



ORIGINAL ARTICLE

Association between burnout and depressive symptoms among Turkish dentists



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KEYWORDS

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Abstract *Background/purpose:* Health care professionals including dentists can experience increased professional burnout. The aim of the study was to evaluate the association between depressive symptoms and burnout among Turkish dentists.

Materials and methods: This study was conducted among a Turkish dentist sample in Ankara (Turkey) between February 2015 and August 2015. From a total of 500 dentists, 337 were included. A self-structured questionnaire, Maslach Burnout Inventory (MBI), and Beck Depression Inventory (BDI) were completed by the participants. The Student *t* test or analysis of variance was used to compare the variables.

Results: A total of 337 dentists (162 female dentists; mean age of participants 36 ± 4.45 years) participated in this study. Age, sex, professional status, years in profession, sector, and number of patients seen/d were factors affecting level of burnout ($P < 0.05$); 29% of the participants showed burnout and 22.2% showed depressive symptoms. Participants showed increase in emotional exhaustion (38%), increase in depersonalization (22%), and decrease in personal accomplishment (12%). The mean score of BDI significantly correlated with those of the MBI subscales ($P < 0.05$). All items of BDI except weight loss, irritability, and loss of appetite significantly correlated with MBI subscores ($P < 0.05$).

Conclusion: Dentists may face burnout and depressive symptoms during their professional life. Increased burnout level can give an idea on depressive symptoms, and may provide an opportunity to identify depression earlier. Creating and raising awareness about burnout are important to avoid and prevent depression among dentists. Further longitudinal studies analyzing the effects of

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interdisciplinary client-centered self-management programs for dentists on depressive symptoms and burnout must be planned.

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Introduction

Several studies have suggested that many professionals including dentists can experience increased professional burnout, which is a syndrome characterized by emotional exhaustion (enthusiasm for work), depersonalization (feelings of cynicism), and a low sense of personal accomplishment.^{1,2} Many researchers have analyzed the relationship between burnout syndrome and depressive symptoms and concluded that depressive symptoms and burnout do not arise from the same situation and are different conditions; however, these researchers have noted that the emotional exhaustion component is positively related to depression.³ Besides, some studies on health care professionals such as doctors, nurses, and physical therapists have concluded that although burnout and depression are different, they are closely related factors that affect the life of a health care professional.^{4–6} In addition, some studies have indicated that items of burnout have reciprocal relationships with depressive symptoms.^{1,7,8} Furthermore, some studies have proved that burnout is associated with psychological and physical diversities.^{8,9} Findings of recent studies suggest that depressive symptoms, such as depression, anxiety, broken relationships, problematic alcohol use, and suicidal ideation, have adverse personal consequences for dentists and dental students in certain situations.^{10,11} These symptoms, which may be due to increased burnout level, may decrease professionalism, restrict the quality of care, increase the risk of medical errors, and promote early retirement.^{11,12}

According to literature sources, only limited studies are available on the inter-relationships between burnout and depressive symptoms among dentists.^{3,7} Thus, the aim of this study was to (1) assess the prevalence of burnout among dentists, (2) compare the levels of burnout with respect to demographic characteristics among dentists, (3) assess the level of depressive symptoms among dentists, and (4) analyze the relationship between burnout and depressive symptoms among dentists.

Materials and methods

Members of the Ankara Dentists Association were selected as the study population. A total of 500 dentists registered in the Ankara Dentists Association were sent an e-mail, which included an invitational letter for study participation that also provided information about the study, and an informed consent form. An occupational therapist visited the dentists who agreed to participate in the study, and gave them information about the study aims and implementation process. The study period was from March 2015 to September 2015. During the visit, each participant (dentist) was asked

to fill in his/her demographic characteristics and complete the evaluation tests individually with the occupational therapist. A group of occupational therapists scored the evaluation tests. The occupational therapists were educated about implementing the tests; additionally, their inter-rater consistency was also evaluated (once in every 10 tests' scoring). Eligible population included dentists practicing for at least 1 year and having patient contact for at least 6 months. Dentists having vacation for more than 1 month, having psychological problems, or undergoing therapies (e.g., medication, psychotherapy) in the last 6 months were excluded from analysis. The data were coded and an independent group of therapists without knowing the aim of the study rechecked the 25% of the data. There were no wrongly coded data. The study protocol was designed according to the Principles of the Declaration of Helsinki and approved by the Institutional Review Board of Hacettepe University (Research No. GO 15/49), and there was no conflict of interest.

We collected the following demographic characteristics of the study participants: age, sex, professional status (only dentist or dentist with a doctoral degree), date of graduation, number of years working with patients, health sector (public or private), number of patients seen/d, and working shifts. The Maslach Burnout Inventory (MBI) scale was used to evaluate burnout and the Beck Depression Inventory (BDI) scale was used to assess depressive symptoms.

Although the concept of "burnout" is a topic of great interest among researchers, only limited information is available in this subject area to guide experimental research. The MBI scale has been recognized as the leading measure of burnout. MBI has been further enhanced to measure the perception of burnout from three defined groups with regard to the individuals' job and the people with whom they closely interact. These three instruments are as follows: MBI-Human Services Survey, MBI-Educators Survey, and MBI-General Survey. The MBI was adapted to Turkish by Ergin.¹³ The Turkish version is a validated 22-item questionnaire, which uses a 5-point Likert scale for responses (0 = never to 4 = always).¹³ The MBI addresses the following three subscales: (1) emotional exhaustion (9 items), which measures feelings of being emotionally overextended and exhausted due to work; (2) depersonalization (5 items), which measures the unfeeling and impersonal response toward recipients of one's service and care treatment; and (3) personal accomplishment (8 items), which measures one's successful achievement and competency at work. Increased scores on emotional exhaustion and depersonalization and decreased scores on personal accomplishment subscales indicate *burnout*. Summative total scores and independent subscale scores are calculated for each subset. A reliability analysis of the Turkish version of MBI indicated that it is a reliable

instrument with a high internal consistency (Cronbach $\alpha = 0.81$ for emotional exhaustion; 0.70 for depersonalization, and 0.73 for personal accomplishment subscales).¹³

The BDI scale has been used to screen for depression and has already been tested and validated. BDI is a self-report questionnaire, which includes 21 items that are rated on a 4-point scale between 0 and 3.¹⁴ The cutoff point is 17. It is a subjective scale and is used only for screening purpose; thus, further evaluation is necessary to confirm the diagnosis.^{14,15} In this study, this scale was used to screen participants for depression based on their self-report. The incidence and the severity of depressive symptoms were also evaluated using the BDI scale. A sum score is then calculated for the depressive symptoms. Depressive symptoms were categorized as follows: no symptoms (0–4 points), mild symptoms (5–7 points), moderate symptoms (8–15 points), and severe symptoms (16–39 points). Depression was categorized as follows: no symptoms, mild symptoms, moderate symptoms, or severe symptoms. The BDI scale was previously tested among Turkish samples and its cross-cultural application was evaluated in 1986 and 1988.^{14,15} In this study, dentists with an alcohol intake of at least once in the past 6 months were considered *alcohol user*; the dentists who were having any family problems were considered also. *Addiction* was defined as the repeated use of a psychoactive substance or substances including alcohol, drug, or any other preferred substance to the extent that the individual is periodically or chronically intoxicated.

Statistical analysis

The data were coded and analyzed using SPSS version 20 (SPSS Inc., Chicago, IL, USA).¹⁶ To evaluate statistical significance and identify the relationships among the variables, simple descriptive statistics, *t* test correlation analysis, and analysis of variance were used. Mean scores were calculated for the three scales of the MBI and for the BDI scales. The MBI scores were analyzed according to age, sex, marital status, professional status, years in profession, sector, number of patients seen/d, and working shifts. The relation between burnout and depression was investigated according to the three categories of burnout. Correlations between subscales of MBI and items of BDI were then evaluated. A *P* value < 0.05 was taken to be significant.

Results

A total of 500 invitation letters were sent, of which 380 responded (response rate 76%). Among these 380 dentists, 357 indicated that they would like to participate in this study. The remaining 23 stated that they did not want to participate. However, among the 357 dentists, 20 were not eligible for this study, and thus were excluded. Thus, a total of 337 dentists participated in this study. [Table 1](#) presents the demographic characteristics of the study group.

Based on the scores for each dimension of burnout, 29% of the sample showed symptoms of burnout, 38% of dentists showed increased emotional exhaustion, 22% showed

Table 1 Demographic characteristics of the participants.

| | N | % |
|---------------------------|-----|-------|
| Age group (y) | | |
| ≤25 | 41 | 12.46 |
| 26–35 | 79 | 23.44 |
| 36–45 | 72 | 21.37 |
| 46–55 | 69 | 20.47 |
| 56–65 | 76 | 22.55 |
| Sex | | |
| Female | 162 | 48.07 |
| Male | 175 | 51.92 |
| Marital status | | |
| Married | 263 | 78.04 |
| Single | 74 | 21.90 |
| Professional status | | |
| Dentist | 213 | 63.20 |
| Dentist-D | 124 | 36.79 |
| Years in profession (y) | | |
| 1–10 | 89 | 26.40 |
| 11–20 | 82 | 24.33 |
| 21–30 | 79 | 23.44 |
| >30 | 87 | 25.81 |
| Sector | | |
| Public | 195 | 57.86 |
| Private | 142 | 42.13 |
| Number of patients seen/d | | |
| ≤10 | 92 | 27.29 |
| 11–20 | 179 | 53.11 |
| ≥21 | 66 | 19.58 |
| Working hours/wk | | |
| ≤10 | 82 | 24.33 |
| 10–20 | 29 | 8.60 |
| 20–40 | 170 | 50.44 |
| ≥40 | 56 | 16.61 |
| Working in shifts | | |
| No | 189 | 56.08 |
| Yes | 148 | 43.91 |

Dentist-D = dentist with a doctoral degree.

increased depersonalization, and only 12% showed decreased personal accomplishment.

Statistically significant sex and age differences were found for depersonalization and emotional exhaustion subscales ([Table 2](#)). Women showed increased emotional exhaustion, whereas men showed increased depersonalization (*P* < 0.05). The dentists in the 36–45-year age group were the most emotionally exhausted group, whereas those in the 46–55-year age group showed the most increased depersonalization symptom scores (*P* < 0.05). Moreover, dentists with a doctoral degree showed statistically significant increased emotional exhaustion (*P* < 0.05). Similarly, not being a specialist dentist was associated with decreased personal accomplishment (*P* < 0.05; [Table 2](#)). Most dentists with 15–20 years of experience suffered from increased emotional exhaustion and lower levels of personal accomplishment (*P* < 0.05; [Table 2](#)). Dentists working in the public sector showed increased levels of burnout than dentists working in the private sector. Increased emotional exhaustion and depersonalization were more common among dentists working in the public sector ([Table 2](#)). We

Table 2 Mean burnout scores according to Maslach Burnout Inventory.

| | Emotional exhaustion | Depersonalization | Personal accomplishment |
|---------------------------|-------------------------|-------------------------|-------------------------|
| Age group (y) | | | |
| ≤25 | 24.12 (3.26) | 12.31 (5.12) | 26.43 (2.16) |
| 26–35 | 25.52 (2.71) | 11.42 (4.32) | 27.34 (6.75) |
| 36–45 | 28.93 (4.52) | 13.28 (7.43) | 29.44 (5.32) |
| 46–55 | 24.63 (3.54) | 17.32 (5.63) | 28.12 (5.43) |
| 56–65 | 25.52 (4.32) | 14.21 (4.83) | 27.34 (5.45) |
| | $F = 4.51; P = 0.002 *$ | $F = 4.34; P = 0.003 *$ | $F = 4.53; P = 0.007$ |
| Sex | | | |
| Female | 29.21 (3.11) | 11.21 (2.14) | 26.32 (3.42) |
| Male | 25.32 (4.25) | 18.53 (2.38) | 27.34 (4.71) |
| | $t = 2.34; P = 0.001 *$ | $t = 3.62; P = 0.003 *$ | $t = 1.33; P = 0.831$ |
| Marital status | | | |
| Married | 27.21 (3.52) | 11.72 (2.34) | 28.31 (4.32) |
| Single | 25.34 (2.34) | 13.42 (3.43) | 25.32 (4.56) |
| | $t = 2.31; P = 0.06$ | $t = 1.41; P = 0.92$ | $t = 2.34; P = 0.09$ |
| Professional status | | | |
| Dentist | 28.41 (4.38) | 12.42 (3.51) | 25.25 (3.21) |
| Dentist-D | 25.31 (2.11) | 13.62 (3.12) | 22.43 (2.41) |
| | $t = 2.51; P = 0.001 *$ | $t = 1.52; P = 0.21$ | $t = 3.62; P = 0.02 *$ |
| Years in profession (y) | | | |
| 1–10 | 25.32 (4.57) | 11.43 (3.21) | 24.72 (3.23) |
| 11–20 | 29.67 (4.35) | 12.32 (2.15) | 21.29 (3.98) |
| 21–30 | 27.99 (5.63) | 14.63 (4.29) | 24.24 (2.23) |
| >30 | 28.81 (4.63) | 17.54 (3.45) | 23.63 (3.23) |
| | $F = 3.12; P = 0.003 *$ | $F = 3.52; P = 0.28$ | $F = 3.62; P = 0.002 *$ |
| Sector | | | |
| Public | 28.54 (4.32) | 17.34 (3.24) | 25.43 (4.34) |
| Private | 24.4 (3.43) | 14.32 (4.25) | 21.32 (4.54) |
| | $t = 3.21; P = 0.002 *$ | $t = 2.59; P = 0.004 *$ | $t = 3.68; P = 0.15$ |
| Number of patients seen/d | | | |
| ≤10 | 26.53 (4.23) | 12.23 (2.33) | 29.45 (4.34) |
| 11–20 | 29.94 (4.32) | 12.21 (2.62) | 31.23 (3.23) |
| ≥21 | 29.83 (5.72) | 13.33 (3.22) | 28.32 (4.23) |
| | $t = 3.0; P = 0.003 *$ | $t = 1.23; P = 0.62$ | $t = 2.38; P = 0.92$ |
| Working in shifts | | | |
| No | 27.43 (4.34) | 17.34 (4.39) | 24.34 (2.45) |
| Yes | 28.74 (3.23) | 18.45 (4.74) | 26.43 (3.45) |
| | $t = 1.34; P = 0.11$ | $t = 1.63; P = 0.32$ | $t = 2.34; P = 0.62$ |

All data are presented as means (X) and standard deviation (SD).

* $P < 0.05$.

Dentist-D = dentist with a doctoral degree.

did not identify any statistically significant difference between dentists working and not working in shifts ($P > 0.05$); however, the number of patients seen/d was significantly associated with increased levels of emotional exhaustion and depersonalization ($P < 0.05$; Table 2).

The total mean score of BDI was 13.32 ± 8.51 . As much as 22.2% of the dentists were in the depressive group with 17 treated as a cutoff point for depression. Some demographic variables showed significant association with depression symptoms ($P < 0.05$; Table 3). Sex, number of patients seen/d, and the health sector in which the dentist worked were significantly correlated with the mean BDI score ($P < 0.05$). Almost all BDI items, except for irritability, loss of appetite, and weight loss, were significantly associated with the MBI subscales ($P > 0.05$; Table 4).

Table 3 Mean depressive symptom scores according to Beck Depression Inventory ($P < 0.05$).

| | N | % | X (SD) |
|-------------|-----|------|------------------|
| No | 88 | 26.1 | 2.54 (1.26) |
| Mild | 76 | 22.4 | 6.31 (1.31) |
| Moderate | 99 | 29.3 | 13.45 (3.32) |
| Severe | 74 | 22.2 | 30.43 (4.32) |
| Total score | 337 | 100 | 13.32 ± 8.51 |

Data in the last column are presented as means (X) and standard deviation (SD).

Table 4 Correlation matrix between Beck Depression Inventory item mean scores and the mean scores of Maslach Burnout Inventory subscales.

| Beck Depression Inventory item | Emotional exhaustion | Depersonalization | Personal accomplishment |
|---|----------------------|-------------------|-------------------------|
| Mood | 0.354 * | 0.355 * | 0.141 * |
| Pessimism | 0.412 * | 0.321 * | 0.214 * |
| Sense of failure | 0.312 * | 0.221 * | 0.151 * |
| Lack of satisfaction | 0.414 * | 0.214 * | 0.112 * |
| Guilty feeling | 0.47 * | 0.324 * | 0.341 * |
| Sense of punishment | 0.304 * | 0.214 * | 0.109 * |
| Self-hate | 0.347 * | 0.254 * | 0.204 * |
| Self-accusations | 0.312 * | 0.216 * | 0.214 * |
| Self-punitive wishes | 0.314 * | 0.215 * | 0.231 * |
| Crying spells | 0.345 * | 0.266 * | 0.257 * |
| Irritability | 0.168 | 0.84 | 0.82 |
| Social withdrawal | 0.369 * | 0.247 * | 0.284 * |
| Indecisiveness | 0.311 * | 0.134 * | 0.287 * |
| Body image | 0.345 * | 0.284 * | 0.215 * |
| Work inhibition | 0.344 * | 0.231 * | 0.247 * |
| Sleep disturbance | 0.315 * | 0.194 * | 0.105 * |
| Fatigability | 0.347 * | 0.212 * | 0.201 * |
| Loss of appetite | 0.30 | 0.014 | 0.102 |
| Weight loss | -0.47 | 0.71 | 0.45 |
| Somatic preoccupation | 0.314 * | 0.114 * | 0.212 * |
| Loss of libido | 0.371 * | 0.216 * | 0.219 * |
| Total Beck Depression Inventory scale score | 0.312 * | 0.111 * | 0.231 * |

* Correlation is significant at the 0.01 level (two tailed).

Discussion

This study was designed to analyze the complex relationships between depressive symptoms and burnout among a sample of dentists in Turkey. Our results show that approximately 38%, 22%, and 12% of the study population experienced emotional exhaustion, depersonalization, and reduced academic efficacy, respectively. In addition, 29% of the dentists suffered from burnout. These findings are consistent with recent studies suggesting a high level of burnout among dentists.^{7,17–19} Furthermore, the burnout level of our study group is higher than that noted among dentists in Europe and the United States.

Our results were similar to those reported by Singh et al,¹¹ Ruijter et al,²⁰ and Jin et al,²¹ where sex differences in dentists were found to be significant. Consistent with previous studies, the mean emotional exhaustion score of female dentists was significantly higher than that of male dentists; however, the depersonalization score of male dentists was significantly higher than that of female dentists. Nevertheless, in our study, sex difference was a nonsignificant variable for personal accomplishment, as supported by the studies of Singh et al¹¹ and Jin et al.²¹ The primary reason for this is the emotional differences between sexes. The secondary reason could be the Turkish cultural structure, where women in addition to their professional life are given the responsibilities of house care and family life, which might have caused the increase in stress levels and burnout in female dentists more than in male dentists.

Dentists with a doctoral degree were more emotionally exhausted than those without one. This result is consistent with previous studies and it is thought that higher education levels may have increased the expectations and decreased the satisfaction level.^{17,19,22–24} Moreover, consistent with the results reported previously, dentists without a specialty showed more personal accomplishment than the ones with a doctoral degree. Thus, it is thought that practicing as a regular dentist limits the clinical practice, which requires higher qualifications, and this might have resulted in burnout due to reduced personal accomplishment.^{24–26}

Consistent with the previous studies, dentists working in the public sector faced more emotional exhaustion and depersonalization than those working in the private sector.^{17,18,20,23} Dentists working in the public sector in Turkey often see more than 15 patients/d without relaxation in a limited physical environment and clinical setting.²⁶ Furthermore, our results support those of the previous studies regarding the differences among dental care sectors in Turkey.^{26–28} In addition, the increased number of patients seen/d was significantly associated with increased level of depersonalization and emotional exhaustion ($P < 0.05$). It is thought that increased repetitive tasks and monotony of the working area, decrease in the quality of professional practice, and increase in the risk of medical errors in a limited environment can increase depressive symptoms and burnout level with respect to increase in emotional exhaustion and depersonalization of dentists in the public sector.

The mean score for BDI was 13.32 ± 8.51 , and 22.2% of the dentists in this study belonged to the depressive group. These results were consistent with previous studies, but slightly higher than those from dentists in Europe and United States.^{7,9,12,22} This could be due to the high number of patients seen/d and the absence of socioeconomic status; besides, an unsupportive environment in the local context can increase depressive symptoms.^{7,29–33}

In our sample, depressive symptoms were more common in female dentists.^{7,30–33} Some previous studies also reported similar results among female dentists in Germany, Greece, United States, Spain, and Brazil.^{29,32,34} These results indicate that women have a significantly higher prevalence of depression compared with men. This is due to the emotional differences between the two sexes and the aforementioned cultural responsibilities of Turkish women.

The dentists working in the public sector showed more depressive symptoms than the ones in the private sector. This result is consistent with previous studies, which also showed a higher incidence of depression for dentists working in the public sector in Europe and United States.^{7,9,12,22} Furthermore, an increase in the number of patients seen/d may have also increased the depressive symptoms of our study population. Similar to previous studies, it is thought that the increased number of patients seen/d may be a reason for increase in depressive symptoms among dentists working in the public sector.^{7,30,32–34}

Consistent with the previous studies, our results demonstrated a strong correlation between depressive symptoms and the subscales of burnout.^{3,8,10,24,30–32} The Emotional Exhaustion subscale of burnout is thought to have the highest relationship with depressive symptoms, as reported previously.^{3,8,31–33} Our results also support the fact that burnout and depression were not correlated with irritability, weight loss, and loss of appetite. Therefore, this result is consistent with the literature reports and may remind the increased impact of noradrenergic system in burnout and the increased role of serotonergic system in depression.³⁵ Thus, it is still possible for dentists to protect themselves and their bodies from deeper effects of depressive symptoms by following certain practices.

Our study had some several limitations. First, we could not reach out to dentists whose information was not updated by the Ankara Dentists Association, and thus, they were not provided the opportunity to participate in this study. However, compared with other similar studies, the participant rate of our study was much higher. Second, the number of participants enrolled in the study was sufficient for performing statistical analysis, but because the study design was cross sectional, assessing the changes in variables during different periods was limited. Third, data were gathered from only one city in Turkey, and therefore, the results cannot be generalized to all cities of Turkey, which have different sociocultural structures. Finally, the dentists participated only voluntarily in the study and answered questions anonymously.

In conclusion, our study results reveal a considerable level of burnout and depressive symptoms among a sample of dentists in Turkey; additionally, our results suggest a strong relationship between burnout and depressive symptoms in this population. In our sample, the prevalence of burnout was found to be higher than that of depression, and

thus, dentists still have hope and chance to protect themselves and their bodies from deeper effects of depressive symptoms.

Our study demonstrated the importance of creating and raising awareness about burnout in dentists. Interdisciplinary client-centered self-management training programs including time use, stress management, and relaxation techniques may be helpful to provide and protect dentists from burnout and depressive symptoms; additionally, life-long learning about managing burnout and depressive symptoms may well improve the quality of oral and dental health services in Turkey. Further longitudinal studies analyzing the effects of interdisciplinary client-centered self-management training programs on depressive symptoms and burnout in dentists must be planned.

Conflicts of interest

The authors have no conflict of interests, and this work was not supported nor funded by any company.

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