BURNOUT AND OCCUPATIONAL PARTICIPATION AMONG TURKISH DENTAL STUDENTS

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Abstract. The aim of the present study was to investigate the prevalence of burnout and occupational participation limitation among dental students in a dental school in Turkey. Four hundred fifty-eight dental students (females=153; males=305) were included in the study. The age range varied from 17-to-38 years. Maslach Burnout Inventory-Student Version (MBI-SV) and Canadian Occupational Performance Measure (COPM) were used to gather data. Descriptive analyses, *t*-test, and Kruskall-Wallis test for independent groups were used for data analyses. The results indicated that 26% of all the students have burnout in terms of emotional exhaustion (25%), cynicism (18%), and academic efficacy (14%). The results showed that burnout is statistically significant in relation to demographics ($p<0.05$). Twenty-four percent of the students showed considerably decreased occupational performance and satisfaction scores, which suggested occupational participation limitations. Occupational performance and satisfaction scores were inversely correlated with emotional exhaustion and cynicism, while directly correlated with reduced academic efficacy ($p<0.05$). The results of the present study indicates that burnout and occupational participation limitation can be seen among dental students. Students with burnout may also have occupational participation limitation. Enriching dental education programs with different psychological strategies may be useful for education of healthy dentists and improve the quality of oral and dental health services.

Keywords: burnout, dental student, occupational participation, occupational therapy, Turkey

INTRODUCTION

In recent years, health care researchers especially focused on burnout and the level of occupational engagement of students to promote excellence of higher education system (Law, 2010; Robins *et al*, 2015). Dental education remains very important among groups at risk because of long and hard educational duration, which varies among the different countries, but it is usually about 5 years, including the first 3-years preclinical and the subsequent 2-years clinical periods (Atalayin *et al*, 2015).

Preclinical dental education consists of courses on basic medical and professional dental education skills with

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clinical practice, which are mostly given in without real patients classrooms, dental laboratories, or stimulation laboratories (Alzahem *et al*, 2014). In this period students may encounter stress or stress related issues generally caused by difficulties of improving their dental theoretical knowledge, examinations, time management, financial and equipment problems which can cause a stressfull learning environment while during clinical period prolonged patient contact and managing their real problems may cause burnout among students (Alzahem *et al*, 2014; Atalayin *et al*, 2015).

Professional burnout is a syndrome characterized by a loss of emotional exhaustion (enthusiasm for work), depersonalization (feelings of cynicism), and a low sense of personal accomplishment. Although it is typical among practicing dentists, some evidence indicates that it can be prevalent among dental students (Bresó *et al*, 2007). Burnout of students is identified in three dimensions: emotional exhaustion, cynicism, and reduced academic efficacy (Schaufeli *et al*, 2002).

Research supports that being a dental student can be seen as an employment from the point of psychological perspective, because of attending structured education classes, and engaging with dental patients (Bresó *et al* 2007; Atalayin *et al*, 2015). Humphris *et al* (2002) found high levels of emotional exhaustion in 22% of dental students; while Pöhlmann *et al* (2005) found emotional exhaustion in 10% of dental students. Moreover, in the same study of all students, 17% complained about lack of accomplishment, and 28% had high depersonalization (Humphris *et al*, 2002). Similarly, some studies assert that dental students suffer from high levels of emotional exhaustion (18%), depersonalization (22%), and low personal accomplishment (41%) (Badran *et al*, 2010; Atalayin *et al*, 2015).

Moreover, facing internal factors such as stress, anxiety, and external factors, such as academic and clinical practice workload make dental students more vulnerable to burnout. Low professional achievement because of limited clinical practice or patient interaction overload can be considered as external factors in clinical period, while exams, and coercive activities, such as attending classes, completing assignments, specific goals like passing exams and academic failure can be external factors in the preclinical period (Wilson *et al*, 2015). Futhermore, stress and anxiety can affect level of burnout and wellbeing of health care students. It has been suggested that occupational participation is related to wellbeing, but still the evidence of relationships between occupational participation and wellbeing is limited among helath care students (Boehm *et al*, 2015).

Therefore, it was considered worthwhile to evaluate the complex structure and relationship between burnout syndrome and occupational participation among dental students. The aim of this study was four-folded: i) to assess the prevalence of burnout among dental students, ii) to compare the levels of burnout with respect to demographic characteristics among dental students, iii) to assess the level of occupational participation among dental students, and iv) to analyze the interrelationship between the burnout and occupational participation among dental students.

MATERIALS AND METHODS

Study participants

A cross sectional study was used to study students in preclinical and clinical

periods at the School of Dentistry at Ankara University in Turkey. All students in preclinical period (first, second, and third years) and clinical period (fourth and fifth years) participated in the study between the February 2015 and August 2015 Academic Year.

Students who had a vacation of more than 1 month, psychological problems, or who had undergone therapies (medication, physiotherapy) in last 6 months were excluded. A total of 458 dental students were included. The results were coded and rechecked (25% of the total data) by an independent group.

Procedure

The first author, a dentist, distributed the questionnaire to all students in every year during a lecture. Each student was asked to fill in the demographic characteristics and the evaluation tests were filled with an occupational therapist individually in a classroom. Another two occupational therapists helped the first and second authors to observe and score the evaluation tests of the participants. The occupational therapists were educated about implementing the tests and checked about inter-rater constancy additionally, in every 10 implementations, the occupational therapists re-checked about inter-rater consistency. The students who had been contacted with patients for at least 6 months were included in the study.

Measures

In the present study, a demographic characteristics checklist was prepared by the authors, and the student's age, gender, accommodation, and grade level were taken into account.

Burnout among students was measured by the Turkish version of the Maslach Burnout Inventory- Student Version, which was designed in 2002. It evaluates the dimentions of burnout with 15 items in areas of emotional exhaustion (5 items), cynicism (4 items), and academic efficacy (6 items). It is scored on a 7-point Likert response scale. High scores on emotional exhaustion and cynicism dimensions and low perception of academic efficacy are indicators of students' burnout (Schaufeli *et al*, 2002).

Psychometrics properties of Maslach Burnout Inventory-Student Version for Turkish college sample are internal consistency coefficient alpha of 0.83 for emotional exhaustion, 0.80 for cynicism, 0.70 for academic efficacy, and 0.83 for total scale for Turkish sample (Balkis *et al*, 2011).

Occupational Participation was evaluated by Canadian Occupational Performance Measure (COPM), which is a client-centered face-to-face interview, occupational therapy evaluation used for assessing occupational participation with subpoints of occupational performance and occupational satisfaction (Carswell *et al*, 2004). COPM is an occupational therapy outcome measure that is designed to help clients identify, prioritize, and assess important issues they experience in occupational participation, based on Canadian Model of Occupational Performance and Engagement (Nieuwenhuizen *et al*, 2014).

COMP is a semi-structured interview to measure a client's self-perception about his/her occupational participation and identify significant areas causing difficulties in daily activities in the areas of self-care, productivity, and leisure. Therefore, the participant prioritizes up to 5 problems that are the most significant or critical and rates each of these problems on an ordinal 10-point scale: performance (1 = 'not able to do it at all' and 10 = 'able to do it extremely well'), and satisfaction (1 = 'not satisfied at all'

and 10 = 'extremely satisfied'). The mean scores for performance and satisfaction were obtained by adding the scores of performance and satisfaction over the most important problems and dividing them by the number of these problems (Carswell *et al*, 2004; Enemar-Larsen and Carlsson 2012; Nieuwenhuizen *et al*, 2014).

Statistical analysis

The data were coded and analyzed using SPSS Version 20 (IBM, Armonk, NY). To determine the relationship and statistical significance among the variables simple descriptive statistics, the Kruskal-Wallis test, correlation analysis, and *t*-test were performed. Statistical significance was indicated by $p<0.05$.

Ethical considerations

Ethical approval was obtained from local ethics committee of the university (≠approval no: 15/49-21). The students of the school received an invitational letter with a letter of information about the study and an informed consent form. An occupational therapist visited the school and provided information to each class on the objectives and the relevance of the study.

RESULTS

Demographics characteristics

Four hundred fifty-eight dental students (305 males, 153 females) were in the 17-to≥25-years groups, consisting of 321 preclinical and 137 clinical students (1st Year=113; 2nd Year= 151; 3rd Year= 57; 4th Year= 68; 5th Year= 69). Percentages of respondents were 78%, 71%, 69%, 68.2%, and 69.5% for 1st-5th Years, respectively. One hundred ninety-nine students (43.5%) of the total students were living alone, while 259 (56.5%) lived at home with their families or with a group of friends (Table 1).

The prevalence of burnout

The mean and standard deviation scores were used to analyze the prevalence of burnout for each year. The scores that were one standard deviation above and below the average were appointed as the groups representing low and high levels of burnout. In total, 26% of the students had burnout and 25% of the students had emotional exhaustion, 18% of the students had cynicism, and 14% of the students had reduced academic efficacy. The categorization of MBI-SV subscales per each year is given in Table 2.

Burnout-age relationship

An independent sample *t*-test was used to determine the age variable on burnout. The results showed that the average of reduced academic efficacy scores of younger students (mean=17.23, SD=3.42) were higher than the older students (mean=12.51, SD=3.14), with a statistical significance ($p< 0.05$). The *t*-test analyses indicated that cynicism and emotional exhaustion did not show statistically significance significant difference respect to age (Table 2).

Burnout-gender/accommodation relationship

The independent sample *t*-test was also used to determine gender differences for burnout. The statistical analysis showed that the average of emotional exhaustion scores of female students (mean=18.46, SD=5.76) was higher than the average of scores for male students (mean=15.53, SD=4.21) with a statistical significance ($p<0.05$). Male students had a lower level of emotional exhaustion than females did. The *t*-test analyses indicated that cynicism and reduced academic efficacy did not show statistically significant differences with respect to gender (Table 2).

Table 1
Demographic charecteristics.

Variable	*n* (%)
Age group (years)	
17-22	317 (69.2)
23-24	88 (19.2)
≥25	53 (11.6)
Gender	
Female	153 (33.4)
Male	305 (66.6)
Accomodation	
Alone	199 (43.5)
Residence or family	259 (56.5)
Grade level	
1st	113 (24.7)
2nd	151 (33.0)
3rd	57 (12.4)
4th	68 (14.9)
5th	69 (15.0)

Students living alone had statistically significant higher level of emotional exhaustion (mean=19.54, SD=4.38) than those living with parents or in house/university residence with friends (mean=14.32, SD=3.21) ($p<0.05$). The *t*-test analyses indicated that cynicism and reduced academic efficacy did not show a statistically significant difference with respect to accommodation.

Burnout-year level relationship

Statistically significant differences were found between year level and subscales (emotional exhaustion, cynicism, and reduced academic efficacy) of MBI-SV. Emotional exhaustion, cynicism, and reduced academic efficacy were rated as high for all years but the 4th and 5th Year group appeared to be at greater risk for burnout compared with the other groups.

There were statistically significant differences among 4th and 5th Years compared with 1st, 2nd, 3rd Years for emotional exhaustion ($p<0.05$) and decreased academic efficacy ($p<0.05$). The emotional exhaustion level of the 4th and 5th Years (mean =25.43, SD=4.87; mean=25.36, SD=4.64) were higher than the 1st Year (mean=19.32, SD=5.43), 2nd Year (mean=21.34, SD=5.68) and 3rd Year (mean=22.38, SD=4.73) students.

Additionally, cynicism scores of 4th and 5th Years students (mean=23.54, SD=5.37; mean=23.32, SD=6.27) were higher than the 1st, 2nd and 3rd Year students ($p<0.05$). Furthermore, reduced academic efficacy level of the 1st (mean=23.23, SD=4.34), 2nd Year (mean=24.54, SD=4.23), and 3rd Year (mean=18.43, SD=4.43) students were higher than the 4th Year (mean=18.74, SD=5.48) and 5th Year (mean=18.21, SD=4.74) Year students ($p<0.05$), (Table 2).

Relationship between burnout and occupational participation

Table 3 shows the top activities that limit the students' activity participation that were selected by students. Total occupational performance scores were 4.91±2.11, 3.21±1.23, 4.52±2.12, 5.32±2.12, and 3.11±1.25, while total occupational satisfaction scores were 2.11±1.10, 3.12±0.23, 4.13±1.32, 4.28±1.12, and 2.99±1.14 for 1st, 2nd, 3rd, 4th, and 5th Years, respectively.

No differences between the years were found in occupational satisfaction and occupational participation score ($p>0.05$), (Table 3). Additionally, the common activities that limit the activity participation of the students were: lack of effective lectures and home atmosphere, and failing a course for 1st Year; difficulty of learning manual skills falling for 2nd Year; lack of practice and decision making for 3rd Year; difficulties of learning clinical procedures and cooperation problems for 4th Year and lack of relaxation, difficul-

Table 2
Burnout scores of MBI-SV according to demographic characteristics.

Variable	Burnout/MBI-SV		
	Emotional exhaustion (X±SD)	Cynicism (X±SD)	Reduced academic efficacy (X±SD)
Age group (years)			
17-22	17.23±4.98	13.74±7.52	14.32±4.59
23-24	12.27±5.62	12.88±6.54	13.27±5.62
≥25	13.47±4.12	13.31±6.32	15.47±3.21
	t=2.61; p=0.002[a]	t=2.13; p=0.08	t=3.52; p=0.09
Gender			
Female	18.46±4.37	16.23±2.53	17.64±6.34
Male	15.53±4.21	14.43±4.32	16.68±5.74
	t=3.29; p=0.04[a]	t=4.85; p=0.09	t=3.16; p=0.07
Accomodation			
Alone	19.54±4.38	19.43±4.32	20.21±5.32
Residence or family	14.32±3.21	19.76±3.57	19.78±6.43
	t=3.87; p=0.001[a]	t=4.67, p=0.83	t=3.54; p=0.69
Grade level			
1st	19.32±5.43	15.35±2.32	23.23±4.34
2nd	21.34±5.68	14.25±5.65	24.54±4.23
3rd	22.38±4.73	16.37±2.34	18.54±4.43
4th	25.43±4.87	23.54±5.37	18.74±5.48
5th	25.36±4.64	23.32±6.27	18.21±4.74
	t=3.63, p=0.02[a]	t=5.92, p=0.056	t=5.37, p=0.002[a]

[a]p<0.05; X±SD, mean±standart deviation.

ties in cooperation with patients and fear of post-graduate education for 5th Year students.

Table 4 presents the correlations between burnout subscales and occupational participation subscales. Occupational performance and occupational satisfaction scores were inversely correlated with emotional exhaustion and cynicism while positively correlated with academic efficacy score (p<0.05).

DISCUSSION

Occupational participation, as being the opposite of burnout, can be described as the capacity to choose, organize, and also to satisfactorily perform meaningful activities in the three core areas of daily living activities: (1) self-care, which can be defined as to look after oneself; (2) leisure time activities, which is needed to enjoy life; and (3) productivity activities, which are subscribe to survive the social and economic characteristics of a community (Hultqvist *et al*, 2015). Balance between the activity performance and satisfaction levels of these three activity areas is vital for occupational participation and wellbeing (Hancock *et al*, 2015; Hultqvist *et al*, 2015).

The results of the present study suggested that approximately 25%, 18%, and 14% of the students had complaints concerning emotional exhaustion, cynicism, and reduced academic efficacy, respec-

Table 3
Occupational performance and satisfaction scores of COPM.

Grade level	Occupational participation (COPM)	
	Occupational pefromance (X±SD)	Occupational satisfaction (X±SD)
1st	4.91±2.11	2.11±1.10
2nd	3.21±1.23	3.12±0.23
3rd	4.52±2.12	4.13±1.32
4th	5.32±2.12	4.28±1.12
5th	3.11±1.25	2.99±1.14
	t=3.12, p=0.06	t=3.21, p=0.07

X±SD, mean±standard deviation.

Table 4
Correlations between burnout and occupational participation.

Variable	1	2	3	4	5
1. Emotional exhaustion	1.0				
2. Cynicism	0.914[a]	1.0			
3. Reduced academic efficacy	-0.933[a]	-0.814[a]	1.0		
4. Performance score	-0.712[a]	-0.624[a]	0.842[a]	1.0	
5. Satisfaction score	-0.675[a]	-0.713[a]	0.724[a]	0.978[a]	1.0

[a]p<0.05

tively; and 26% of the students showed burnout from low-to–high levels. These findings appear to be consistent with recent studies that support high levels of burnout in dental students (Badran *et al*, 2010; Ahmad *et al*, 2011; Atalayin *et al*, 2015).

The results of the present study suggested that students living alone have higher emotional exhaustion than those living with parents or in university residences. This finding is consistent with previous research that reported higher emotional exhaustion in dental students living alone. According to previous findings of previous research, students living alone may experience greater burnout compared with those living with parents. Additionally, findings on social support are negatively correlated with burnout in university students (Humphris *et al*, 2002; Jacobs and Dodd, 2003; Atalayin *et al*, 2015). The findings on higher burnout level in those students living alone may be related to accommodation differences which can be associated with increased level of stress and lack of social support.

Female dental students also had higher levels of emotional exhaustion compared with male students. These results support previous research indicating female dental students are more emotionally exhausted than male dental students are (Gorter *et al*, 2008; Atalayin *et al*, 2015). The reason of these results could be related to emotional and stress differences between genders.

The level of burnout could change with respect to the dental students; the

results of the study indicated that the first grade students reported a lower level of academic efficacy, which is in line with previous findings (Silverstein and Kritz-Silverstein, 2010). This result may be associated with insufficient preclinical qualification and skills with new living environment. Fourth and Fifth Year students reported a higher level of emotional exhaustion, which can be associated with burnout, and this finding is supported by the literature (Atalayin *et al*, 2015). This finding is also consistent with the previous researches, which reported higher emotional exhaustion in the following years of dental education (Atalayin *et al*, 2015; Wilson *et al*, 2015). The increased patient contact and work overload causing stress with academic expectations and decrease in occupational participation level in the clinical period may be related to increased emotional exhaustion in the fourth and fifth grade level of dental students.

The high scores of the cynicism of 4th and 5th Years suggested burnout with high emotional exhaustion but without a significant difference (p=0.056). This finding is not similar to recent literature, which supports direct correlations between emotional exhaustion and cynicism (Atalayin *et al*, 2015). As all year students have different levels of burnout, these findings suggest the importance of preventing the dental students from burnout in every year of the dental education using different approaches. Otherwise, dental students and also newly graduated dentists will emerge with burnout in their early professional lives.

According to the present study, occupational performance and occupational satisfaction scores of the students were low, and 24% of the students showed occupational participation limitations. The literature indicates that participation and satisfaction scores of ≥7 indicate a high level of occupational participation, which can help to increase wellbeing, while scores <5 indicate occupational participation limitations (Law *et al*, 1998) (Table 3). The results showed that there was no statistically significant difference between scores for the occupational participation of each year, which indicated that all the students reported occupational participation limitations.

Our results suggested a high correlation between subscales of student burnout and occupational participation; subscales that support levels of occupational performance and occupational satisfaction can affect student's level of burnout. According to the activities reported by the students during the initial years of dental education, reduced academic efficacy can be related to academic workload. In the clinical period, emotional exhaustion can be related to patient contact, which is thought to play an important role in occupational participation as the evidence of burnout in dental students. Consistent with the literature, the reason for high correlations between burnout and occupational participation are the wellbeing component. Because burnout and engagement/participation are two indicators of wellbeing (Olwage and Mostert, 2014), and as occupational participation analysis give information on wellbeing, it is thought that it can also give idea on identification of burnout in dental students.

Our study had some limitations. First, the students who were not attending the lectures regularly would not have had the opportunity to participate the study. But, the participant rate of the study was more than the other studies in the literature (Peker *et al*, 2009; Atalayin *et al*, 2015; Wilson *et al*, 2015). Second, while the num-

ber of participants was sufficient for the statistical analysis, the data were gathered from one university; therefore the results cannot be generalized to whole of dental education in Turkey. Also, the data were gathered at one point in time, and this limits assess to changes in variables over time. Third, the students participated the study voluntarily and answered questions anonymously. However, even with these limitations, to the best of our knowledge, this is the first study about the risk of burnout in dental students from occupational therapy view.

The results of the present study indicated that a group of Turkish dental student indicated considerable levels of burnout and occupational participation limitation in each year of their education. Levels of burnout can be related to level of occupational participation among dental students. It is important to keep in mind that dental students who have complains about occupational participation can be facing burnout.

The results of the present study demonstrated the importance of creating and raising awareness of students, academic dental staff, and the community on burnout, occupational participation, and their effects on dental students. The observations from the student could be important for academic dental staff to understand students' needs and refer them to mental health practitioners, such as psychiatrists, psychologists, or occupational therapists. Academic staff should work on revising or developing new student-centered curriculums for dental education that give students opportunities to gain theoretical and practical skills/knowledge and self-management skills to prevent burnout and occupational participation limitations. Enrichment of education programs with different psychological strategies, such as interdisciplinary student-centered self-management skills education programs, including time use, stress management, and relaxing techniques with occupational participation and occupational balance education may be useful to provide more compatible dental education and improve the quality of oral and dental health services in Turkey.

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