

# Stress factors and quality of life of Dental students

**Maria Imaculada de Queiroz Rodrigues\***; **Luciana Maria Arcanjo Frota\*\***; **Myrna Maria Arcanjo Frota\*\*\***; **Cinthia Nara Gadelha Teixeira\*\*\*\***

- \* Undergraduate student, Dentistry Course, Federal University of Ceará
- \*\* Master's degree in Dental Clinic, Federal University of Ceará
- \*\*\* PhD student in Dental Clinic, Professor of the Dental Course, Federal University of Ceará, Campus Sobral
- \*\*\*\* PhD student in Dentistry, Federal University of Maranhão, Professor of the Dentistry Course, Christus University Center

Received February 28, 2018. Approved February 2, 2019.

## ABSTRACT

The objective of the study was to perform an integrative review on the stress factors and quality of life of undergraduate Dental students. Articles published between the years 2014 and 2017, published in full, in Portuguese or English, were selected. The data search was carried out in the databases Scientific Electronic Library Online (SciELO), Latin American and Caribbean Literature in Health Sciences (LILACS) and U.S. National Institutes of Health's National Library of Medicine (PubMed), through the combination – using the Boolean operator “AND” – of the descriptors, in Portuguese and English: “Qualidade de Vida/Quality of Life”, “Estudantes de Odontologia/Students, Dental”, “Educação Superior/Education, Higher”. A total of 5.537 articles were found, of which 10 were selected. LILACS was the database with more studies selected (80%) and all studies were classified in level IV of scientific evidence. Studies that analyzed the levels of depression, anxiety, stress and quality of life were identified, as well as the most stressful factors among students of Dentistry in public and private universities. It was concluded that several factors are stressful for Dental scholars, among them the high workload during the course and the fear of failing during graduation. Studies that analyze the quality of life of these students are still scarce in the literature.

**Descriptors:** Quality of Life. Students, Dental. Education, Higher.

## 1 INTRODUCTION

Quality of life (QL) is defined by the World Health Organization (WHO) “as the individuals’ perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns”. However, although it has an official definition, the QL is a complex construction, with different indicators ranging from emotional issues to financial and spiritual aspects<sup>1</sup>.

With the purpose of understanding the complex context of QL, studies have been carried out in order to obtain QL results from several sectors of the population. Particularly, the QL of students during the undergraduate course has been the subject of many researches<sup>1,2</sup>.

The undergraduate courses in Dentistry all over the world are characterized by the high level of stress for the students<sup>3</sup>. In the first years of the course, which is configured as the preclinical period, there is a high theoretical load, which includes basic concepts for dental practice and the development of clinical skills necessary for professional activity<sup>2</sup>. Factors associated with this period can affect the QL of the students, such as the high theoretical hourly load, the academic competition that is established within the classes, the consequent search for increasingly higher grades, and the fear of failing in the face of so many demands<sup>4,5</sup>.

In the last years of training, in addition to the theoretical load, the students start to attend the clinics, assisting patients<sup>6</sup>. During this last phase of the training, the factors associated with stress are the responsibility of caring for a patient, carrying out irreversible treatments, cooperation of difficult patients, and the high demands of practical skills<sup>3,6</sup>.

All these factors contribute to stress in the dental academic environment, and this can, therefore, result in mental disorders, such as high levels of depression, anxiety disorders, emotional exhaustion and eventually with somatic

repercussions. All these consequences of stress can result in damaging effects to the QL of the students, also hindering their learning and negatively interfering in academic results<sup>1,2,5-7</sup>.

Thus, the study of QL among undergraduate students in Dentistry becomes extremely relevant. Papers with this approach contributes to the orientation of projects aimed at promoting health and success within the university space. Such actions will provide a better academic performance and, consequently, may also have repercussions on good results in the professional life of future dental surgeons<sup>7,8</sup>.

The objective of this integrative review was to analyze the factors of stress and the QL of undergraduate students in Dentistry in several public and private institutions in the world.

## 2 METHODS

The present study is an integrative review of the literature. The guiding question of the research was “What are the stressful factors and how is the QL of dental medical students characterized?” Only scientific articles published in Portuguese or English were included in the period 2014 to 2017, related to the theme of this work.

The articles search was carried out in the databases Scientific Electronic Library Online (SciELO), Latin American and Caribbean Literature in Health Sciences (LILACS) and U.S. National Institutes of Health’s National Library of Medicine (PubMed), through the combination – using the Boolean operator “AND” – of the descriptors, in Portuguese and English: “Qualidade de Vida/Quality of Life”, “Estudantes de Odontologia/Students, Dental”, “Educação Superior/Education, Higher”.

The exclusion criteria were: researches carried out with postgraduate students, systematic reviews and literature reviews, as well as studies that did not fit the proposed theme.

For the quality analysis of the studies, the

classification of the level of evidence (LE) was used: level I - meta-analysis of controlled clinical trials and with randomization; level II - experimental design study; level III - quasi-experimental researches; level IV - descriptive studies or with qualitative methodological approach; level V - case reports or experience reports; level VI - expert opinions or based on standards or legislation<sup>9</sup>.

The present study respected the ethical aspects of the research, being faithful the authorship of the ideas, concepts and definitions present in the papers that were part of this review.

### 3 RESULTS

A total of 5.537 papers were found, of which

148 were in the SciELO database, 2.412 in LILACS and 2.977 in PubMed. Taking into account the inclusion and exclusion criteria, 10 articles were selected.

Table 1 shows the search strategies, the bases consulted, the number of works found and selected for the study. The LILACS database had the highest number of papers selected (80%). The combinations of the descriptors “Quality of Life” and “Higher Education”, in Portuguese and English, generated the largest number of articles in the initial search. As for the final selection of articles, the combinations of the descriptors “Students of Dentistry” and “Higher Education”, in Portuguese and English, generated the most articles to compose this review.

Table 1. Search strategies, bases consulted, number of references found and selected

Search strategies	Bases consulted	References found	References selected
Qualidade de Vida/Quality of Life [Words] AND Estudantes de Odontologia/Students, Dental [Words]	SciELO	4	-
	LILACS	112	3
	PubMed	84	-
Qualidade de Vida/ Quality of Life [Words] AND Educação Superior/ Education, Higher [Words]	SciELO	144	-
	LILACS	1.839	-
	PubMed	2.561	-
Estudantes de Odontologia/ Students, Dental [Words] AND Educação Superior/ Education, Higher [Words]	SciELO	-	-
	LILACS	452	5
	PubMed	322	2
Qualidade de Vida/ Quality of Life [Words] AND Estudantes de Odontologia/Students, Dental [Words] AND Educação Superior/ Education, Higher [Words]	SciELO	-	-
	LILACS	09	-
	PubMed	10	-
<b>TOTAL</b>		<b>5.537</b>	<b>10</b>

Table 2 shows the initial analysis data of the selected articles, such as author(s)/year of publication, country of origin of the publication, title of the article and source database. Among the articles selected, 100%

were published in English. Most of the studies were published in 2015 (40%) and 2017 (40%). Turkey was the country with the highest prevalence as to the country of origin of the main author (20%).

Table 2. Characterization of the selected studies regarding the author/year, country of affiliation of the main author, title of the article and databases

Author/Year	Country of affiliation of the main author	Title of the Article	Data base
Mafla <i>et al.</i> , 2014	Colombia	Burnout prevalence and correlates amongst Colombian dental students: the STRESSCODE study	LILACS
Aboalshamat <i>et al.</i> , 2015	Saudi Arabia	Psychological well-being status among medical and dental students in Makkah, Saudi Arabia: A cross-sectional study	LILACS
Atalayin <i>et al.</i> , 2015	Turkey	The prevalence and consequences of burnout on a group of preclinical dental students	LILACS
Bathla <i>et al.</i> , 2015	India	Evaluation of anxiety, depression and suicidal intent in undergraduate dental students: A cross-sectional study	LILACS
Babar <i>et al.</i> , 2015	Malaysia	Perceived sources of stress among Malaysian dental students	PubMed
Burger <i>et al.</i> , 2016	Germany	Development of depression and deterioration in quality of life in German dental medical students in preclinical semesters	LILACS
Harris <i>et al.</i> , 2017	United Kingdom	Perceived stress and well-being among dental hygiene and dental therapy students	LILACS
Andre <i>et al.</i> , 2017	United States	Quality of Life Among Dental Students: A Survey Study	LILACS
Ersan <i>et al.</i> , 2017	Turkey	Perceived sources and levels of stress, general self-efficacy and coping strategies in clinical dental students	LILACS
Hayes <i>et al.</i> , 2017	Canada	Perceived causes of stress among a group of western Canadian dental students	PubMed

Table 3 describes data such as author(s)/year of publication, objective of the studies and level of evidence of the studies,

according to the proposal of the research. All studies were classified in level IV of evidence (100%), considering that all were descriptive

(non-experimental) studies, reporting the the QL of students from several Dentistry observations made, through questionnaires, on schools in the world.

Table 3. Author(s), year of publication, objectives and level of evidence of selected studies

Author/Year	Objectives of the study	Level of evidence
Mafla <i>et al.</i> , 2014	To determine the prevalence of Burnout among a sample of Colombian Dental students and to investigate their psychosocial and educational correlations.	IV
Aboalshamat <i>et al.</i> , 2015	To evaluate the psychological well-being among Medical and Dental students in Saudi Arabia, to identify high-risk groups and to assess the association between psychological well-being and academic performance.	IV
Atalayin <i>et al.</i> , 2015	To investigate the prevalence of Burnout among a group of students of Dentistry, of the pre-clinical stage, in Turkey.	IV
Bathla <i>et al.</i> , 2015	To evaluate anxiety, depression and suicidal intent in undergraduate Dental students and discover the various areas of stress.	IV
Babar <i>et al.</i> , 2015	To identify stress levels and explore the impact of the year of the study and gender of the students on the sources of perceived stress among Dental students of Malaysia.	IV
Burger <i>et al.</i> , 2016	To evaluate the prevalence of Burnout in students of a school of Dentistry.	IV
Harris <i>et al.</i> , 2017	To explore the perception of stress and well-being of Dental students during graduation.	IV
Andre <i>et al.</i> , 2017	To evaluate the quality of life of Dental students in a faculty of Dentistry of the USA	IV
Ersan <i>et al.</i> , 2017	To identify sources of stress among clinical students and evaluate perceived levels of stress, overall self-efficacy and effective coping strategies of students in private Dental faculty.	IV
Hayes <i>et al.</i> , 2017	To determine how students at the Faculty of Dentistry at the University of Saskatchewan perceive stress.	IV

Some studies (30%) evaluated the prevalence of Burnout among Dental scholars, which is characterized as a state of physical and mental exhaustion or wear<sup>2,7,10</sup>.

In a study carried out with a group of Colombian Dental students from private and public institutions, it was verified that the highest levels of physical and mental exhaustion were among students of public institutions, who studied in very large classes, as well as among

older students, married and who did not have Dentistry as their first career choice. It was found that the educational environment influenced the Burnout levels among the students, with emphasis on stress due to the high work load during the course<sup>10</sup>.

In a study carried out in Turkey, with students from the pre-clinical stage of the Dentistry course of a public university, the results showed that about 22% of the students

analyzed had high levels of Burnout, and the high workload was related to the development of this framework. The highest levels were among students in the third year of the course and female students. Still, among students with higher levels of physical and mental exhaustion, the lowest levels of academic satisfaction were observed. Among the students living far from the family, the lowest levels of academic performance were identified<sup>2</sup>.

Also, in a study conducted in Germany among Dental students of a public university, it was observed that in the 5th period there was a prevalence of individuals with clinically expressed levels of depression. In addition, it was observed a continuous decrease in the mental QL of the students, parallel to the progression of the graduation, evidencing the deterioration of the mental health of these students, which is related to the levels of depression observed<sup>7</sup>. The authors agree that the development of curricula that can meet the individual needs of students, make them aware of how to deal with stress and improve communication with students can reduce the levels of Burnout in the graduation<sup>2,7,10</sup>.

A study carried out in Malaysia evaluated the levels and sources of stress among students of public and private Dentistry universities in the country. It was observed that the academics of public and female universities showed higher levels of stress. The major stressful factors were related to academic issues such as the fear of failure during graduation and the result of the tests applied during the course. Also, in the initial years of graduation, a stress factor was the fear of unemployment after completion of training. The authors emphasize the need for the development of stress management programs during graduation<sup>8</sup>.

Another research, conducted with Medical and Dental students of a public university in the pre-clinical stage, revealed high levels of

depression, anxiety, and stress among students. In the Dentistry course, students became more depressed in the third year and more stressed in the second year. In addition, male students presented more psychological distress than female students. The authors affirm that it is necessary to use strategies to reduce these levels of stress<sup>4</sup>.

The stress and well-being of Dental students was assessed at a public institution in the UK. Factors such as clinical practice, the fear of failing and meeting the requirements to be a good clinician, as well as academic works were the greatest generators of stress. In these students, the levels of depression, anxiety and stress were considered within the normal range, and these self-assessed as positive functioning individuals<sup>5</sup>.

Another study aimed to evaluate the levels of anxiety, depression and suicidal intention among students of Dentistry of a private institution. The highest levels of anxiety and depression were reported by students of the first and last year of graduation. Suicidal intention was reported by students of all the years of the course. The factors most associated with stress were long hours of teaching, high workload, high frequency of testing, competition among classmates and fear of failing. In addition, non-interest in the profession was also a stressor. The authors emphasize the need for changes in the current educational system and emphasize the importance of developing strategies for managing stress in undergraduate programs<sup>6</sup>.

In the United States the QL of students of a private Dental faculty was evaluated. In this study, students rated their QL as good. In the Social Relations domain, women showed better QL in relation to male students. Still, single and older students had worse QL than married and younger students, respectively. In addition, the QL scores in the Psychological domain were

lower for students in the third year of the course, compared to the first year, a domain which deals with levels of satisfaction with life, believing in themselves, self-esteem and negative feelings. The authors emphasize that providing support to these students is essential not only to promote QL among them, but also to improve patient care and the profession as a whole<sup>1</sup>.

A study carried out in a private school of Dentistry in Turkey, in order to evaluate sources and levels of stress among students, found that the last year of graduation was considered the most stressful and the female students had the highest levels of stress. The high workload and clinical training were the major stressors. Reducing curriculum overload and implementing stress management strategies, especially for more advanced students in the course can be effective measures, according to the authors<sup>3</sup>.

The last study of this integrative review was conducted with Dental medical students from a private university in Canada, in order to evaluate how they perceive stress during graduation. It was observed that female students had higher levels of stress than males. Studying outside the home, shifting from preclinical studies to clinicians, concern about the requirements to be a good clinician, in addition to the high workload in the clinics and high debts with course tuition have been reported as stressful factors. The authors state that training teachers to manage the stress of the students is a viable strategy to manage this problem<sup>11</sup>.

#### 4 DISCUSSION

In this search an expressive number of publications was found. However, the small number of articles selected to be part of this integrative review was due to the vast amount of evaluations of teaching methods in health courses, mainly in the medical field, especially as the descriptors “Students, Dental” and

“Education, Higher” in association. Still, most of the studies were about analyzes of the QL of patients performed by undergraduate students. Using the search strategies and inclusion and exclusion criteria already mentioned, no Brazilian studies were selected, which shows a lack of research on the subject in the country.

A large proportion of the studies have analyzed levels and stress factors among Dental medical students, factors that affect QL and also interfere with academic performance<sup>2-8,10,11</sup>. Only one study directly evaluated the QL of undergraduate students in Dentistry, evidencing the lack of studies with this theme in the literature<sup>1</sup>.

It was observed that students from public institutions had higher levels of stress and physical and mental exhaustion<sup>8,10</sup>. These results are mainly associated with the level of student demand in public institutions<sup>8,10</sup>. Among students from private universities, it was observed that tuition costs are an important stress factor<sup>11</sup>.

Most articles indicate that female students show higher levels of stress than males, both in public and private universities<sup>2-4,8,11</sup>. However, in one of the studies conducted in a private institution, women presented better QL scores than men<sup>1</sup>. This may be associated with greater expressiveness of feelings among women, showing lower QL scores, whereas men respond less expressively to their concerns, presenting a better self-assessment of QL<sup>3,8</sup>.

The third year of graduation was the most stressful period among Dental medical students, especially among those who study at public universities<sup>1,2,4,7</sup>. In the third year of the course there is evidence of the accumulation of stress of previous years, generating higher levels in this period. In addition, at this graduation stage, there is a greater workload and increased responsibility associated with the clinical phase of the course,

in which there is direct patient care<sup>1,2,4</sup>.

The fear of failing during graduation was very common in studies as a stress factor among students, both in public and private institutions<sup>5,6,8</sup>. Finally, one of the stress factors that most affected the QL of Dental students, especially in private institutions, was the high workload during undergraduate years, especially during the years in which there is clinical care for the patient<sup>3,6,10,11</sup>. This is due to the various evaluations of knowledge applied during the course, responsibilities acquired when dealing directly with the patient, short free time to perform social activities and requirements of various theoretical and clinical knowledge necessary for dental practice<sup>6</sup>.

## 5 CONCLUSION

The selected studies showed that the undergraduate course in Dentistry presents several stress factors, both in public teaching institutions and in private institutions, and these seem to affect the female students more. Among these factors, the graduation year, the high workload during the course, as well as the fear of failing during graduation stand out. Such stress factors affect QL, leading to the development of various mental disorders, and consequently also affect their performance during the course.

## RESUMO

### Fatores de estresse e qualidade de vida de estudantes de Odontologia

O objetivo do estudo foi realizar uma revisão integrativa sobre os fatores de estresse e qualidade de vida de estudantes de graduação em Odontologia. Foram selecionados artigos publicados entre os anos de 2014 e 2017, publicados na íntegra, em português ou inglês. A busca de dados foi realizada nas bases de dados *Scientific Eletronic Library Online* (SciELO), Literatura Latino-americana e do Caribe em Ciências da Saúde (LILACS) e *U.S. National*

*Institutes of Health's National Library of Medicine* (PubMed), por meio da combinação - utilizando o operador booleano "AND" - dos descritores, em português e inglês: "Qualidade de Vida/*Quality of Life*", "Estudantes de Odontologia/*Students, Dental*", "Educação Superior/*Education, Higher*". Foram encontrados 5.537 artigos, sendo 10 selecionados. A LILACS foi a base de dados com mais estudos selecionados (80%) e todos os estudos foram classificados no nível IV de evidência científica. Foram identificados estudos que analisaram os níveis de depressão, ansiedade, estresse e qualidade de vida, bem como os fatores mais estressantes entre estudantes de Odontologia em universidades públicas e privadas. Concluiu-se que diversos fatores são estressantes para acadêmicos de Odontologia, entre os quais destacam-se a alta carga de trabalho durante o curso e o medo de falhar durante a graduação. Estudos que analisem a qualidade de vida destes estudantes ainda são escassos na literatura.

**Descritores:** Qualidade de Vida. Estudantes de Odontologia. Educação Superior.

## REFERENCES

1. Andre A, Pierre GC, McAndrew M. Quality of Life Among Dental Students: A Survey Study. *J Dent Educ.* 2017;81(10):1164-70.
2. Atalayin C, Balkis M, Tezel H, Onal B, Kayrak G. The prevalence and consequences of burnout on a group of preclinical dental students. *Eur J Dent.* 2015;9(3):356-63.
3. Ersan N, Fisekçioğlu E, Dölekoglu S, Oktay I; Ilgüy D. Perceived sources and levels of stress, general self-efficacy and coping strategies in clinical dental students. *Psychol Health Med.* 2017;22(10):1175-85.
4. Aboalshamat K, Hou XY, Strodl E. Psychological well-being status among medical and dental students in Makkah, Saudi Arabia: a cross-sectional study. *Med Teach.* 2015;37(Suppl 3):S75-81.



5. Harris M, Wilson JC, Holmes S, Radford DR. Perceived stress and well-being among dental hygiene and dental therapy students. *Br Dent J.* 2017;222(2):101-6.
6. Bathla M, Singh M, Kulhara P, Chandna S, Aneja J. Evaluation of anxiety, depression and suicidal intent in undergraduate dental students: A cross-sectional study. *Contemp Clin Dent.* 2015;6(2):215-22.
7. Burger PHM, Neumann C, Ropohl A, Paulsen F, Scholz M. Development of depression and deterioration in quality of life in German dental medical students in preclinical semesters. *Ann Anat.* 2016;208:183-6.
8. Babar MG, Hasan SS, Ooi YJ, Ahmed SI, Wong PS, Ahmad SF, et al. Perceived sources of stress among Malaysian dental students. *Int J Med Educ.* 2015;5:56-61.
9. Stetler CB, Brunell M, Giuliano KK, Morsi D, Prince L, Newell-Stokes V. Evidence-based practice and the role of nursing leadership. *J Nurs Adm.* 1998;28(7-8):45-53.
10. Mafla AC, Villa-Torres L, Polychronopoulou A, Polanco H, Moreno-Juvinao V, Parra-Galvis D, et al. Burnout prevalence and correlates amongst Colombian dental students: the STRESSCODE study. *Eur J Dent Educ.* 2015;19(4):242-50.
11. Hayes A, Hoover JN, Karunanayake CP, Uswak GS. Perceived causes of stress among a group of western Canadian dental students. *BMC Research Notes.* 2017;10(1):714.

**Correspondence to:**

Maria Imaculada de Queiroz Rodrigues  
e-mail: [imaculadaqueirozr1997@gmail.com](mailto:imaculadaqueirozr1997@gmail.com)  
Faculdade de Farmácia, Odontologia e Enfermagem – Universidade Federal do Ceará  
Rua Monsenhor Furtado, S/N, Rodolfo Teófilo, 60430-355 Fortaleza/CE Brazil