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Evaluation of Stressful Factors among Dental Clinical Students of Mashhad (Iran) Dentistry School: 2016-2017

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Background: Dental students who are at clinical or educational stage, are under environmental stress. The cumulative effect of clinical and educational stressors may also have negatively impact performance of clinical education in the long term and lead to mental and physical disorders. Our aim was to recognize and compare the stressful factors of dental environment among the students of clinical semester at the Mashhad Dentistry School in 2016 – 2017.

Methods: This study was a descriptive-analytical and cross-sectional study. Questionnaires were filled with 139 students that enrolled accessible /non-randomized on the study. Validity and reliability were confirmed. Results were obtained by descriptive analysis and the Kolmogorov-Smirnov, Chi-square, T-Test, ANOVA.

Results: The overall mean score of stress among the studied students was 2.37±0.46. The highest mean score of stress in dental environment was observed in the third year students (2.57 ± 0.38). Students of the different academic years, showed a significant difference in stress levels (P-Value = 0.005). Significant differences were not seen in the most demographic features. It was also characterized that the academic performance and clinical training were the most stressful factor among students (P-Value <0.05).

Conclusions: Findings showed the need of reducing stress among students, particularly third year who have recently entered the preclinical situations. Furthermore, it is recommended to teachers and administrators of faculty to consider the necessity of revising the programs to solve problems in regard to stress problems.

Keywords: Psychological stress, Dentistry, Student

دراسة العوامل المؤديه الى التوتر فى اجواء طب الاسنان عند طلاب الدوره السريريه فى كليه طب الاسنان فى جامعه مشهد. العام الدراسى (۹۵-۹۴)

التمهيد و الهدف: إن طب الاسنان هو تخصص ذو توتر. إن طلاب طب الأسنان إضافة إلى كونهم تحت توترات تعليميه منهم تحت توترات سريرية، لذا إن الاثر المتراكمى لهذه التوترات من الممكن أن يؤدى بشكل سلبى على التعليم السريرى و يسبب إختلالات نفسية و جسدية فى الأمد الطويل. لذا تهدف هذه الدراسة إلى معرفة العوامل المولدة للتوتر فى أجواء طب الأسنان و مقايستها على طلاب الدورة السريرية فى كليه طب الأسنان فى جامعة مشهد.

الأسلوب: إن هذه الدراسة من النوع التوصيفى- تحليلى(مقطعى). إشترك ۱۳۹ عدد من الطلاب بشكل غيرعشوائى و تم تجميع المعلومات عبر إستمارات مؤيده عبرقواعد إحصائية و تم الحصول على نتائج التحليل من خلال إختبارات كولموجروف اسميرنوف، كاى سكوير، ANOVA , T-Test.

النتائج: المعدل العام للتوتر عند الطلاب كان ۳۷،۴±۴۶،۵ و كان أعلى معدل للتوتر فى مجال عمل طب الأسنان عند طلاب السنة الثالة (۳۸،۵±۵۷،۴) كان هناك إختلاف ذو قيمة فى معدل علامة التوتر بين طلاب السنوات المختلفة (P-value <0.05). لم يكن هناك إختلاف ذو قيمة فى الخصوصيات الديموغرافية عند متابعة الأجواء المتفاوته من حيث توتر أجواء العمل عند طلاب طب الأسنان فى السنوات المختلفة. كان هناك إختلاف ذو معنى فى مجال الكفاء ة الجامعية و التعليم السريرى.

الأستنتاج: أشارت هذه الدراسة إلى لزوم تقليل مستوى التوتر عند الطلاب و بشكل خاص عند طلاب السنة الثالثة كونهم أصبحوا حديثا فى المرحلة ما قبل السريرية. و أيضا أشارت إلى لزوم إعادة النظر فى التعليم السريرى و الكفاءة الجامعية التى تؤثر فى حل المسائل الناتجة عن التوتر.

الكلمات المفتاح: التوترالنفسى- طب الأسنان – الطالب.

مشہدکی ڈینٹل فیکلٹی میں کلینیکل کلاس کے طلبا کن عوامل کی بنا پر ذہنی تناو میں مبتلا ہوتے ہیں۔

بیک گراونڈ: ڈینٹل میڈیسن ایک اسٹرس پیدا کرنے والا سبجیکٹ ہے۔ ڈینٹل طلباء تعلیمی ماحول کی وجہ سے اسٹرس میں گرفتار ہونے کے علاوہ کلینیکل ماحول میں بھی اسٹرس میں مبتلا ہوجاتے ہیں۔ اس تحقیق کا ہدف ڈینٹل کالج میں اسٹرس پیدا کرنے والے عوامل کا جائزہ لیا گیا ہے۔اس تحقیق میں ڈینٹل کالج کے ان طلباء نے شرکت کی جو کلینیکل دورہ گذار رہے تھے۔

روش: اس تحقیق میں جو کہ ایک عارضی تحقیق ہے ایک سو انتالیس ڈینٹل طلبا کو سوالنامہ دیا گیا۔ ان طلبا کو رینڈم طریقےسے چنا گیا تھا اور ڈیٹا کا تجزیہ کولموگروف اور اسمیر نوف، کائی اسکور اور ٹی ٹسٹ اور اینووا ٹولز کے ذریعے کیا گیا۔

نتیجے: تیسرے سال کے طلبا میں کافی اسٹرس پائي گئي جبکہ ڈیموگرافیک اختلافات میں کوئي خاص فرق نظر نہیں آیا، اس کے علاوہ مختلف برسوں کے طلبا میں اسٹرس کی شدت میں فرق تھا۔

سفارشات: اس تحقیق سے پتہ چلتا ہےکہ ڈینٹل طلباء بالخصوص تیسری سال کے طلباء میں ذہنی تناو کم کرنے کی ضرورت ہے، اس سے یہ بھی پتہ چلتا ہےکہ کلینیکل کورس پر نظر ثانی کرنے کی ضرورت ہے تا کہ اسٹرس پیدا کرنے والے عوامل کم ہوسکیں۔ اس سلسلے میں اساتذہ اور طلباء کو ٹریننگ دیا جانا نہایت ضروری ہے۔

کلیدی الفاظ: اسٹرس، ڈینٹل کالج، طلباء، کلینیکل۔

بررسی عوامل استرس زای محیط دندانپزشکی در دانشجویان دوره ی بالینی دانشکده دندانپزشکی مشهد: سال تحصیلی ۹۵-۹۴

زمینه و هدف: دندانپزشکی رشته‌ای استرس‌زاست. دانشجویان رشته‌ی دندانپزشکی علاوه بر استرس‌های محیط آموزشی، تحت استرس محیط بالینی هم قرار می‌گیرند. لذا اثر تجمعی این دو ممکن است بر کارایی آموزشی بالینی آن‌ها تاثیر منفی گذاشته و در طولانی مدت منجر به اختلالات روانی و جسمی گردد. لذا هدف از این مطالعه، شناخت عوامل استرس زای محیط دندانپزشکی و مقایسه‌ی آن‌ها در دانشجویان دوره‌ی بالینی دانشکده دندانپزشکی مشهد بود.

روش: این مطالعه از نوع توصیفی-تحلیلی (مقطعی) بود. پرسشنامه‌ها توسط ۱۳۹ نفر از دانشجویان که به روش غیر تصادفی در دسترس وارد مطالعه شده بودند پاسخ داده شد. روایی و پایایی تایید شد. نتایج از آزمونهای تحلیل توصیفی و کولموگروف اسمیرنوف، کای اسکور، ANOVA،T-Test بدست آمد.

یافته‌ها: میانگین نمره کلی استرس در دانشجویان مورد مطالعه ۰/۴۶ ± ۲/۳۷ بود و بالاترین میانگین نمره کلی استرس محیط کار دندانپزشکی در دانشجویان سال سوم مشاهده گردید (۲/۰±۵۷/۳۸). تفاوت معنی داری در میانگین نمره کلی استرس بین دانشجویان سالهای مختلف مشاهده شد (P- value< 0.05). در اغلب خصوصیات دموگرافیک تفاوت معناداری دیده نشد. در بررسی حیطه‌های مختلف استرس محیط کار دندانپزشکی در دانشجویان سالهای مختلف تفاوت معنی داری در حیطه کارایی دانشگاهی و آموزش کلینیکی دیده شد.

نتیجه گیری: این مطالعه نیاز به کاهش استرس در دانشجویان بخصوص دانشجویان سال سوم را که به تازگی وارد پره کلینیک شده اند نشان می‌دهد و لزوم بازنگری در آموزش کلینیکی و کارایی دانشگاهی را در جهت حل مسایل منجر به استرس، به اساتید و مسئولان دانشکده آگاهی می‌دهد.

واژه‌های کلیدی: استرس روانی، دندانپزشکی، دانشجو

INTRODUCTION

Stress is the reaction of the body to any perceived demand, change or treat (1). Stress might cause various different mental and physical problems that result in exhaustion, physical and mental illnesses (2-4); furthermore, it reduces efficiency in learning (5, 6). Generally, dentistry is a highly stressful field of study for the students who should learn theories, gain clinical skills and also the interpersonal communications that all results in the increase of stress. The stressors of dentistry could be classified into five arenas: living environment, personal characteristics, educational environment, academic factors and clinical factors (7).

The negative mental and physical impacts of stress sometimes results in inconsistent responses among the dental students when they face stress, such as smoking, drinking alcohol, drug abuse or even suicide (8-11). Different studies have reported that the rate of suicide among dentists is 2.5 – 5.5 times more in compare with the rate of prevalence of suicide in the society (12, 13). However, this result was rejected in some other studies (14).

The studies have shown that the rate of stress is higher among dental students in comparison with other fields of studies (10, 15). The research of Divaris and polychronopoulou (16) reported that the dental students of Greece who were in the fourth-year were worried about their career prospects and the newly arrived students were very concerned about the shortage of time to rest. Kumar S has analyzed the causes of stress among the dental students in India, 2008. Their results showed that the main cause of stress among 275 students of dentistry school was the exams and the scores at the end of a busy day and gaining the ideas of professors about their clinical performance (17).

Alzahem A et al. conducted a systematic study about stress among the dental students in 2010. They analyzed 49 articles about stress factors among dental students during 1966- 2008. All of the researches have presented that exams, clinical performance and teachers were the main factors that induced stress (7). The results of Akbari M and his colleagues' study conducted in the Mashhad Dentistry School in 2008-2009 showed that 52% of the students had abnormal stress and the fourth-year students had significantly higher stress (18). Other studies conducted all around the world have considered the main stressors as exams, fear of failure, concerns about the completion of recruitments (2, 17-20).

It should be noted that teaching method and clinical situations are not similar in different schools; in addition, stress has great influence on learning and gaining skills and plays a crucial role during the education of students specially the clinical group. Therefore, the present research was conducted to study the stressors among the different newly arrived students of Mashhad Dentistry School. The purpose was to recognize the factors in order to delete or reduce them so that the students can learn and educate more relaxed. Consequently, the stressors of dental environment have been studied in Mashhad Dentistry School in 2015-2016.

METHODS

The study population of the present research includes all of the dental students of Mashhad University of Medicine (except the basic sciences group) that were in the preclinical or the treatment ward during the study. They entered the study via non-random selection sampling design (or participated in the theoretical class in which the questionnaires were distributed (students of the third, fourth, fifth and sixth years of education).

It should be noted that it was better to extract the participants who suffered from anxiety disorder, however, this criterion was not considered due to the complex process of diagnosis.

Table 1. Demographic information of the participants

Variables	Academic year				Total	P_ Value
	Third year	Fourth year	Fifth year	Sixth year		
Number	38	36	35	30	139	–
Gender ،Females (%)	(36.8) 14	(60.6) 20	(66.7) 22	(69.0)20	(57.1) 76	0.026
Age (year), (standard deviation ± mean)	±2.70 21.51	± 0.66 21.49	± 4.68 23.68	± 0.77 23.77	± 2.96 22.54	< 0.001
(%) < age 25	(89.2)33	(100) 35	(91.2) 31	(86.7) 26	(91.9)125	0.205
Average (standard deviation ± mean)	± 1.40 15.95	± 1.54 15.65	± 1.12 16.61	± 1.00 16.13	± 1.35 16.07	0.209
University Entrance Conditions - (%) quota	(39.5) 15	(28.1) 9	(15.6) 5	(8.0) 2	(24.4) 31	0.019
(%) away from family	(60.5) 23	(36.1) 13	(34.4) 11	(37.7)10	(42.5) 57	0.070
Marital status - (%) married	(35.3) 12	(5.6) 2	(25.7) 9	(32.1) 9	(24.1) 32	0.017
Personal interest in selecting dentistry field of study (%)	(55.2) 16	(54.8) 17	(76.5) 26	(53.8) 14	(60.8) 73	0.258
Dentistry Field of Study as the first choice	(94.6) 35	(91.7) 33	(85.7) 30	(86.7) 26	(89.9) 124	0.565

The current study was conducted in the first semester of 2015-2016. Two questionnaires were used simultaneously. One of them was demographic information, including: age, gender, academic year in dentistry, condition of university entrance (quota or non-quota), marital status, the reason to select dentistry, overall average, the first priority of major to enter the university, and being away from family (table 1). The other questionnaire was adapted from articles of home or abroad (18-20). The validity of the questionnaire was confirmed by small groups of different students and experienced teachers.

The reliability of the questionnaire was confirmed via the method of retest in 10 days and with 13 students. The first question was a general one in order to classify the stressors related to the issues of the university and the stressors that _____ are not related to the university. The question was: "which of the following factors has aroused tension and stress in you? Issues related to university, family problem, emotional and inner issues, other issues, none of them".

Then, the questionnaire was classified into 36 statements and 6 areas (academic performance, patient treatment, clinical education, university factors, inner beliefs, others) (table 2). The statements were valued based on Likert scale and similar articles, including: not stressful at all=0, is a bit stressful=1, is mostly stressful=2, is very stressful=3.

The data were analyzed via the SPSS ver. 20. In accordance with the normal distribution of data based on Kolmogorov-Smirnov test, descriptive test was used to analyze descriptive data and other tests like chi-square, t-test, ANOVA were used to analyze other data.

Table 2. The mean score of each statement and the areas of stress in dental environment based on the academic year and the result of ANOVA

	The six areas and the statements	Third year	Fourth year	Fifth year	Six year	Total	P_ value
Treatment of patients	Working for patients with contagious diseases	± 1.41 2.49	± 0.97 2.77	± 1.06 2.60	± 0.95 2.70	± 1.12 2.64	0.731
	Patient's absence on the time of appointment	± 0.85 2.63	± 0.81 2.57	± 0.95 2.91	± 0.95 2.70	± 0.89 2.70	0.399
	How to communicate with patients	± 0.88 2.30	± 0.89 1.97	± 0.68 1.66	± 0.81 1.60	± 0.86 1.90	0.002
	Fear to harm the patient during education process	± 1.12 2.92	± 0.96 2.44	± 0.88 2.23	± 1.14 2.23	± 1.06 2.47	0.015
	Total	± 0.58 2.58	± 0.58 2.44	± 0.68 2.35	± 0.71 2.31	± 0.64 2.43	0.292
Clinical education	Rate of self-confidence in treatment planning	± 0.97 2.84	± 0.99 2.29	± 0.73 2.12	± 0.81 1.97	± 0.94 2.33	< 0.001
	Level of learning manual fine skills for clinical work and laboratory	± 1.16 2.68	± 1.04 2.46	± 0.91 2.23	± 0.86 2.10	± 1.02 2.39	0.091
	Completing the recruitment of each part and preclinical	± 1.03 2.90	± 1.12 2.54	± 0.88 3.12	± 0.96 2.97	± 1.02 2.88	0.115
	The date of the exam of each section	± 1.05 2.76	± 1.02 2.56	± 0.87 2.91	± 0.93 2.60	± 0.97 2.71	0.431
	Passing the final exam of each section and preclinical	± 0.96 2.49	± 1.16 2.66	± 0.83 2.97	± 0.01 2.53	± 1.01 2.66	0.185
	Rate of access to teachers	± 1.02 2.37	± 1.04 2.17	± 0.89 1.83	± 0.82 1.79	± 0.98 2.06	0.037
	Workspace related to the teachers in pre-clinical and clinical atmosphere	± 0.98 2.45	± 0.95 2.00	± 0.92 1.97	± 0.92 2.10	± 0.96 2.14	0.121
	Professors' disagreement about plan treatment of patients	± 0.97 2.24	± 1.06 2.06	± 1.05 2.20	± 0.95 2.30	± 1.00 2.20	0.791
	Teachers' behavior in front of the patient and laboratory	± 1.14 2.32	± 1.01 2.17	± 0.99 2.31	± 0.83 2.07	± 1.00 2.23	0.702
	Access to the technicians of the laboratory	± 0.98 2.62	± 0.95 1.91	± 0.60 1.37	± 0.57 1.50	± 0.94 1.88	< 0.001
	The coordination between practical and theoretical educations	± 1.08 2.63	± 0.92 2.09	± 0.76 1.94	± 0.98 2.07	± 0.97 2.20	0.011
	The adequacy of physical space (for classes, seminars, etc.)	± 1.10 2.66	± 1.08 1.94	± 0.82 1.54	± 0.86 1.77	± 1.06 2.00	< 0.001
	Access to equipment, consuming materials, pulled teeth in preclinical and clinic	± 0.98 2.62	± 0.98 2.79	± 0.97 2.77	± 1.00 2.63	± 0.97 2.71	0.834
	Nurses' collaboration with the students in the ward and preclinical	± 1.08 2.74	± 0.92 2.17	± 0.72 1.69	± 0.84 2.07	± 0.98 2.18	< 0.001
	Holidays and holding extra sessions	± 0.97 2.32	± 1.03 2.03	± 1.16 2.31	± 0.75 2.07	± 1.00 2.19	0.474
	Total	± 0.39 2.58	± 0.53 2.26	± 0.47 2.22	± 0.54 2.18	± 0.50 2.32	0.002

Table 2. Continued

	The six areas and the statements	Third year	Fourth year	Fifth year	Six year	Total	P_ value
Academic factors	Your expectation of the university in comparison with the reality	± 0.99 2.46	± 1.06 2.40	± 0.89 2.09	± 0.99 2.28	± 0.99 2.31	0.396
	Rules and regulations of the university	± 0.84 2.30	± 0.93 2.29	± 0.94 1.86	± 0.82 2.03	± 0.89 2.08	0.221
	Inappropriate planning of theoretical and practical courses and course selection	± 1.05 2.63	± 1.06 2.43	± 1.01 2.46	± 0.95 2.24	± 1.02 2.45	0.493
	Total	± 0.55 2.46	± 0.80 2.31	± 0.81 2.13	± 0.79 2.18	± 0.74 2.28	0.233
Academic performance	Competition with classmates	± 0.99 1.68	± 0.81 1.64	± 0.76 1.66	± 0.56 1.63	± 0.80 1.66	0.995
	Exams and passing the course	± 0.78 3.07	± 0.98 3.06	± 0.71 3.17	± 1.09 2.83	± 0.89 3.04	0.488
	Perceiving the material provided by the teacher in the class	± 0.91 1.92	± 0.87 1.64	± 0.73 1.66	± 0.93 1.60	± 0.86 1.71	0.373
	The deadline of the exams	± 1.06 2.87	± 1.02 2.86	± 0.89 2.74	± 0.96 2.20	± 1.01 2.96	0.024
	Time between the exams	± 0.91 2.89	± 1.00 2.63	± 0.89 2.97	± 0.86 2.43	± 0.93 2.75	0.074
	Environmental condition to study	± 0.99 2.34	± 1.00 2.00	± 0.91 1.86	± 0.91 1.93	± 0.97 2.04	0.144
	The condition of reference books in the library	± 1.11 2.05	± 1.01 1.81	± 1.10 1.74	± 0.72 1.37	± 1.00 1.76	0.046
	Daily work pressure	2.76± 0.85	2.89±1.0 9	2.62±1.0 2	2.69±0.9 7	2.75±0.9 8	0.696
	Satisfaction of the teaching method of the teacher	± 1.09 2.82	± 1.06 2.28	± 0.88 1.79	± 0.84 1.90	± 1.05 2.23	< 0.001
	Determination of the test resources (book, pamphlet, etc.)	± 0.98 2.53	± 1.11 2.50	± 0.85 2.26	±0.86 2.50	± 0.96 2.45	0.611
	Total	± 0.47 2.49	± 0.43 2.33	± 0.50 2.25	± 0.44 2.11	± 0.48 2.31	0.008
Inner beliefs	Rate of concern about future career and labor market	± 1.14 2.71	± 1.08 2.31	± 0.99 2.20	± 1.09 2.41	± 1.08 2.42	0.221
	Following academic expert courses	± 1.11 2.74	± 1.03 2.66	± 0.95 2.43	± 1.10 2.28	± 1.05 2.54	0.263
	Total	± 0.92 2.72	± 0.92 2,49	± 0.77 2.31	± 0.96 2.34	± 0.90 2.48	0.199
other	Health condition in future	± 1.00 2.58	± 1.01 2.17	± 1.11 2.34	± 1.08 2.35	± 1.05 2.37	0.428
	Discrimination between students	± 1.03 2.90	± 1.09 2.40	± 1.04 2.57	± 1.04 2.35	± 1.06 2.57	0.124
	Rest time (recreation, and sport)	± 1.00 2.42	± 0.98 2.74	± 1.02 2.20	± 0.88 2.07	± 1.00 2.37	0.033
	Economic condition	± 1.11 2.55	± 0.98 2.26	± 1.04 1.97	± 1.01 2.21	± 1.05 2.25	0.128
	Total	± 0.60 2.61	± 0.73 2.39	± 0.68 2.27	± 0.60 2.24	± 0.66 2.39	0.075
Total		± 0.38 2.57	± 0.42 2.37	± 0.48 2.25	± 0.50 2.23	± 0.46 2.37	0.005

RESULTS

139 students participated in the current study, 76 of them were female (57.1%) and 63 were male (42.9%). In addition, the academic years of the participants were as follows: 38 in the third year, 36 in the fourth year, 35 in the fifth year, and 30 in the sixth year. 125 participants were under 25 years old (91.9%). The overall average score of the students was 16.07 ± 1.35 and 31 of them had a quota (24.4 %). 57 students lived away from their families (42.5%) and 24.1% of them were married. The data are presented in table 1 separately.

The students' overall average score of stress was 2.37 ± 0.46 and the students of the third academic year showed the highest average score of stress in the work environment (2.57 ± 0.38). The next level was for the students of the fourth year (2.37 ± 0.42) and the fifth year (2.25 ± 0.48), while the least score was for the students of the sixth year (2.23 ± 0.50).

There was statistically significant difference between the students of the third year and the students of the fifth and sixth year (P value = 0.005).

In the analysis of different areas of stress in the workplace of dentistry that is depicted in table 2, the areas of inner beliefs and patient treatment showed the least stress difference among the students of different academic years (P-value > 0.05).

Table 3. Mean and standard deviation of the score of stress in the dentistry environment based on demographic variables

Variable		Number (percentage)	Academic efficacy	Patient's treatment	Clinical education	Academic factors	Inner beliefs	Other cases	Total score of stress
gender	Male	(42.9) 57	± 0.52 2.26	± 0.67 2.31	± 0.53 2.32	± 0.75 2.21	± 0.94 2.59	± 0.68 2.32	± 0.49 2.33
	Female	(57.1)76	± 0.46 2.34	± 0.59 2.46	± 0.49 2.30	± 0.75 2.34	± 0.88 2.38	± 0.65 2.44	± 0.46 2.37
	P-Value	–	0.354	0.172	0.877	0.314	0.192	0.311	0.619
Age category	< 25	(91.9)125	± 0.48 2.31	± 0.62 2.43	±0.50 2.30	± 0.73 2.28	± 0.93 2.49	± 0.67 2.39	± 0.47 2.37
	25≥	(8.1) 11	± 0.48 2.33	± 0.89 2.34	± 0.51 2.41	± 1.00 2.24	± 0.61 2.27	± 0.62 2.23	± 0.45 2.30
	P-Value	–	0.867	0.647	0.511	0.877	0.452	0.430	0.672
Condition of university entrance	Non-quota	(75.6) 96	± 0.51 2.30	± 0.67 2.40	± 0.54 2.33	± 0.76 2.28	± 0.93 2.43	± 0.66 2.40	± 0.50 2.35
	Quota	(24.4) 31	± 0.42 2.32	± 0.54 2.40	± 0.41 2.29	± 0.68 2.33	± 0.81 2.73	± 0.70 2.33	± 0.35 2.40
	P-Value	–	0.837	0.971	0.726	0.730	0.112	0.595	0.651
Marital status	Single	(75.9) 101	± 0.48 2.29	± 0.67 2.35	± 0.50 2.30	± 0.80 2.30	± 0.92 2.43	± 0.70 2.36	± 0.48 2.34
	Married	(24.1) 32	± 0.49 2.36	± 0.49 2.65	± 0.50 2.36	± 0.56 2.22	± 0.84 2.58	± 0.49 2.49	± 0.37 2.44
	P-Value	–	0.507	0.008	0.576	0.527	0.434	0.225	0.270
Away from family	No	(57.5) 77	± 0.48 2.36	± 0.62 2.49	± 0.52 2.34	± 0.79 2.34	± 0.90 2.61	± 0.71 2.40	± 0.48 2.42
	Yes	(42.5) 57	± 0.47 2.25	± 0.67 2.33	± 0.49 2.29	± 0.68 2.21	± 0.90 2.33	± 0.60 2.37	± 0.44 2.30
	P-Value	–	0.169	0.138	0.556	0.331	0.077	0.794	0.120
Dentistry, first priority	Yes	(89.9) 124	± 0.48 2.29	± 0.60 2.42	± 0.51 2.30	± 0.74 2.28	± 0.89 2.48	± 0.67 2.40	± 0.46 2.36
	No	(10.1) 14	± 0.46 2.42	± 0.96 2.46	± 0.43 2.47	± 0.81 2.30	± 0.99 2.42	± 0.58 2.25	± 0.54 2.38
	P-Value	–	0.349	0.876	0.228	0.896	0.830	0.433	0.875
The reason for choosing dentistry	Personal interest	(60.8) 73	± 0.49 2.24	± 0.57 2.29	± 0.48 2.23	± 0.71 2.19	± 0.81 2.36	± 0.64 2.28	± 0.42 2.27
	Parents motivation	(30.0) 36	± 0.48 2.35	± 0.68 2.69	± 0.50 2.47	± 0.82 2.44	± 1.02 2.71	± 0.67 2.60	± 0.49 2.53
	Friends motivation	(9.2) 11	± 2.54 0.60	± 0.84 2.55	± 2.66 2.29	± 0.80 2.30	± 1.12 2.64	± 0.66 2.48	± 0.57 2.46
	P-Value	–	0.142	0.010	0.072	0.279	0.151	0.068	0.014
average	17≤	(85.0) 108	± 0.50 2.31	± 0.67 2.41	± 0.52 2.32	± 0.73 2.27	± 0.90 2.44	± 0.67 2.35	± 0.48 2.35
	<17	(15.0) 19	± 0.41 2.33	± 0.61 2.41	± 0.40 2.41	± 0.89 2.72	± 0.89 2.72	± 0.63 2.56	± 0.40 2.44
	P-Value	–	0.849	0.950	0.504	0.985	0.229	0.239	0.459

However, there was significant difference in the areas of academic performance and clinical education (P-value < 0.05). In the analysis of each statement in all academic years, the main stressful factors were passing exams, completing the recruitment and preclinical of each part, the time between the exams, the date of the final exam, daily work pressure, access to equipment, consuming materials, and pulled teeth in preclinical and clinical situations.

The following statements showed statistically significant difference in the rate of stress among students of different academic years: teachers' teaching method, how to communicate with the patients, level of self-confidence in treatment planning, access to the technicians of the laboratory, adequacy of physical spaces (for classes, seminars, etc.), level of nurses' collaboration with the students in the ward and preclinical situations (P-value < 0.05).

In accordance with the variable of the reason of selecting the dentistry field of study (P-value$= 0.014$), statistically significant differences were shown in the overall average of stress among students from different academic years, actually, the students who were interested in dentistry had significantly less interest. However, there was no significant difference with the following variables: gender, average, quota, marital status, being away from home, living in the university camp, selecting dentistry as the first priority, age category (P-value > 0.05). Nevertheless, the rate of stress was

Table 4. The percentage of general stressors that were asked in the beginning of the questionnaire

Variable	Number	percentage
University factors	80	57.6
Family factors	10	7.2
Emotional factors	12	8.6
others	8	5.8
None of them	11	7.9
Family and university factors	3	2.2
University and emotional factors	3	2.2
University and other factors	2	1.4
Family and emotional factors	7	5
Emotional and other factors	2	1.4
University, family and emotional factors	1	0.7
Total	139	100

higher among females than males, it was higher among the students whose age was less than 25 in comparison with the ones who were more than 25 years old. The students who had quota were more stressful. In addition, the married students had higher levels of stress in comparison with the single ones (P-value = 0.008) (table 3).

As mentioned in the method and materials, in the beginning of the second questionnaire, a general question was asked about the stressors. The results are depicted in table 4 as follows: from the 139 students 80 people (57.6%) selected "issues related to university", 3 people chose two items including "university factors" and "family", 3 people selected "university factors" and "emotional factors" items, 2 people chose "university factors" and "other"; and 1 person selected three items including "university factors", "family factors" and "emotional factors". Consequently, 88 people (63.3%) of the total 139 participants have considered issues related to university as the factor that causes stress in them.

DISCUSSION

In the recent years, stress among the dental students has become a concern for the teachers of dentistry because the diseases related to stress causes neuromuscular disorders and makes trouble for the dentist gradually. Furthermore, it influences the performance of the dentist and also his/her interaction with the patient. The results of the present study declare that dental students face different stressors. As the students commence their practical courses of dentistry, they deal with stress during their work due to different reasons. Any method or program that could reduce their stress will enhance the education process and results in the students' health and the tranquility of the work place. Owning to the importance of the topic and as an outstanding infrastructure to plan educational programs, the stressors have been scrutinized among the students of clinical and preclinical of Mashhad Dentistry School.

In our study, the areas of academic performance and clinical education were the main stressors for the students. The _____

results of studies of Ramezani et al. (5) that studied students in Zahedan and also Kazemi and his colleagues that studied students in Rafsanjan were consistent with the present study and considered "areas of academic performance, clinical education and university factors" and "clinical factors", respectively, as the main stressors. In other studies (21-28), university factors of School of Dentistry were considered as the main stressor that is not consistent with the results of the present study.

In the current study, the main stressful factor was passing the exam among the students of the third, fourth and the fifth academic year and the second main factor among the students of the sixth academic year. This result might reflect the type of personality of top students that study at governmental universities that have passed the severe competition of university entrance exam and attempt to remain the top student. This result is consistent with the study of Ramezani and his colleagues (5).

The free time between the exams, and completing the recruitments of the ward were the second stressors of the students of fourth and fifth academic year, respectively. The recommend of the ward was the main stressor among the students of the sixth academic year that could be due to their graduation and being worried about the postponement of their graduation. Moreover, there are a great number of exams held in the fourth year of academic year, so the students require more gap between their exams in order to study and review their lessons. On the other hand, the students should pass the practical course of endo 3 and 4 in the fifth academic year that is one the most difficult and stressful parts of dentistry. In addition, the completion of the recruitments sounds complicated, therefore, it is the second main factor of stress.

Similar to the study of Akbari and his colleagues in the Mashhad School of Dentistry (18), and also the study of Ramezani et al in the Zahedan School of Dentistry (5), the results of the present study showed that the students of the third and fourth academic years gained the highest score of stress in comparison with the students in the fifth and sixth years. This result is not consistent with the study of Morse (6) and Acharya (29) that declared higher rate of stress was among the students who were nearing graduation. The high level of stress among the newly arrived students could be due to greater volume of theoretical courses and also the commencement of preclinical period, furthermore, it might be because of lack of direct interaction with the patient in the third academic year, and also the stress that is transferred from the students of the fourth academic year, that have recently entered clinical education and interact with patients, to the students of the third academic year (21, 29).

Moreover, the direct relationship of the lower average age (that was not statistically significant) and the lower academic year (third and fourth years) with the higher score of stress could be due to the reduction of the amount of theoretical courses, gaining experience and clinical skill in the students of higher years or the enhancement of self-confidence and self-esteem (5) at the older ages to control stress. However, this result could not be cited in the present study since only 8.1% of the age of the study population was higher than 25 years.

Unlike the study of Al Salah and his colleagues (21) and Sugiura et al (27) and similar to the research of Akbari and his colleagues, the observed difference in the score of stress in the third and sixth years was significant. The contradictory results could be due to difference of the study population and also the samples' different conditions of education.

The results of the present study showed that there was no statistically significant difference between gender and stress, however, the female presented more stress in the most of the areas. Unlike our study, a research that was conducted in India showed higher levels of stress among males (19, 30). In the research of Akbari et al (18), Murphy and his colleagues (24), Sofola and Jeboda (31), there was no significant difference in the gender variable. While, the study of Dalband and Farhadinasab (30) Polychoromopoulou (25) reported higher score for all statements of the questionnaire among the females. In the studies of Saudi Arabia (21) and Japan (27), gender played a role in the most of the stressors. In accordance with the results it could be declared that the females are more sensitive and vulnerable toward special aspects of dentistry environment. The high level of stress among girls could be because of pressure to reach success and also receiving less support from friends (16). Moreover, less expression of concern among the boys is noted (6, 21).

In the current study, there was no significant difference between stress and being away from the family. In the study of Alsalah and his colleagues in Arabia (21) and Muirhead and Locker (28) in Canada, were showed the students who lived with their families had higher score of stress. In the study of Humphris and his colleagues (23), it was determined that living along with family results in less stress. Since the condition of living is dependent on the regional, cultural and because they should spend time for social and family activities (5). It could be stated that the influence of both life style is equal. However, this issue requires further studies.

The statistical tests presented no significant difference in the score of stress and marital status. Similar to the current study, Dalband and Farhadinasab (29) and Ramezani (5) reported doctrinal issues, it is not possible to compare the studies in this respect. On one hand, living along with family has a positive protective impact, on the other hand, it results in the separation of the person from the condition of the university no significant difference in the variable of marital status.

The students that selected dentistry because of their parents' pressure in comparison with the ones who selected for their own personal interest showed statistically significant difference in the score of stress. The study of Ramezani et al (5), and Acharya (30) confirmed the impact of the reason of selecting the major of study on stress. The difference in the score of stress could be due to the fact that the parents' pressure might weaken the inner beliefs of the students and they feel that they are not able to learn clinical skills and are not sure to complete their studies because of lack of willingness.

There was no significant difference about the first priority of selection of the major. Whereas, other studies have reported that the students that did not select dentistry as their first choice showed higher levels of stress (1, 5, 32). In the comparison of score of stress based on average, although the results showed no significant difference, the students' average that was higher than 17 were more stressful. The reason could be due to their attention to educational process, higher levels of expectations (5) and greater attempt for success that results in greater stress.

In total, the main point is that stress exists and special measures should be taken by the authorities of the school, nursing of dentistry and also the students in order to plan the schedule and enhance self-confidence. The system should train knowledgeable and ethical dentist since the internal tranquility is highly influential in the educational and ethical development of the students.

The results showed that stress should be reduced in the students, especially the students of the third academic year who have entered the preclinical period. Furthermore, it is an essence for the teachers and authorities of the school to review and change the approach of clinical education and academic performance in order to reduce the stress of students who study in the lower academic years.

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