

Assessment Of Perceived Causes & Levels Of Stress Amongst Clinical Dental Students & House Surgeons. A Cross Sectional Study

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Abstract

Objective: The objective of the study was to assess the stress levels and impact of students' year and gender on perceived causes amongst clinical dental students and house surgeons.

Methods: A cross sectional study was conducted from October 2018 - December 2018 after getting ethical approval from ethical committee and permission for data collection was approved from R&D department. Dental students from third year, final year and house surgeons were included in the study (n= 250). A structured pre validated questionnaire, Dental Environment Stress (DES) questionnaire 21 consisted of 23 closed ended questions with three responses of categories that are 1) No stress, 2) Mild- moderate and 3) severe stress was used. Data was analysed for frequency and percentages and chi -square test was done to assess the association between academic qualifications with other variables.

Results: The response rate was 59.2%. Majority of them were females 56.8% and 43.2% were male participants. Total 43(28.9%) participants reported severe stress regarding fear of getting infectious disease from patients. Approximately 13(35.1%) of 3rd year BDS students reported stress regarding examination and grading of patient when compared to 4th year BDS students and house surgeons with a significant relationship. Approximately 17(22.7%) of 4th year BDS students reported severe stress due to fear of failure in examination when compared to 3rd year BDS students and house surgeons. Approximately 13 (35.1%) of the 3rd year BDS students reported stress regarding difficulty with class work.

Conclusion: The present study concluded that moderate to slightly elevated levels of stress were reported in dental students.

Keywords: assessment, clinical, levels, stress, dental professionals, undergraduate

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Introduction

Stress is a response of an individual's reaction to environmental challenges and tasks¹. The perception of stress depends on several different

conceptualizations of individual's beliefs, knowledge, attitude and behaviour^{2,3}. Students are subjected to different kinds of practices that makes them more vulnerable to undergo a lot of stress⁴. Higher levels of stress might have a negative impact on the learning abilities of dental students. Prevalence of stress amongst medical students ranging from 25-90% was reported in many studies⁵. A systematic review published recently reported that dental students experienced significant amounts of stress⁶. The stressors from various studies identified included the learning of different clinical procedures, fear of failure in year/ module, workload, problems faced in dealing with patients and with changes in curricu-

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lum and interactions with faculty members^{7,8}. The profession of Dentistry is considered to be stressful which starts as a student life and continuing towards clinical practice after graduation⁹⁻¹¹. It has been widely acknowledged that dentistry students need to acquire varied proficiencies such as theory-based knowledge, clinical skills and interpersonal skills associated with higher levels of stress¹².

Polychronopoulos et al.¹³ reported that dental students continuously remained under stress as they want to be more competent in both academics and clinical aspects.

The rationale of the study was to assess the levels and its impact on perceived causes amongst dental students and house surgeons.

The objective of the study was to assess the stress levels and impact of students' year and gender on perceived causes amongst clinical dental students and house surgeons.

Materials and Methods

A cross sectional study was conducted from October 2018 - December 2018 on dental students and house surgeons. The study was approved by the ethical committee and permission for data collection was given from R&D department. A convenience (census) sampling method was employed and 250 dental students were invited to participate in the study. Dental students from third year, final year and house surgeons present on the day of data collection were included in the study. Those who were absent on the day of data collection were excluded from the study. A structured pre validated modified DES questionnaire consisted of 23 closed ended questions which was validated by subject expert. There were six domains in the questionnaire namely academic performance, clinical and patient responsibility, faculty relations, personal issues, accommodation, and professional identity/career. A three point like scale was used with options, 1) No stress, 2) Mild - moderate stress and 3) severe stress. The questionnaires were distributed amongst the dental students in their respective classes and collected on the same day whereas house surgeons were approached in their respective clinical departments.

Collected data was analysed by using IBM SPSS software version 22. Frequency and percentages were calculated for categorical variables and chi-square test was done to assess the association between academic qualifications with other variables. P - value of "p<0.001". was considered significant

Table 1. Modified Dental Environment Stress Questionnaire

1.	Examinations and grading			
	no stress	mild	moderate	severe
2.	Too much assignments			
	no stress	mild	moderate	severe
3.	Fear of failure in the exam			
	no stress	mild	moderate	severe
4.	Incomplete examinations			
	no stress	mild	moderate	severe
5.	Getting suitable patient?			
	no stress	mild	moderate	severe
6.	Patient arriving late or not coming on appointments			
	no stress	mild	moderate	severe
7.	Lack of time to do assignments work			
	no stress	mild	moderate	severe
8.	Rules and regulations of the faculty			
	no stress	mild	moderate	severe
9.	Conflict with the patients			
	no stress	mild	moderate	severe
10.	Fear of getting infectious disease like HIV, HBC. from patients			
	no stress	mild	moderate	severe
11.	Lack of cooperation by patients in clinic and home care			
	no stress	mild	moderate	severe
12.	Financial problems			
	no stress	mild	moderate	severe
13.	Difficulty in learning clinical procedures			
	no stress	mild	moderate	severe
14.	Difficulty with class work?			
	no stress	mild	moderat	severe
15.	Cheating among dental students			
	no stress	mild	moderate	severe
16.	Attitude of faculty towards students			
	no stress	mild	moderate	severe
17.	Difficulty in understanding lectures			
	no stress	mild	moderate	severe
18.	Competition with class work?			
	no stress	mild	moderate	severe
19.	Distance and time needed to travel to dental college			
	no stress	mild	moderate	severe
20.	Social contact with students			
	no stress	mild	moderate	severe
21.	Having children at home			
	no stress	mild	moderate	severe
22.	Physical health problems			
	no stress	mild	moderate	severe
23.	Lack of confident about being a successful dental student			
	no stress	mild	moderate	severe

Results

About 250 questionnaires were distributed amongst the selected participants but only 148 of them have completed the questionnaires and returned. The response rate was 59.2%. Majority of them were females (56.8%) and (43.2%) were male participants. Table 2.

Regarding examination and grading of patient, 13 (35.1%) of 3rd year BDS students reported stress when compared to 4th year BDS students and house surgeons with a significant association " $p < 0.001$ ". When asked about stress due to fear of failure in examination, 17 (22.7%) of 4th year BDS students reported severe stress when compared to 3rd year BDS students and house surgeons " $p < 0.001$ ". There was also a significant association reported between stress and incomplete examination " $p < 0.001$ ". Regarding stress due to patient arriving late or not on appointments, 13(35.1%) of the 3rd year BDS students reported significant relationship " $p = < 0.001$ ". A significant association was also reported when asked about stress due to lack of time to do assignments " $p < 0.005$ ". Table 3. showed association of grades of stress with year of study.

Table 2. Distribution of Gender and Academic year

Gender	n (%)		
Male	64 (43.2)		
Female	84 (56.8)		
Total	148 (100)		

Academic year	n (%)	Male	Female
3rd year BDS	37 (25)	18 (48.6)	19 (51.4)
Final year BDS	75 (50.7)	27 (36)	48 (64)
House surgeons	36 (24.3)	19 (52.8)	17 (47.2)
Total	148 (100)	64 (100)	84 (100)

Discussion

Stress amongst dental students is multifactorial since it includes academic factors followed by both mental and physical efforts¹⁴. The present study was designed to evaluate the causes of perceived stress amongst clinical dental students and house surgeons.

Table 3. Association of grades of stress with year of study

Variables	Grade of stress	3rd year BDS	4th year BDS	House surgeons	p-value
Examination and grading of patient	No stress	11(29.7%)	16(21.3%)	24(66.7%)	0.000
	Mild-moderate	13(35.1%)	50(66.7%)	4(11.1%)	
	Severe	13(35.1%)	9(12%)	8(22.2%)	
Fear of failure in exam	No stress	7(18.9%)	20(26.7%)	22(61.1%)	0.000
	Mild-moderate severe	14(37.8%)	38(50.7%)	8(22.2%)	
Getting suitable patient	No stress	12(32.4%)	20(26.7%)	22(61.1%)	0.001
	Mild-moderate	15(40.5%)	47(62.7%)	11(30.6%)	
	severe	10(27%)	8(10.7%)	3(8.3%)	
incomplete examination	No stress	11(29.7%)	14(18.7%)	22(61.1%)	0.000
	Mild-moderate	9(24.3%)	50(66.7%)	11(30.6%)	
	severe	17(45.9%)	11(14.7%)	3(8.3%)	
Too much assignments	No stress	5(13.5%)	14(18.7%)	17(47.7%)	0.000
	Mild-moderate	17(45.9%)	52(69.3%)	15(41.7%)	
	severe	15(40.5%)	9(12%)	4(11.1%)	
Patient arriving Late or not on appointments	No stress	12(32.4%)	28(37.3%)	25(69.4%)	0.000
	Mild-moderate	12(32.4%)	39(52%)	9(25%)	
Lack of time to do assignments	No stress	10(27%)	28(37.3%)	22(61.1%)	0.005
	Mild-moderate	15(40.5%)	37(49.3%)	11(30.6%)	
	severe	12(32.4%)	10(13.3%)	3(8.3%)	
Difficulty with class work	No stress	10(27%)	22(29.3%)	19(52.8%)	0.001
	Mild-moderate	14(37.8%)	44(58.7%)	14(38.9%)	
	severe	13(35.1%)	9(12%)	14(38.9%)	

All the clinical students (3rd year & final year BDS) and house surgeons in the present study were found to be mild-moderate and severe stressed. Bhayat A et al.¹⁵ in a study also reported that clinical students were severely stressed. Alhaji M et al.¹⁶ in a multi country study reported that clinical students from Pakistani university were found to be severely stressed. Ersan N et al.¹⁷ in a study reported that final year students were found to be stressful. Halboub E et al.¹⁸ reported moderate to high level of stress amongst dental students. Maximum stress level in the current study was found when asked about fear of getting infectious diseases from patients and stress of fear of failure in the exam. Srivastava R et al.¹⁹ reported fears of failure in examination an important element amongst dental students. Bedewy D et al.²⁰ reported academic stress as highest source amongst dental students. Baber et al.²¹ in a study reported that fear of failure in the examination was the most stressful element in dental students. Al Samdani et al.²² in a study reported that stress in examination and grading of the patient was the major cause

amongst dental students followed by academic overload and fear of failure. Ishaque M et al.²³ in a study reported that fear of failing an exam is the highest stressor amongst final year students. Gordon et al.² in a study reported that highest stressor amongst dental students was fear of failing a module or year. Mahmood et al.²⁴ in a study reported that competition for grades, fear related to dealing with patients having contagious diseases were the common stressors amongst dental students. Asseri et al.²⁵ in a study reported that stressors related to examination, grades, course requirements, long days schedule, lack of time for relaxation were considerably high. Stress in association to examination and grading is a universal phenomenon and may exist since the inception of examination system²⁵. The present study reported that 20% of the students were found to be in stress due to examination and grading. Sekhon T²⁶ in a study reported that examination and grading, fear of failing were the major stressors found in dental students. This may be due to the fact that the dental curriculum requires a lot of study and students feel overloaded by high academic demands. Large amount of information required to master in a short time makes them fearful of scoring well in the examination²⁷.

Clinical teaching embraces learning of different clinical procedures, completion of number of patient procedures along with attending lectures and studying for examinations and this requires dental students to work harder adding to the overall stresses²⁷. The present study reported that clinical and patient requirements of overall stress amongst clinical dental students and house officers was less.

Patients visited late or missed their appointments posed a massive problem pertaining inability to complete clinical work and failure to furnish clinical requirements on time. It is the responsibility of clinical students to search appropriate patients to satisfy their clinical requirements. This seems to be a highly major concern to be addressed by appropriate screening of patients and referrals between departments²⁸. The present study showed that pa-

tients being late for appointments or not coming did not stress the dental students and house surgeons.

The present study limits the small sample size, single centred study and lack of variables.

Conclusion

The present study concluded that moderate to slightly elevated levels of stress were reported in dental students particularly females that peaked in final year. It is essential to ensure an environment that reduces stress and promotes the well-being of students

Conflict of Interest

Authors have no conflict of interest and no grant/funding from any organization

References

1. Yusoff MS, Abdul Rahim AF, Yaacob MJ. Prevalence and sources of stress among university students Malaysia medical students[online]. *Malays J Med Sci*. 2010 Jan-Mar; 17: 30-37. Available from: <https://pubmed.ncbi.nlm.nih.gov/22135523/> Accessed on: 3rd-November-2021.
2. Gordon NA, Rayner CA, Wilson VJ, Crombie K, Shaikh AB, Yasin-Harnekar S. Perceived stressors of oral hygiene students in the dental environment [online]. *Afr J Health Professions Educ* 2016; 8:20-4. Available from: <https://www.ajol.info/index.php/ajhpe/article/view/135413> Accessed on: 3rd-November-2021.
3. Sandars J, R Patel, Steele H, McAreavey M. Developmental student support in undergraduate medical education: AMEE Guide No. 92. *Medical Teacher* 2014; 36: 1015-26. [DOI: 10.3109/0142159X.2014.917166]
4. Dahan H, Bedos C. A typology of dental students according to their experience of stress: A qualitative study. *J Dent Educ* 2010; 74:95?103. [DOI: 10.3109/0142159X.2014.917166]
5. Koochaki GM, Charkazi A, Hasanzadeh A, Saedani M, Qorbani M, Marjani A. Prevalence of stress among Iranian medical students: a questionnaire survey[online]. *East Mediterr Health J*. 2011; 17(7):593-8. Available from: <https://pubmed.ncbi.nlm.nih.gov/21972483/> Accessed on: 3rd-November-2021.
6. Elani HW, Allison P, Kumar RA, Mancini L, Lambrou A, Bedos C. A systematic review of stress in dental students. *J Dent Educ*. 2014;78:22642 [DOI: 10.21815/JDE.016.016]
7. Naidoo S, Pau A. Emotional Intelligence and perceived stress[online]. *SADJ* 2008; 63: 148 -151.

- Available from: <https://pubmed.ncbi.nlm.nih.gov/18689346/> Accessed on: 3rd-November-2021.
8. Pau A, Rowland MA, Naidoo S, AbdulKadir, R, Makrynika, E, Moraru, R et al. Emotional Intelligence and perceived stress in dental undergraduates: a multinational survey [online]. *J Dent Educ* 2007; 71:197-204. Available from: <https://pubmed.ncbi.nlm.nih.gov/17314380/> Accessed on: 3rd-November-2021.
 9. Peker I, Alkurt MT, Usta MG, Turkbay T. The evaluation of perceived sources of stress and stress levels among Turkish dental students[online]. *Int Dent J.* 2009; 59(2):103-11. Available from: <https://pubmed.ncbi.nlm.nih.gov/19489290/> Accessed on: 3rd-November-2021.
 10. Abu-Ghazaleh SB, Rajab LD, Sonbol HN. Psychological stress among dental students at the University of Jordan. *J Dent Educ.* 2011; 75(8):110714.
 11. Ahmad MS, Md Yusoff MM, Abdul Razak I. Stress and its relief among undergraduate dental students in Malaysia. *Southeast Asian J Trop Med Public Health.* 2011; 42(4):996-1004.
 12. Rajab LD. Perceived sources of stress among dental students at the University of Jordan. *J Dent Educ* 2001; 65:232-41.
 13. Polychronopoulou A, Divaris K. Dental students' perceived sources of stress[online]. A multi-country study. *J Dent Educ.* 2009; 73(5):631-9. Available from: <https://pubmed.ncbi.nlm.nih.gov/19433538/> Accessed on: 3rd-November-2021.
 14. Lin, X., Zhang, C., Yang, S. et al. Stress and its association with academic performance among dental undergraduate students in Fujian, China: a cross-sectional online questionnaire survey. *BMC Med Educ* 2020;20:181.[DOI: 10.1186/s12909-020-02095-4]
 15. Bhayat A, Madiba TK. The self-perceived sources of stress among dental students at a South African Dental School and their methods of coping[online]. *South African Dental Journal.* 2017; 72:6-10. Available from: http://www.scielo.org.za/scielo.php?script=sci_arttext&pid=S0011-85162017000100005 Accessed on: 3rd-November-2021.
 16. Alhaji MN, Khader Y, Murad AH, et al. Perceived sources of stress amongst dental students: A multicountry study. *Eur J Dent Educ.* 2018; 00:1-14.[DOI: 10.1111/eje.12350]
 17. Ersan N, Fisekcioglu E, Dolekoglu S, Oktay I, Ilguy D. Perceived sources and levels of stress, general self-efficacy and coping strategies in clinical dental students. *Psychol Health Med.* 2017; 22:1175-1185. [DOI: 10.1080/13548506.2017.1286359]
 18. Halboub E, Alhaji MN, AlKhairat AM, Sahaqi AM, Quadri MFA. Perceived Stress among Undergraduate Dental Students in Relation to Gender, Clinical Training and Academic Performance. *Acta Stomatol Croat.* 2018;52:37-45. [DOI: 10.15644/asc52/1/6]
 19. Srivastava R, Jyoti B, Pradhan D, Kumar M, Priyadarshi P. Evaluating the stress and its association with stressors among the dental undergraduate students of Kanpur city, India: A cross-sectional study. *J Educ Health Promot.* 2020;9:56. [DOI: 10.4103/jehp.jehp_405_19]
 20. Bedewy D, Gabriel A. Examining perceptions of academic stress and its sources among university students: The Perception of Academic Stress Scale. *Health psychology open.* 2015;2(2):2055102915596714. [DOI: 10.1177/2055102915596714]
 21. Babar M et al. Perceived sources of stress among Malaysian dental students. *International journal of medical education.* 2015; 6:56-61. [DOI: 10.5116/ijme.5521.3b2d]
 22. Al-Samadani KH, Al-Dharrab A. The Perception of Stress among Clinical Dental Students [online]. *World J Dent* 2013; 4(1):24-28. Available from: <https://www.researchgate.net/publication/312963726> The Perception of Stress among Clinical Dental Students Accessed on: 3rd-November-2021.
 23. Ishaque MY, Farid H, Yasmeen S. Perceived causes of stress among dental undergraduates at army medical college, Rawalpindi [online]. *Pakistan Oral & Dental Journal.* 2015; 35(1):7-9. Available from: <https://www.semanticscholar.org/paper/PERCEIVED-CAUSES-OF-STRESS-AMONG-DENTAL-AT-ARMY-Ishaque-Farid/359bc32f441fac2ec3f9c9ce7b9341322eeaabf93> Accessed on: 3rd-November-2021.
 24. Mahmood A, Mazhar S, Bano M, Ghaffar. Stress among dental undergraduates: a cross-sectional study [online]. *Pakistan Oral & Dental Journal.* 2019; 39:167-72. Available from: <https://podj.com.pk/index.php/podj/article/view/391> Accessed on: 3rd-November-2021.
 25. Aseeri NA, Alasmari FS, Alqahtani MA, Alqahtani SA, Togoo RA. Stress Among Dental Students: A Cross sectional Study in Saudi Arabia. *Int J Sci Stud* 2018; 5:5-6.[doi: 10.3390/healthcare9040429]
 26. Sekhon TS, Grewal S, Gambhir RS, Sharma S. Perceived sources of stress among dental college students: An Indian perspective. *Eur J Gen Dent* 2015; 4:121-6.[doi: 10.4103/jehp.jehp_1475_20]
 27. Amany SB, Nakitende J, Ngabirano TD. A cross-sectional study of stress and its sources among health professional students at Makerere University, Uganda. *Nursing Open.* 2018; 5:70-76.[doi: 10.1002/nop2.113]
 28. Wilson VJ, Rayner CA, Gordon NA, Shaikh AB, Crombie K, Yasin-Hamekar S. Perceived stress among dental students at the University of the Western Cape [online]. *South African Dental Journal.* 2015; 70(6):255-9. Available from: <http://www.scielo.org.za/pdf/sadj/v70n6/07.pdf> Accessed on: 3rd-November-2021.