

REVIEW ARTICLE

Stress among Dental Students: Brief Review and Messages to All Related

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Abstract

Stress is a human's reaction to any change that requires an adjustment or response. It affects almost every human being. Here, we reviewed several selected publications related to dental stress among dental students. Dentistry is a branch of medical specialties that focus on its study in the oral and para-oral structures and tissues. Number of years for students to graduate from a dental program varies from one country to another. Literature has high number of publications related to "stress" and "dentistry". In this brief review, the main areas of stress among dental students that are presented include: (1) sources and (2) prevalence. At the end, we have included some suggestions that may lead to lowering stress among dental students.



 Open Access

Citation: Alshamrani AS, Alshalan TA. Stress among Dental Students: Brief Review and Messages to All Related. *Oral Health and Dental Studies*. 2021; 2(1):5.

Received: February 05, 2021
Accepted: April 26, 2021
Published: May 11, 2021

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Introduction

All humans face and feel stress at different parts of their life. Stress is defined as the body's reaction to a change that may be positive, stimulating and motivating individuals to do the best, or be negative, depressing and reducing their performance^{1,2}. Stress can result from positive or negative changes or events. Aktinson *et al.* found that stress results from physical or mental factors³. Humans react in different ways and at different levels. A person's reactions might be physical, mental, and /or emotional. Students in their academic journey face stressors which have been reported by several studies^{4,5}. In some cases, stress is a good thing for the student which can make them care and more interested. In other cases, stress may not be good as it has an influential effect on students' physical and mental status⁶. The reaction to stressors and intensity of this reaction varies between individuals. These stress reactions are mediated by how the stressors are perceived, that is, an appraisal of how intense the stressors are related to the person's own perceived resources for dealing or coping with them^{2,7}. In this brief review, we focus on the publications related to stressors among dental students. Different stress's scales were developed to provide administrative and academic staff with an understanding of stress level which is of extreme importance to plan strategies that will enhance teaching modalities to ensure a more relaxing teaching and working environment for the students⁸.

Stress has diverse types of effects on individuals. It has been reported that stress has an adverse effect on the academic performance of students^{9,10}. Examples of effects caused by stress are reduced efficiency of the individual's activities and work's responsibilities including willingness to study^{5,11}. Other stress's effects include psychological problems which may has an adverse effect on the mental health⁴.

The method used was collecting a list of stressors that were selected from previous publications using Medline search engine. The selective nature of the literature was based on findings related publications to the stressors included in this review. In addition, as the first author (AA) is a fourth-year dental student, she also listed pre-admission stressors which are mostly unique in Saudi dental colleges. In addition, the second author

(TA) is a professor and has years of academic teaching and administration experience. He reported types of assessments in the pre-clinical and clinical courses as well as his experience of students who complained from stress. There was no intention to make the review as systemic review in nature. It is aimed that future studies will be conducted to investigate areas discussed.

Sources of Stress among Dental Students

Based on the previous study, it was found that dental students suffer from stress which is more than in normal population^{5,12,13}. Furthermore, Alzahem *et al.* has found that education-related as well as social related causes are linked to stress among dental students¹⁴. The source of stress among dental students' changes over the time of studies¹⁵. The sources of stress affecting dental students might be pre-admission sources, dental program sources, faculty-student relationship sources, and financial obligation sources.

Pre-Admission Sources

Dental students undergo several pressure areas before they are admitted to dental program. Examples of these pressure areas include obtaining high, almost full, grades in high school grade point average (GPA), qualification examinations, interviews, manual dexterities examination, and obtaining high GPA in case of preparatory years in some universities/ colleges. In addition, dental students in non-English official languages countries, must study English and master it as it is the official teaching language in most of dental colleges. With all the pressure students have before they are admitted to the dental program, dental students subsequently undergo new types of pressure the minute they enter the program.

Dental Program Sources

In general, job and studies demands, also called stressors, are those characteristics that causes stress beyond individuals' adaptive capability¹⁶. Different factors-causing stress (stressors) were categorized by Alzahem *et al.* into five groups, namely, living accommodation, educational environment, and personal, academic and clinical factors⁵. In dentistry, student's stress might be caused by examinations, manual dexterities performance and evaluation, community and research requirements, and clinical and pre-clinical works and requirements and assessments^{10,17}.

As beginners, medical terminologies may make some dental students confused and not able to follow the learning materials effectively. Medical courses such as anatomy and physiology may also cause stress among dental students because these courses are new to them. The clinical as well as pre-clinical works depend on the knowledge students acquire from the lectures. In many dental curriculums, high number of courses are assigned to each specialty. Unfortunately, this causes faculty members per specialty to give students topics which are beyond the level of undergraduate level. Furthermore, dental students are required to complete pre-clinical and clinical requirements as means to pass the courses.

Preclinical courses and requirements are a source of stress. Dental curriculums contain preclinical courses where dental students should be trained to perform all the required tasks and procedures on dental simulators prior to working on actual patients. This improves the skills and technicality of the student as well as it increases their self-confidence to perform different clinical procedures. Once the dental student has accomplished all the pre-clinical requirements and thoroughly understood the dental armamentarium and techniques to be followed, the student is asked to conduct a dental treatment with actual patients as per the requirements of clinical courses which also considered a source of stress¹⁸.

Clinical courses are part of dental curriculum. In the clinical courses, dental students treat actual patients who are human beings with different medical/ dental/ personality/ and clinical findings. Dental student must know all the important details and knowledge regarding the material to be used, the various types of equipment available, different case scenarios and what techniques could be used for each case. This should boost the student's confidence and trigger a sense of responsibility as well which at first, might be stressful. Part of the student's assessment in the clinical courses is assessment of his/her knowledge and clinical skills which also may induce stress on him/her^{15,19-21}. It is expected that dental students develop high stress in the first experience in the clinic, e.g. giving local anesthesia the first time. This needs to be studied to see if the first clinical experience has an effect of student

stress level. Al-Saleh *et al.* found that stress levels among Saudi dental students peaked during the latter years of dental training and were associated with the availability of patients, treatment compliance and supervisor feedback²¹.

For students to progress in their curriculums, they must pass different types of examination which is considered a major source of stress^{10,17}. As most of the post-graduate programs' admission as well as employments rely on the GPA, students exert tremendous efforts and time to prepare and study for the examinations. Longitudinal analysis revealed substantial changes for numerous individual stressors. Most concerns for "examinations and grades" were expressed in year three, whereas "lack of self-confidence" items peaked in the second year¹⁵. Dental students with higher test results and GPA are less susceptible to stress in comparison to students with lower test results and GPA. This finding proves that students with higher academic performance are able to overcome stress easily and build their self-confidence without struggling²¹.

Finally, an important source of stress among dental students is the relationship of the dental student with his/her staff and colleagues. The way faculty/clinical instructor communicates with students in front of the patient might put the student under stress. Negative wordings or actions adversely make the patients loses the confidence of the students. Some faculty/clinical instructors do not allow and / or accept students' opinion about a clinical procedure(s). This causes students to be like 'mechanical' rather than 'thinker'. Problem based teaching should be part of the teaching method used. Chapnick and Chapnick has reported that unfair and inconsistent grading and feedback from academic instructors has been proven to be the most marked clinic-related stressor²².

Financial Obligations Sources

The tuition fees are needed by dental colleges to balance the cost of running dental education^{10,17}. The financing of the tuition is an additional source of stress on dental students. In addition, housing and living expenses of dental students who is not working by means of part-time job add to the stress list on him/her. It has been reported that students who have high debts have high stress levels¹⁸. Furthermore, for the living expenses, several studies have shown that students living with their parents have lower stress levels than those residing in student residences or with other students^{23,24}.

Prevalence

Previous studies have reported that stress among dental students is more than in normal population^{5,12,13}. Because of the type of training (actual treatment of patients), dental students are by far the most stressed-out students when compared to other medical field students. The prevalence of stress among dental students varies and it can reach 100%²⁵. Several factors that may make a difference in the prevalence of stress include: gender, physical and emotional factors, and year of studies (level).

Gender

Previous studies showed that gender plays a huge role in cognitive functions which explains the differences in males and females' cognition, behavior, and the reason why females and males respond to stress differently²⁶. Women are more susceptible to stress than males since women are less afraid of expressing and sharing their feelings and emotions with others. Polychronopoulou and Divaris reported that male students have less dental environment stress compared to female students and marked gender differences in stress appraisal continues over time¹⁵. In another study, Alsouwaigh found that the way male students choose to deal with stress was proven to be by self-blaming strategies which was less approached by female students⁶. Religion was one of the mostly used by stress coping factors by females especially in the first and fourth year. Female students seek emotional and instrumental support when dealing with stress which indicate that they react more emotionally when stressed. Furthermore, male and female students show similarity in dealing with stress by means of active form of coping¹¹.

Physical and Emotional Factors

Other than gender, physical, emotional factors and the marital status of students also plays an important role in stress susceptibility and coping. Single females and males who were once in a relationship/married showed higher stress susceptibility rate in comparison with their married colleagues²⁷. Single students are less self-confident and are proven to be

indecisive. In contrast, Ghafoor et al. have reported that married students experience greater stress due to the academic studies²⁸. They related that due to social support which positively affect their studies. Previous study has reported that the reason why women show more stress susceptibility is mainly due to physical and emotional disturbances such as depression and physical exhaustion^{9,10,20,27}.

Year of Studies (Level)

In dentistry, fresh students face stress as new terminologies, teeth numbering and anatomy are introduced to them. When a faculty does not consider the level of students and express his high knowledge and experience of a topic on students expecting that students have already known the topic. Other faculty members explain the topic in different way which makes students confused. Furthermore, student may also be stressed as some faculty request students to have high levels of attitude and professionalism without previous training and instructions. Students in their higher level also undergo serious stress when it comes to time. Students usually spend most of their day-time in the colleges, i.e. from 8 AM to 5 PM. This does not give students enough time to do what assignments they are given and to study for exams or quizzes. The study-level of student also has an effect on his/her stress level as reported by Ulraz *et al.* who found that stress among dental students increases as the student progress in his/her studies²⁹. Al-Sowygh reported that second year dental students showed the least value of stress while the most value was shown to be on the first and fourth year students⁶. Female students show an increase stress susceptibility starting from the 2nd year till the 5th (last) year of dental studies³⁰. Students in their preclinical years which are the 2nd and 3rd year of dentistry show lower stress levels than students in their clinical years^{21,31}. In contrast, Polychronopoulou and Divaris studied stress in Greek dental students reported that dental environment stress decreases over the study period¹⁵. In a study by Mocny-Pachońska *et al.* on polish students, they found that differences exist between fifth year male and female students³².

What Dental Colleges should do to Reduce Stress among its Students?

Stress among dental students is an issue that dental colleges should make every possible way to minimize it. Previously, it has been recommended that strategies for stress management must be incorporated into dental education to ensure the output of effective dentists⁶. Below, is suggested areas dental colleges may use in their work-plans and strategies to reduce stress among their students. As these are suggestions, future studies may be conducted to investigate what dental colleges should do to reduce stress among their students.

Faculty and Administrative Staff

Dental colleges should train its academic and administrative staff about signs and symptoms of stress. This should be done by an expertise by means of workshops. In addition, a well-structured program of how to deal with student who showed signs of stress should be known to all. Other type of support that colleges should have a plan for it is “peer-support”. Furthermore, colleges should have social and extra-curricular activities for its students.

Students’ Academic and Psychological Support

Dental colleges must have academic and psychological support committees. They should be separate and not considered one. The academic advising committee is an important and crucial components that are usually part of any college’s administration. The effectiveness of such service is the key to have students seek its help. Dental programs should have assistant and support program for weak students.

Students should be educated by means of educational lectures, pamphlets, or by other means about stress signs and symptoms. Students also should be encouraged to reveal if they are feeling stressed. Students should understand that presence of stress is not going to affect their completion of the program. Furthermore, they should be assured about the confidentiality of the information they reveal.

Well-trained psychological specialist should be available to deal with students who admit that they are facing problems a result of the stress they face. This should be a combination of

medical and academic interventions.

Financial Support

Finally, some students might develop stress due to financial obligation (this is more evident in private colleges). This should be dealt with as soon as possible as students may not progress in their studies because they may not be able to pay their tuition or other financial requirements. Dental colleges should make payment's plan for its students.

Reduce Stress caused by Clinical Work

To reduce the stress of students in their first clinical exposures, it is important that students start the clinical work by observations. Faculty should make every possible practice to alleviate stress of students (e.g. students practice giving local anesthesia to each other). Other possible strategy to reduce the stress from first-time local anesthesia procedure, dental students are assigned as assistant to senior students/ interns. Similar strategies is applied to all courses the first time students are given in the clinic.

Conclusion

Dental students undergo different stress-causing sources. Stress among dental students starts before they are admitted to dental program and continues until they graduate. To reduce stress among dental students, it is suggested that dental colleges should make an effective plan to reduce stress among their students.

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