



Factors Related to High Anxiety and Depression in Dentistry Students in the Republic of Macedonia

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Dear Editor-in-Chief

Many studies suggested contribution of various academic and non-academic stressors to the reported higher prevalence of anxiety and mood disorders in medical and dental undergraduate students in different countries (1-3). The highest rates of anxiety and depression have been reported for the first and second-year medical and dental students (first study year) (1,4), as well as for the final study years students (5).

The aim of the study was to identify risk factors related to high anxiety and depression among dental students in the Republic of Macedonia. We performed a cross-sectional study on a cohort of 236 dental students, aged 18 to 25 yr from all study years at Faculty of Dentistry in Skopje, during the second semester of 2012-2013 year. The students anonymously fulfilled self-rating questionnaires regarding stress-provoking factors connected to dental education. They were defined as personal and social problems associated to academic environment (disappointment, financial, interpersonal relations, problems with accommodation, poor quality of education, inadequate social life, lack of opportunities and administrative problems) caused negative experience and have been most irritating for the students (1). Anxiety and depression were assessed by the Beck Anxiety Inventory (BAI) and the

Beck Depression Inventory (BDI). The BAI score >25 was used as a criterion for high anxiety and BDI score >20 was defined as a criterion for manifest depression for logistic regression analysis.

The highest mean values of BAI scores were obtained among the first year (20.1 ± 12.5), while the lowest were documented among the fifth year students (12.1 ± 8.5) (ANOVA $F=5.07$, $P<0.01$). The highest mean BDI scores were reported among first year (12 ± 7.8), while the lowest ones were detected among the fourth year students (7.6 ± 4.5) (ANOVA $F=3.51$, $P<0.05$). The highest prevalence of high anxiety was found among the first year students (30.7%), while in fifth year students it was 6.25% ($\chi^2 = 29.442$, $df=12$, $P<0.01$). Poor quality of education was the most irritating problem for 72% ($n=170$) of all students. Fifty percent of the fifth year students, compared to 18.7% from the first year students identified the financial problems to be one of the most irritating problems during their education ($\chi^2 = 12.312$, $df=4$, $P<0.05$). Multiple regression analysis for BDI as dependent variable identified BAI scores ($R^2=0.329$, $\beta=0.556$, $P<0.001$) and existence of problems ($R^2=0.038$, $\beta=0.148$, $P<0.001$) as predictor factors for development of depression in dental students.

Table 1: Mean values of BAI and BDI and the prevalence of stress- provoking factors in dental students

Variables	D1 n=75 (%)	D2 n=46 (%)	D3 n=42 (%)	D4 n=41(%)	D5 n=32(%)	Total n=236	P
Mean BAI scores	20.1±12.5	17 ± 10.3	14.8± 12.1	13.8± 10.4	12.1± 8.5	16.4± 11.5	0.004
BAI >25 %	23 (30.7)	13 (28.3)	8 (19)	5 (12.2)	2 (6.25)	51 (21.6)	0.003
Mean BDI scores	12.1 ± 7.7	11 ±10.1	8.5 ± 7.3	7.6 ± 4.5	8.9 ± 5.6	10 ± 7.7	0.01
BDI ≥ 21%	8 (10.6)	7(15.2)	4 (9.5)	0	1(3.1)	20 (8.5)	0.389
Problem areas							
Poor quality of educational system	38 (50.7)	37 (80.4)	32 (76.2)	33 (80.5)	30 (93.7)	170 (72)	0.0001
Financial problems	14 (18.7)	11(23.9)	15 (35.7)	12 (29.3)	16 (50)	68 (28.8)	0.015

The results show that the prevalence of high anxiety and depression decreases during the progression of dental education. These results are consistent with similar reports (3,4). During the first and the second year, students are exposed to a new educational environment, with high demands for theoretical medical knowledge, as well as social and psychological adjustment. Our results are in accordance with the findings that a constant stress and prolonged anxiety, if not recognized and untreated can lead to depression (6). Low quality of education was identified as the most irritating problem within academic environment. The observed differences by year of study indicate that almost all problem areas were more frequently identified by the final year students. Undergraduate students are not satisfied with their experiences in dental and medical schools throughout the duration of their studies. As they progress on their course they become less satisfied and thus less motivated (2-4). Our alarming results on students' dissatisfaction with the quality of dental education are in accordance with these reports. Our country is a developing country and our transformed higher educational system is suffering from lack of resources, infrastructure, and employment of teacher-centered learning environment (long hours of amphitheatre lectures, high overall workload with large number of exams, without an opportunity for discussion and group work). All these factors may elucidate the alarming rate of students' dissatisfaction with the quality of dental education in our study.

The results of this study strongly suggest that many changes need to be considered by the faculty regarding the dental curricula in our country. The limitations of this study are its cross-sectional character and the broad definition of stressor, which do not allow inference about causal associations between the investigated issues. Besides, more attention should be paid to dental students during the early phases of education, and a student counseling service, which would offer mental health assistance should be established as an important part of dental facilities in Macedonia.

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