

## SOURCES OF STRESS AND WELL-BEING IN DENTAL STUDENTS

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### ABSTRACT

**Introduction:** Psychological well-being is an important health component, which influences the ability to learn and achieve the maximum professional potential. The aim of this study was to identify the sources of stress and assess well-being in dental students. **Materials and methods:** An observational study was implemented on a convenience sample of 2nd and 3rd year dental students, from “Carol Davila” University of Medicine and Pharmacy, Bucharest, Romania. There was collected data upon sources of stress, by the usage of a modified version of Dental Environment Stress (DES) questionnaire, and psychological well-being assessed by WHO-Five Well-being Index. **Results:** The identified primary sources of stress perceived by the dental students were competition for grades, examinations, lack of time for relaxation, expectation versus reality of dental school and shortage of allocated clinical time. From the domains of DES questionnaire, most stressful were perceived those related to academic factors, respectively in descending order: the “academic work”, “clinical factors” and “educational environment”. By multiple regression analysis there was observed that only stressors of “education environment” domain significantly predicts dental student’s psychological well-being. **Conclusion:** Future research is recommended in order to identify the best approaches for the implementation of education in dental schools.

**Keywords:** education, training, exams, psychological, mental, faculty, university

### INTRODUCTION

Psychological well-being is an important health component, which influences the ability to learn and achieve the maximum professional potential. Evidence suggests that the educational process in dental schools associate an inherent distress that is related not only to the academic performance, but also to the health and behavioural patterns of

the future dentists (1; 2). There has been confirmed that strategies and preventive interventions that addresses this problem can reduce or eliminate sources of stress, promoting the decrease of its negative effects, being important to highlight that even if there are major differences between dental schools, dental students’ view upon their education seem to be convergent (3). Even so, a more in

depth analysis may help identifying patterns of stressors and well-being according to geographical and social determinants.

The aim of this study was to identify the sources of stress and assess well-being in dental students.

## MATERIAL AND METHODS

An observational study was implemented on a convenience sample of dental students, from "Carol Davila" University of Medicine and Pharmacy, Bucharest, Romania, during the first month of the second semester of 2014-2015 academic year. There were included 2nd and 3rd year dental students who previously agreed and gave a written informed consent on participating in a research that aimed observing student's wellbeing and factors interfering with it.

Data collection was conducted online, by creating a questionnaire in Google Docs Form. This questionnaire was administered using the email address, previously provided by the students. After filling the questionnaire, the respondents were no longer able to consult or modify the previous responses. There was collected data upon general aspects (age, sex, nationality), and sources of stress, by the usage of a modified version of Dental Environment Stress (DES) questionnaire, that is shorter and seen as more applicable to younger students population, as the one targeted in this research (4) and psychological well-being assessed by WHO-Five Well-being Index.

The Dental Environment Stress (DES) questionnaire includes 39 items, with answers rated on a scale from 0 (not stressful) to 4 (extremely stressful). These items can be grouped in five stressor domains: living accommodation (items 1 to 4, with a total of 4 items); personal factors (item 5 to 17, with a total of 13 items); educational environment (items 18 to 22, with a total of 5 items); academic work (23 to 30, with a total of 8

items); clinical factors (31 to 39, with a total of 9 items). The DES questionnaire was administered in English.

Well-being was assessed by WHO-Five Well-being Index (WHO-5; WBI), developed by the Psychiatric Research Unit, Mental Health Centre North Zealand, Hillerod, Denmark, a World Health Organization Collaborating Centre. The Romanian language version was used, available on the website of Psychiatric Research Unit at the Mental Health Centre North Zealand. WHO-Five. It consists of a 5-item questionnaire, with a time frame of previous two weeks. Its interpretation is in accordance to the score obtained, that ranges from 0 to 100, higher scores meaning better wellbeing.

Statistical analysis was performed with SPSS software, version 13. Data analysis included frequency distributions, Friedman test, multiple regression analysis in order to assess if stressor domains influence students' well-being. The significance level was set at  $p < 0,05$ .

## RESULTS

A number of 42 dental students tried to fill the online administered questionnaire, from which 36 (86%) filled also the items, in English, corresponding to DES questionnaire.

Therefore, the analysis was conducted on the convenience sample that included 36 dental students, 10 being 2nd year and 26 being 3rd year. They were 20 ( $n=9$ ), 21 ( $n=19$ ) or 22 ( $n=8$ ) years old. Most of them were females ( $n=30$ ) and Romanians ( $n=32$ ).

Dental students registered a mean DES score of 1,47. Examining the scoring according to each stressor, respectively each item of DES score (Table 1), there can be observed that higher scores (mean higher than 2) were obtained in the items 26 (Competition for grades), 29 (Examinations), 13 (Lack of time for relaxation), 18 (Expectation versus reality of dental school), 37 (Shortage of

allocated clinical time), 15 (Having reduced holidays compared with other students), most of those being related at some degree with academic factors. From the 5 domains of DES questionnaire, most stressful were those related to academic factors, respectively in

descending order, the “academic work”, “clinical factors” and “educational environment”. There was a statistically significant difference between scores in the 5 domains of DES questionnaire,  $\chi^2(4) = 23,33$ ;  $p < 0,001$ .

**Table 1. Sources of stress and stressors domains**

Stressor item	mean	Stressors domains	
		domain	mean
1. Moving away from home	1,25	living accommodation	1,38
2. Environment in which to study	1,56		
3. Lack of home atmosphere	1,49		
4. Other problems with accommodations	1,28		
5. Making friends	0,92	personal factors	1,23
6. Financial responsibilities	1,56		
7. Personal physical health	1,17		
8. Relationship between members of the opposite sex	1,17		
9. Necessity to postpone marriage	0,94		
10. Necessity to postpone children	1,08		
11. Having multiple roles	1,31		
12. Conflict with spouse/mate over career development	1,28		
13. Lack of time for relaxation	2,14	educational environment	1,45
14. Having children in the home	1,00		
15. Having reduced holidays compared with other students	2,03		
16. Fear of going out due to crime	0,91		
17. Dependencies (e.g., drugs, alcohol)	0,64		
18. Expectation versus reality of dental school	2,11		
19. Approachability of staff	1,12		
20. Criticism about academic or clinical work	1,43	academic work	1,84
21. Rules and regulations of the dental school	1,56		
22. Discrimination due to race, nationality, gender, or social class	1,11		
23. Amount of assigned coursework	1,68		
24. Difficulty of coursework	1,33		
25. Fear of being able to catch up if falling behind	1,81		
26. Competition for grades	2,46		
27. Fear of failing course or year	1,94		
28. Uncertainty about dental career	1,94		
29. Examinations	2,31		
30. Lack of input in decision making process in dental school	1,65	clinical factors	1,47
31. Concerns about manual dexterity	1,59		
32. Transition to clinical course	1,44		
33. Learning precision manual skills	1,53		
34. Completing clinical requirements	1,24		
35. Concern about treatment grades awarded	1,44		
36. Differences in opinion between clinical staff concerning treatments	1,36		
37. Shortage of allocated clinical time	2,03		
38. Patient management	1,26		
39. Confidence in own clinical decision making	1,38		

To the WHO-5 questionnaire students registered scores from 12 to 96, with a mean of 60 percentage score.

By multiple regression analysis there was

observed that only stressors of “education environment” domain significantly predicts dental students’ well-being (table 2).

**Table 2. Summary of multiple regression analysis for predicting WHO-5 scores by DES domains**

Predictor	B	SE B	t	p
living accommodation	-5,68	3,74	-1,51	0,140
personal factors	2,24	5,72	0,39	0,698
educational environment	-14,87	4,27	-3,47	0,002
academic work	6,89	4,68	1,47	0,152
clinical factors	-7,43	5,72	-1,29	0,205
constant	85,60	6,89	12,42	<0,001
$R^2=0,454$ , $F=6,477$ , $p<0,001$				

## DISCUSSION

Considering the limitation of this study, there is suggested that the most important stressors perceived by the dental students are related to the academic factors, the most important being due to competition for grades and examinations. Even so, only the stressors related to academic environment seems to predict their positive psychological well-being.

There is relatively accepted that dental education associates a relative high level of inherent stress that has both positive and negative effects. Stressors are related mainly due to the demanding nature of training and caution should be taken considering there is suggested by previous researches that there are encountered adverse effects of elevated stress on student’s health and wellbeing (2). Similar to the results of this study, other indicate as major sources of reported stress in dental students’ the examinations and shortage of allocated clinical time (5; 4), lack of time for relaxation and reduced holidays (6). Full working day, receiving criticism from supervisors about academic or clinical work, amount of cheating in dental faculty, rules and regulations of the faculty and fear of unemployment after graduation are also cited as frequent stressors, and as can be noticed

most of them are dental faculty related (7). Even so, difference in dental students' stress perceptions are observed between academic years, changes being mainly linked to transitions in the didactic, preclinical, and clinical phases of the curriculum (8). Also, students' perceived stressors are different among dental schools and are associated with both individual and educational/institutional parameters (9). A previous study assessing perceived stress of dental students, on a sample that included dental students from the same university as in this study, identified that in Romania there was the highest perceived stress, when compared to other dental schools (i.e., from England, South Africa, Australia, United States, Greece) (10). These findings are probably due to a mix of factors, including institutional parameters but also geographic and sociodemographic patterns. Increased levels of stress can associate negative effects on performance, psychological well-being and health in general. Considering that and also the relative high level of stress in dental students, there can be seen a growing attention upon identifying etiology of this problem and identifying best approaches in order to improve the ways of implementation of education in dental schools. According to the

results of this study, there is suggested that dental schools should focus on the parameters of the educational environment, considering it influences psychological well-being of dental students. Limitation of this study are related to the small sample size, biased results being possible also considering the participants were included from only one dental school. The administration of DES questionnaire in English can associate some errors due to misunderstanding, even so, considering the questionnaire was filled online, completely voluntarily by students who desired to do that, we suppose that only those who considered to be able to understand it filled it.

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### CONCLUSIONS

Considering the limitations of our study, there may be suggested that the primary sources of stress perceived by the dental students are competition for grades, examinations, lack of time for relaxation, expectation versus reality of dental school and shortage of allocated clinical time. Stressors related to education environment influence dental students' psychological well-being. Future research is recommended in order to identify the best approaches for the implementation of education in dental schools.