, and job stressors among general dental practitioners in the UK. *Br Dent J* 162: 77-81.
9. Morse Z, Dravo U (2007) Stress levels of dental students at the Fiji school of medicine. *Eur J Dent Educ* 11: 99-103.
10. Pau AK, Croucher R, Sohanpal R, Muirhead V, Seymour K (2004) Emotional intelligence and stress coping in dental undergraduates – A qualitative study. *Br Dent J* 197: 205-209.
11. Rajab L (2001) Perceived sources of stress among dental students at the University of Jordan. *J Dent Educ* 65: 232-241.
12. Alzahem AM, Van Der Molen HT, Alaujan AH, Schmidt H, Zamakhshary MH (2011) Stress amongst dental students: A systematic review. *Eur J Dent Educ* 15: 8-18.
13. Kaipa S, Margabandhu S, Fareed N, Kumar K (2012) Perceived source of stress among dental students in South India. *Ann Essence Dent* 4: 43-51.
14. Divaris K, Barlow PJ, Chendea SA, Cheong WS, Dounis A, et al. (2008) The academic environment: the students’ perspective. *Eur J Dent Educ* 1: 120-130.
15. Khanagar SB, Al-Ehaideb A, Jamleh A, Ababneh K, Maganur PC, et al. (2021) Psychological Distress among Undergraduate Dental Students in Saudi Arabia and Its Coping Strategies-A Systematic Review. *Healthcare* 9: 429.
16. Basudan S, Binanzan N, Alhassan A (2017) Depression, anxiety and stress in dental students. *Int J Med Educ* 8: 179-186.
17. Cooper CL, Baglioni AJ Jr (1988) A structural model approach toward the development of a theory of the link between stress and mental health. *Br J Med Psychol* 61: 87-102.
18. Alhajj MN, Khader Y, Murad AH, Celebic A, Halboub E, et al. (2018) Perceived sources of stress amongst dental students: A multicountry study. *Eur J Dent Educ* 22: 258-271.
19. Smolana A, Loster Z, Loster JE (2022) Assessment of stress burden among dental students: A systematic literature review and meta-analysis of data. *Dent Med Probl* 59: 301-307.
20. Shabbir A, Alzahrani M, Abu Khalid A (2018) Why Do Patients Miss Dental Appointments in Eastern Province Military Hospitals, Kingdom of Saudi Arabia? *Cureus* 10: e2355.
21. Al-Sowygh ZH, Alfadley AA, Al-Saif MI, Al-Wadei SH (2012) Perceived causes of stress among Saudi dental students. *King Saud University Journal of Dental Sciences* 4: 7-15.
22. Al-Saleh SA, Al-Madi EM, Al-Angari NS, Al-Shehri HA, Shukri MM (2010) Survey of perceived stress-inducing problems among dental students, Saudi Arabia. *Saudi Dent J* 22: 83-88.