

ASSOCIATION OF STRESS WITH ACADEMIC PERFORMANCE AFFECTING SELF-EFFICACY OF DENTAL UNDERGRADUATE STUDENTS IN PAKISTAN

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ABSTRACT

Objectives: To determine the association concerning stress and academic achievement affecting self-efficacy in dental undergraduate students.

Materials and Methods: This cross-sectional study was carried out from July 01, 2020, to June 31, 2021, both in the private and public sectors in Punjab and the Federal areas in Pakistan. The study comprised 310 students and a validated questionnaire was shared with them. Response from all forms was analyzed and the relationship between stress and academic performance was assessed. Descriptive analysis was done for gender and years of study while the relationship between stress and academic performance was analyzed by Chi-square test.

Results: Results indicated that 86.1% of students were stressed and significant associations were seen in gender from academic overload in exams ($p \leq 0.001$), too many tasks ($p \leq 0.05$), and poor relation with peers ($p \leq 0.001$). Likewise, stress of competitiveness ($p \leq 0.008$), and becoming a dentist ($p \leq 0.001$) were also found to be strongly correlated amongst all years of study. Furthermore, stress from academic overload, family pressure, interaction with peers, and future perspectives were all found to be intensely associated with the effect on academic performance.

Conclusion: The research shows high amount of stress in dental students which is linked to poor academic performance, emphasizing the need for institutions to implement effective stress management strategies to support student well-being and enhance academic outcomes.

Key words: Academic performance, coping strategies, dental students, medical education, psychological and physical well-being, self-efficacy, stress, and undergraduates

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INTRODUCTION

Medical education is equally challenging and stressful due to the information handed over to stu-

dents. This burden leaves healthcare students with minimal time for refreshment and relaxation¹. As a result; anxiety, stress, and depression which is how an individual reacts when under pressure are commonly come across in healthcare students leading to detrimental effects on their physical and mental health². Universities these days have been seeing high enrolment rates among undergraduate students however; professional institutes have correspondingly been seeing high dropout rates owing to weak

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academic performance which is the measurement of student achievement across various academic subjects. Reduced academic performance is a result of difficulties faced by healthcare students in adjusting to increased demands in medical and dental institutes causing stress and burnout³.

Stress in optimal amounts enhances learning while excess leads to detrimental effects⁴. An elevated prevalence of despair and apprehension was seen in studies carried out in the US and Canada amongst medical students in contrast to the common inhabitants⁵. Healthcare students were further observed to have their mental health worsened after starting medical school and remained poor throughout the entire duration⁴. Academic stress is widely seen and affects students' individual, emotional, and physical welfare. It is also observed to have an undesirable influence on a learner's academic performance affecting their self-efficacy and presentation⁶. Earlier research has reported that the greater the academic stress undergone by students, the lesser their academic grades. Likewise, another study conducted on medical undergraduates found that narrated degrees of stress were deleteriously associated with academic performance both in the past and in the course of medical school⁷.

For the entire duration of dental education, stress-provoking happenings such as examinations are frequent and are recognized as stressful by students. How students handle academic pressure and their self-efficacy influence the relationship between stress and academic achievements⁷. Self-efficacy is an individual's self-evaluation of capability that is essential to complete an academic program. It is found to be positively associated with grades acquired during an academic program. Bandura's self-efficacy theory advocates that these self-efficacy beliefs of an individual affect their evaluations by enhancing the motivation of the students³. Self-efficacy and stress are narrowly associated theories.¹ In the life of a student, stress is an indispensable part that influences the managing approaches of students in their academic lives⁸.

Students experienced high levels of academic stress at particular times during a course frequently before the commencement of exams and when they had limited time to grasp an abundant quantity of curriculum⁸. When students predominantly dental

students are incapable of effectively handling a challenging task the stress experienced can influence their self-efficacy discernments. Consequently, undergraduate dental institutes need to identify the intensities of academic stress among their students to offer a stress-free learning environment for learners as the prevalence of stress was seen to be 50% in medical students of the Islamabad region⁹⁻¹⁰. Considering these preceding conclusions the current study aims to ascertain the association between stress and academic performance affecting self-efficacy in dental undergraduate scholars.

MATERIALS AND METHODS

This cross-sectional investigation was conducted from July 01, 2020, to June 31, 2021, amongst 310 undergraduate dental students from different dental colleges in Punjab, and the Federal areas in Pakistan. The sample of the study was calculated through the WHO sample size calculator taking the proportion of stress and depression among dental students equal to 50%, confidence level equivalent to 95%, and margin of error equivalent to 5%¹⁰⁻¹¹. A convenience sampling procedure was used to gather the sample. Informed approval was sought from the research participants beforehand. A validated questionnaire was shared with the students belonging to various years of different dental colleges, both in the private and public sectors⁶. The questionnaire comprised different questions regarding stress encountered during different situations along with the impact on their academic performances.

Participants were informed about the reason for the research beforehand and the study was allowed by the Ethical Review Committee of Islamic International Dental College (IIDC), Riphah International University, Islamabad, Pakistan vide letter no IIDC/IRC/2020/003/011. The inclusion criteria comprised of:

- Subjects from both sexes, male and female were considered.
- Subjects ranging from 18 to 25 years of age were incorporated.
- Colleges having all four years of undergraduate dental students

The exclusion criteria comprised of:

- Newly established colleges with 1-2 sessions

of dental undergraduate students.

- Subjects who had ages less than 18 years and more than 26 years were omitted from the analysis.

The statistics attained through the questionnaire were statistically evaluated employing Statistical Package for Social Sciences SPSS® software for Windows® version 20. Descriptive analysis was generated regarding the data for gender and years of study while the relationship concerning the variables of stress and academic performance was studied using the help of the Chi-square test. The significance level was kept at $P \leq 0.05$.

RESULT

An aggregate of 310 undergraduate dental students from different dental colleges both in the public and private sectors belonging to all four years of the academic program who responded to the study questionnaire was enrolled in the study. Amongst them, 66.8% were female students while 33.2% were males with an age assortment of 18 - 26 years. All of the participants were single (Table-I).

A total of twelve different questions were asked from students regarding stress faced due to academic overload, pressure from parents/teachers, future perspectives, and interaction with peers and classmates. From the academic perspective, 86.1% of students were stressed due to exams followed by the stress of not being able to perform well in exams in 76.7% of students. According to interaction with peers, 77% of students stated that poor relationships with peers stress them out, furthermore; the feeling of being left out among peers due to poor academic performance makes them feel stressed. Fulfilling parents' and teachers' expectations were also seen to stress out 69% of the students. The unruly behavior of teachers also put pressure on most 54.5% of students. Fear of being unemployed in the future was seen in 81.2% of scholars and was the most widespread reason for stress for almost every other student (Figure 1).

Table-II highlights the association between different sources of stress, demographic data, and effects on academic performance. A significant association of stress encountered due to academic overload, pressure from parents/teachers, future perspectives, and interaction with peers and classmates and their effects on academic accomplishment indicates that all sources of stress severely affect college performance. Females were found to be more stressed due to exams, overburdened with tasks, and impoverished relationships with colleagues due to bad academic results. Association of stresses among all the years indicated that final-year students were found to be more stressed due to a sense of competitiveness, conflicts with parents/teachers, the behavior of their teachers, and future uncertainty of being successful dentists.

DISCUSSION

Academic stress is a cause of compromised performance by students academically. Research amongst dental undergraduate students has shown analogous outcomes among various studies conducted^{1,7,21}. The current study aimed to explore the connection between academic stress encountered by students and its consequence on the academic performance of undergraduate dental students belonging to different years in dental institutes. Silverstein et al. reported in a study carried out on first-year dental students that stress amplified over time with undesirable consequences on the academic performance

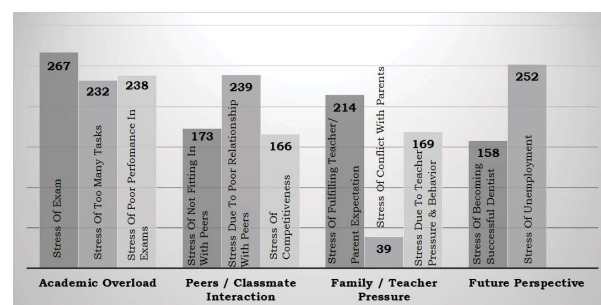


Fig 1: Frequency Of Different Sources Of Stress

Table 1: Socio-Demographic Details Of Study Participants

GENDER	Male		Female	
	n (%)	103 (33.2%)		207 (66.8%)
AGE	18 – 20 years	21 - 23 years	24 - 26 years	
n (%)	106 (34.1%)	165 (53.2%)	39 (12.5%)	
YEAR OF STUDY	1st year	2nd year	3rd year	4th year
n (%)	53 (17.1%)	49 (15.8%)	65 (21%)	143 (46.1%)

and well-being of students¹⁴.

In the present study, it was also witnessed that final-year students were found to be more stressed due to a sense of competitiveness, conflicts with parents/teachers, the behavior of their teachers, and future uncertainty of being successful dentists. Various former studies conducted have also established that academic stress was linked with inadequate academic performance a consequence that was also observed in the present study⁷. Abdulghani et al. also reported that the intensity of stress augmented gradually throughout the curriculum⁴.

Excessive levels of academic stress ensued inadequate academic performance which eventually decreases the self-efficacy of students. This is coherent with Bandura’s social-cognitive theory, which states that physical situations affect evaluations

of self-efficacy. In contrast, reduced intensities of stress are linked to higher self-efficacy discernments and improved academic results^{4,15}. Raised levels of stress among medical and dental undergraduates are a source of apprehension as they have detrimental effects on the performance of students which affects their learning and patient attention⁴. In the present study, 86.1% of students were stressed due to exams while 76.7% were stressed by the fear of not performing well. This extraordinary predominance of stress among dental undergraduate students is of apprehension as it affects their overall performance. Additionally, significant associations of stress were observed for academic overload, pressure from parents/teachers, future perspectives, and interaction with peers and classmates which affect college performance and the self-efficacy of students.

Table 2: Association Of Different Stresses Among Genders, Years, & Their Effect On Academic Performances

Sources of stress		Gender			Year					Effect on academic performance		
		M	F	p-value	1	2	3	4	p-value	Yes	No	p-value
Academic Overload												
Stress Due To Exam	Yes	79	188	0.001*	43	44	58	122	0.73	180	87	0.01*
	No	24	19		10	5	7	21		21	22	
Stress From Too Many Tasks	Yes	67	165	0.005*	45	33	49	105	0.21	158	74	0.03*
	No	36	42		8	16	16	38		43	35	
Stress Of Poor Performance	Yes	80	158	0.45	35	39	54	110	0.22	164	74	0.005*
	No	23	49		18	10	11	33		34	35	
Interaction With Peers/ Classmates												
Stress of not fitting into peers due to poor performance	Yes	54	119	0.23	23	30	45	75	0.56	129	44	0.000*
	No	49	88		30	19	20	68		72	65	
Stress due to poor relationships with peers	Yes	70	174	0.001*	36	41	54	113	0.25	181	63	0.000*
	No	33	33		17	8	11	30		20	46	
Stress of competitiveness	Yes	54	112	0.81	17	29	37	83	0.008*	120	46	0.004*
	No	49	95		36	20	28	60		81	63	
Family / Teacher Pressure												
Stress of fulfilling teacher/parent expectation	Yes	66	148	0.18	34	36	43	101	0.57	155	59	0.000*
	No	37	59		19	13	22	42		46	50	
Stress due to study-related conflict with parents	Yes	12	27	0.72	15	5	4	15	0.006*	33	6	0.006*
	No	91	180		38	44	61	128		168	103	
Stress due to teacher pressure & behavior	Yes	56	113	0.97	15	26	42	86	0.000*	120	49	0.01*
	No	47	94		38	23	23	57		81	60	
Future Perspectives												
Stress of becoming a successful dentist	Yes	54	104	0.72	16	25	32	85	0.001*	120	38	0.000*
	No	49	103		37	24	33	58		81	71	
Stress of unemployment	Yes	80	172	0.25	38	40	53	121	0.06	179	73	0.000*
	No	23	35		15	9	12	22		22	36	

*P is significant at the 0.05 level

It was further noticed in the present study that females were more stressed due to exams, overburdened with tasks, and because of weakened relationships with colleagues due to bad academic results. This high prevalence of stress among females in comparison to their male colleagues was also observed in other studies while few papers found non-significant differences in males and females^{4,7,16-17}. Greater levels of stress in females cannot be ascribed to a particular source but to several causes. This is as per studies conducted by Dyrbe et al. showing elevated levels of stress in female medical undergraduates in Canada, the United States, and Pakistan reported by Khan et al^{1,8}.

Former studies have reported that students find attending dental school stressful and this has acquired consideration from the perspective of medical education. Dental students of both Western and Asian countries have been observed to have high prevalences of stress¹⁸⁻²⁰. In Chinese dental students struggle for better grades, vagueness about dental careers, and fear of not being able to register for advanced dental education were some of the stresses seen¹⁹. It was further noticed that final-year students were more apprehensive related to their upcoming prospects as well as due to the switch from the preclinical to the clinical level^{17,19}. Similar findings were also seen in the present study as final-year students were found to be further stressed owing to the future uncertainty of being successful dentists. A greater amount of stress in senior students could be the result of an amplified amount of work with reduced time for recreation and relaxation to release stress¹⁹.

RECOMMENDATION

The precincts of the study are its cross-sectional character, the usage of self-reported processes of academic stress, and that these methods were overseen at a particular stage in the academic year. Additionally, supplementary studies should be piloted with much higher sample sizes including a greater amount and a broader range of participants from various institutes in innumerable areas of the nation. Based on the study's findings several targeted interventions can be suggested to help manage stress, enhance academic performance, and improve self-efficacy such as stress management programs and academic and psychological counseling and support by the dental institutions.

LIMITATIONS

The study is limited as the sample is not representative of the broader population of the country. Factors like socioeconomic status, family sustenance, personal health, sleep quality, or extracurricular obligations might also impact the outcomes. Furthermore, stress levels may differ across regions in Pakistan due to cultural or societal variances, which may not be fully explored in the study.

CONCLUSION

Academic stress and performance among students are closely associated with one another. There is an increase in stress when students encounter academic overload, pressure from parents/teachers, future perspectives, and interaction with peers. Females and final-year students were found to be more stressed in the present study.

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CONFLICT OF INTEREST

Authors declare no conflict of interest.

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AUTHORS' CONTRIBUTION

The following authors have made substantial contributions to the manuscript as under:

Conception or Design: AE, NU, AR, RM

Acquisition, Analysis or Interpretation of Data: AE, NU, AR, RM

Manuscript Writing & Approval: AE, NU, AR, RM

All the authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.



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