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Identifying Factors Affecting Burnout Syndrome and Depression Among Dentists Working in Different Institutions

Levent CİĞERİM [1]*, Zeynep Dilan ORHAN [2], İbrahim DOĞRU [3], Nazlı Hilal KAHRAMAN [4], Abdalrahim HUSSEİN [5] and Hayrettin BAŞ [6]

[1] Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, University of Van Yuzuncu Yil, 65090, Van, Turkey; levent139@hotmail.com
[2] Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, University of Van Yuzuncu Yil, 65090, Van, Turkey; zeynepdilanorhan@gmail.com
[3] Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, University of Van Yuzuncu Yil, 65090, Van, Turkey; dt.ibrahimdogru@gmail.com
[4] Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, University of Van Yuzuncu Yil, 65090, Van, Turkey; nazliiihilalkahraman@gmail.com
[5] Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, University of Van Yuzuncu Yil, 65090, Van, Turkey; abd1994d@gmail.com
[6] Department of Oral and Maxillofacial Surgery, Faculty of Dentistry, University of Van Yuzuncu Yil, 65090, Van, Turkey; dthayrettinbas@gmail.com
* Correspondence: levent139@hotmail.com ; Tel.: (+90 532 163 3287)

Abstract: Background and Objectives: The aim of this study was to determine the job-related and individual features that influence BS and depression levels among dentists working in faculties, oral and dental health centres (ODHC) and private clinics. Materials and Methods: This prospective, cross sectional study was carried out on dentists working in different regions of Turkey. Data were collected using an on-line questionnaire created using Google Forms. The questionnaire consisted of demographic data, Maslach BS Inventory (MBI) and Beck Depression Inventory (BDI) sections. Demographics were age, height, weight, marital status, blood type, gender, monthly income, income satisfaction and having enough free time. The dentists were divided into 3 groups as faculty, private clinic and ODHC according to the institutions in which they worked. Results: Of the total 290 dentists enrolled in the study, there were 172 males and 118 females with a mean age of 36.98±5.6 years. 128 of the dentists worked in faculties, 72 in private clinics and 90 in ODHCs. It was observed that women's EE scores were higher than men's ($P<0.05$). No statistically significant difference was found between the groups when comparing BS and depression scores according to marital status and blood group ($P>0.05$). There was no significant relationship between emotional exhaustion (EE), depersonalisation (DP), personal accomplishment (PA) and depression scores according to age, BMI and work experience, age, work experience and BMI ($P<0.05$). It was found that the EE scores of the dentists working in the faculty and private clinic were lower than those of the dentists working in the ODHC ($P<0.05$). Monthly income was associated with depression ($r = -0.35$). Conclusions: This study showed that dentists working in ODHCs had more EE. These findings suggest that there is a need for improvement in the working conditions of dentists, particularly in ODHCs.

Keywords: burnout; depression; dentist; emotional exhaustion; faculty; ODHC; private clinic; dentistry

1. Introduction

Burnout syndrome (BS) is a condition resulting from prolonged exposure to interpersonal stress factors in the workplace. It is associated with reduced job performance and often leads to various types of resignation, including absenteeism and intentions to leave the job [1]. In other words, the incapacity or the absence of resources on the part of the worker to cope with the requirements of the job's responsibilities. It is associated with problems related not only to the work situation, but also to

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other variables such as learning disabilities, learning theory, social environment and/or personality factors. In other words, even though they all work in the same environment, there are some workers who suffer from BS and some who don't. One possible mechanism by which the response of employees to a stressful work environment may be differentiated is through personality traits. It may provide a management strategy that enables individuals to obtain or preserve resources and avoid deviance, or it may increase vulnerability and susceptibility to the stress factors [2]. Emotional stability was found to be negatively connected to the main elements of BS, depersonalisation (DP) and emotional exhaustion (EE), and positively connected to personal accomplishment (PA). BS is less likely in people that are more extraverted and more stable emotionally [3]. The question of how BS differs from depression and anxiety, or whether they are complementary, has not been answered; and this is important because BS could be diagnosed incorrectly as depression and/or anxiety, resulting in incorrect treatment [4].

The researchers looked at the extent to which people who were both burnt out and depressed attributed their feelings to their jobs [4,5]. They found that the proportion of people who reported work as the cause of their BS was proportional to the number of people who reported work as the cause of their symptoms of depression[6]. This suggests there may be an intersection between depression and BS in relation to their causes. Several studies have also shown that BS is linked to depression. Inventories assessing BS, particularly EE, have been found to correlate positively with depressive symptoms [7–10]. However, it seems that not all researchers accept this view. Although BS and depression share some similarities, a number of researchers believe that BS and depression are two different phenomena and that EE has nothing in common with depression [11]. A number of studies have shown that it is not an intersection between BS and depression [12]. In fact, BS is distinct from depression. In addition, an issue that appears to be important in distinguishing BS from depression is the nature of BS, which is work-related and situation-specific, whereas depression is out-of-context and universal. This means that BS tends to be specifically related to a person's work context, whereas depression may occur regardless of context[6].

If we look at BS independently of depression, the description of work-related BS identified a range of symptoms such as physical exhaustion, EE and loss of motivation associated with a negative psychological state at work [2]. Other signs of BS were also identified. These included losing touch with family and friends, and ignoring personal commitments and hobbies in favour of work. BS has been defined as becoming unmotivated or disengaged, especially when commitment fails to produce the desired results for a purpose or relationship. Constant work can lead to BS among healthcare professionals. BS is a highly negative outcome of chronic work related stress, with negative personal, business, occupational and social consequences [9]. It is most often linked to exogenous variables that are unique to the job, though it can also have underlying causes linked to personal characteristics [6,7]. The World Health Organisation officially declared BS as a disorder following the publication of the 11th revised International Statistical Classification of Diseases and Related Health Problems. It has a negative impact on organisations, clinics and businesses, resulting in poor patient care, increased workplace absenteeism, clinical mistakes and financial losses [12,13].

Dentistry is generally associated with high levels of BS [2,14–17]. As well as care-related stress, there are elements of stress that make dental professionals more susceptible to BS. Stress factors/sources in dentistry are as follows. Work variables include patient overload, working alone, pressure to meet appointment time targets, the requirement to build a confidence and fidelity relationship with the individual, the need to ensure satisfaction with the treatment as the individual is free to choose the dentist and the dental procedure[18]. Behavioural variables include the visual, aural and kinesthetic challenges, as well as the coordination of fine motor skills. Business variables linked to the occupation are if dentist is the owner of the dental practice, control of ancillary staff, variable income. Factors related to personality include leadership style, emotional competence, commitment and flexibility of the individual[19]. The other factor is the demographic and economic variables associated with dentistry. As the number of dentists has increased in recent years, the ratio of dentists to population has decreased. This means the number of dental professionals now

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outnumbers the population served. This could have an impact on the physical and mental health of dentists, as well as on the standard and number of dentistry services they deliver [15,20].

BS is not a sudden event. It develops in stages and its severity increases in all three dimensions [11,13]. The first stage is EE.This is defined as low energy, mental and energy depletion, persistent fatigue and feelings of powerlessness. Those affected are overcome and unable to cope emotionally. The second stage is (DP). This is defined by being irritable, cynical, moody, dismissive or negative towards the recipients of one's output, emotionally distant, lacking empathy. It is a defence mechanism by which people try to prevent their feelings of frustration. The third stage is low (PA). It is defined by low self-esteem, inadequate work skills, persistent poor behaviour, poor self-perception, sense of failure, withdrawal from social interaction, mood swings and poor problem-solving skills in both work and personal life [2,3]. The relationship between BS and depression is controversial in the literature [21–23]. We believe that it would be incomplete to assess the BS status of dentists only in terms of BS. This is because a dentist who is depressed is likely to give similar answers to the questions, and both depression and BS may be present at the same time. Since these two concepts have similar characteristics, we believe that evaluating them together will help to eliminate the problems of dentists or to fill in the missing points in their treatment. Therefore, it is important to assess individual characteristics as well as work-related factors when evaluating both BS and depression. The aim of this study was to assess and determine the job-related and individual features that influence BS and depression levels among dentists working in faculties, oral and dental health centres (ODHC) and private clinics.

2. Materials and Methods

This prospective, cross sectional, study was conducted at University of Van Yuzuncu Yil, Faculty of Dentistry, Department of Oral and Maxillofacial Surgery between 15/03/2022 and 15/09/2022. The study was approved by University of Van Yuzuncu Non Interventional Clinical Research Ethics Committee (decision number: 2022/03-04). The study was conducted according to the 2013 Declaration of Helsinki. Data were collected using an on-line questionnaire created using Google Forms. The link to the survey was shared through social media and phone applications accessible to dentists. Dentists clicked on the link, accessed the survey form, and completed the form. The questionnaire settings allowed for a single entry, preventing the form from being completed again by the same dentist. The questionnaire consisted of demographic data, Maslach BS Inventory (MBI) and Beck Depression Inventory (BDI) sections. Demographics were age, height, weight, marital status, blood type, gender, monthly income, income satisfaction and having enough free time. The MBI consisted of 22 questions with 3 sub-items: emotional BS, DP and low PA. Each question had a rating on a scale of 1-5 and a total score was calculated. For emotional BS, which consisted of 9 questions, a score of 0-11 indicated low BS, 12-17 indicated moderate BS, and a score greater than 18 indicated high BS. For DP, which consisted of 5 questions, a score of 0-5 indicated low BS, 6-9 indicated moderate BS, and a score greater than 10 indicated high BS. For PA, which consisted of 8 questions, a score greater than 26 indicated low PA, 22-26 indicated moderate PA, and 0-21 indicated high PA [24]. The BDI consisted of 21 questions and the overall scoring was done by giving a score between 0-3 for each question. When the total score was evaluated, 1-10 was normal; 11-16 was moderately depressed; 17-20 was clinically depressed; 21-30 was moderately depressed; 31-63 was severely depressed [25].

Using G*Power version 3.1.9.7, the sample size of the study was calculated as 94 subjects for each group with α=0.05, effect size 80% and power 90%. It was assumed that a total of at least 284 dentists would be included in the study for 3 groups as faculty, private clinic and ODHC.

Dentists who were actively working at the faculty, ODHC or private clinic, had no systemic diseases, working minimum 40 hours per week and could take holidays were included in the study. Dentists who were supervisors or employers in the institution, who had received psychological support and/or psychiatric treatment in the previous 6 months, who had used antidepressants, anxiolytics, sedatives and hypnotics for any reason, and who completed the form incompletely were excluded from the study. During the study period, it was found that 23 of the 313 dentists who

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participated in the study on-line from different regions of Turkey and who met the inclusion criteria completed the forms incompletely and these dentists were also excluded from the study. As a result, 290 dentists were included in the study. The dentists were divided into 3 groups as faculty, private clinic and ODHC according to the institutions in which they worked.

Statistical analyses of the study were performed using SPSS version 25 software. Visual (histogram and probability plot) and analytical (Kolmogorov-Smirnov) methods were used to determine whether the data were normally distributed. Descriptive analyses were summarised using mean and standard deviation for numerical variables and numbers and percentages for categorical (nominal and ordinal) variables. Comparisons between two independent groups were made using the Independent Groups T test when variables met the assumptions of normal distribution; when data were not normally distributed, the non-parametric equivalent Mann-Whitney U test was used. Comparisons between more than two (3 or more) groups were examined using one-way ANOVA if the variable in question was normally distributed, and the Kruskal-Wallis test if it was not. In cases where the result of the One-Way ANOVA test was significant ($P<0.05$), the Tukey test, one of the post-hoc tests, was used to investigate between which two groups this difference originated. Similarly, if the result of the Kruskal-Wallis test was significant, the Mann-Whitney test was used to determine between which two sets of data this difference originated. Finally, the degree of correlation between the variables was examined using Pearson's test when the data were normally distributed and Spearman's test when the data were not normally distributed. Correlation coefficients were interpreted as follows 0.05-0.3 low or insignificant, 0.3-0.40 low moderate, 0.4-0.6 moderate, 0.6-0.7 good, 0.7-0.75 very good, 0.75-1.00 excellent correlation. A type 1 error level of 5% was used for statistical significance.

3. Results

The age of the 290 dentists included in the study, 172 (59.3%) of whom were male and 118 (40.7%) female, ranged from 21 to 49 years, with a mean age of 36.98±5.6 years. The mean BMI calculated from height and weight data was 23.52±3.6. Regarding marital status, 208 (71.7%) of the dentists were single and 82 (28.3%) were married. 128 (44.2%) of the dentists worked in faculties, 72 (24.8%) in private clinics and 90 (31%) in ODHCs. In terms of monthly income distribution, 144 of the dentists earned between $500-1000, 82 of them earned $1000-1500, 42 of them earned $1500-2000 and 22 of them earned $2000 and more. When income satisfaction was analysed, it was found that 172 of the dentists received an inadequate income, 102 of them received a partially adequate income and 16 of them received an adequate income. While 234 of the dentists answered 'no' to the question 'do you have enough free time', 56 of them answered 'yes'. Analysing the distribution of the dentists' blood groups, 102 of them belonged to group A, 76 to group 0, 56 to group B, 26 to group AB and 30 did not know their blood group (Table 1).

Table 1. Demographic Characteristics of Dentists.

		Mean±SD	Min-Max
Age		26,98±5,6	21-49
BMI		23,52±3,6	16.652-34.602
Work Experience (year)		4,72±4,5	0-25
		N	%
Gender	Male	172	59,3
	Female	118	40,7
Marital Status	Married	82	28,3
	Single	208	71,7
Institution	Faculty	128	44,2
	Private Clinic	72	24,8

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	ODHC	90	31
İncome	500-1000 $	144	49.65
	1000-1500 $	82	28.27
	1500-2000 $	42	14.48
	2000$ and over	22	7.58
Income Satisfaction	Sufficient	16	5.52
	Partly Sufficient	102	35.17
	Insufficient	172	59.31
Enough Free time	Yes	56	19.32
	No	234	80.68
Blood Group	A	102	35,2
	B	56	19,3
	AB	26	9,0
	0	76	26,2
	Unknown	30	10,3

BMI: Body Mass Index SD: Standart Deviation .

Of the 290 dentists, 266 (91.72%) had high EE, 18 (6.21%) had moderate EE and 6 (2.07%) had low EE. 192 (66.21 %) dentists had high DP, 94 (32.41 %) dentists had moderate DP and 4 (1.38 %) dentists had low DP. 220 dentists (75.87 %) had low personal achievement, 38 dentists (13.10 %) had moderate personal achievement and 32 dentists (11.03 %) had high personal achievement. The high rate of EE was 90.63% for dentists working in a faculty, 83.84% for dentists working in a private clinic and 100% for dentists working in a ODHC. The rate of high DP was 62.5% for dentists working in a faculty, 61.11% for dentists working in a private clinic and 75.56% for dentists working in a ODHC. It was observed that the rate of low personal achievement was 75% for dentists working in a faculty, 83.34% for dentists working in a private clinic and 71.11% for dentists working in a ODHC. Other distributions were shown in Table 2 (Table 2).

Table 2. Distribution of BS levels according to institution.

	EE			**Depersonalization**			**PA**		
	Low	**Moderate**	**High**	**Low**	**Moderate**	**High**	**Low**	**Moderate**	**High**
Faculty	4 (3.12[a]) (66.67[b])	8 (6.25[a]) (44.45[b])	116 (90.63[a]) (43.60[b])	4 (3.12[a]) (100[b])	44 (34.38[a]) (46.81[b])	80 (62.5[a]) (41.67[b])	96 (75[a]) (43.64[b])	14 (10.94[a]) (36.84[b])	18 (14.06[a]) (56.25[b])
Private Clinic	2 (2.77[a]) (33.33[b])	10 (13.89[a]) (55.55[b])	60 (83.34[a]) (22.56[b])	0 (0[a,b])	28 (38.89[a]) (29.79[b])	44 (61.11[a]) (22.91[b])	60 (83.34[a]) (27.27[b])	6 (8.33[a]) (15.79[b])	6 (8.33[a]) (18.75[b])
Dental Hospital	0 (0[a,b])	0 (0[a,b])	90 (100[a]) (33.84[b])	0 (0[a,b])	22 (24.44[a]) (23.40[b])	68 (75.56[a]) (35.42[b])	64 (71.11[a]) (29.09[b])	18 (20[a]) (47.37[b])	8 (8.89[a]) (25[b])
Total	6 (2.07[a])	18 (6.21[a])	266 (91.72[a])	4 (1.38[a])	94 (32.41[a])	192 (66.21[a])	220 (75.87[a])	38 (13.10[a])	32 (11.03[a])

a) intragroup distribution rate (%) b) intergroup distribution rate (%).

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Of the 290 dentists, 30 (10.34%) had severe depression, 106 (36.55%) had moderate depression, 76 (26.21%) had mild depression and 78 (26.9%) had no depression. It was observed that 12.5% of the dentists working in a faculty had severe depression and 35.94% had moderate depression, 2.77% of the dentists working in a private clinic had severe depression and 33.34% had moderate depression, 13.33% of the dentists working in a ODHC had severe depression and 40% had moderate depression. Other distributions were shown in Table 3 (Table 3).

Table 3. Distribution of depression levels according to institution.

	Depression Level			
	No	**Mild**	**Moderate**	**Severe**
Faculty	34 (26.56[a]) (43.59[b])	32 (25[a]) (42.11 [b])	46 (35.94[a]) (43.4 [b])	16 (12.5[a]) (53.34 [b])
Private Clinic	30 (41.67[a]) (38.46 [b])	16 (22.22[a]) (21.05 [b])	24 (33.34[a]) (22.64 [b])	2 (2.77[a]) (6.66 [b])
ODHC	14 (15.56[a]) (17.95 [b])	28 (31.11[a]) (36.84 [b])	36 (40[a]) (33.96 [b])	12 (13.33[a]) (40 [b])
Total	78 (26.9[a])	76 (26.21 [a])	106 (36.55 [a])	30 (10.34 [a])

a) intragroup distribution rate (%) b) intergroup distribution rate (%).

When comparing the scores of EE, DP, PA and depression by gender, it was found that there was only a difference between the groups in terms of EE. It was observed that women's EE scores were higher than men's (P<0.05). There was no difference in scores of DP, PA and depression according to gender (P>0.05) (Table 4).

Table 4. Comparison of EE, DP, Personal Achievement and Depression Scores According to Gender.

	Gender		
	Male (mean±sd)	**Female (mean±sd)**	**P**
EE	26,87±7,7	30,3±8,5	**0,013***
DP	11,93±3,7	12,52±5,4	0,94**
Personal Achievement	28,55±4,8	28,72±5,4	0,928**
Depression	16,2±11,54	17,76±12,9	0,501**

* Independent Groups T Test ** Mann-Whitney U Test P<0,05 .

When comparing the scores of EE, DP, PA and depression according to marital status, no statistically significant difference was found between the groups. The scores of EE, DP, PA and depression of married and single dentists were similar (P>0.05) (Table 5).

Table 5. Comparison of EE, DP, Personal Achievement and Depression Scores According to Marital Status.

	Marrital Status		
	Married (mean±sd)	**Single (mean±sd)**	**P**
EE	28,53±9,3	28,16±7,7	0,806*

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DP	11,9±5,1	12,3±4,3	0,368**
Personal Achievement	38,34±5,2	28,74±	0,881**
Depression	15,6±11,4	17,3±12,4	0,339**

* Independent Groups T Test ** Mann-Whitney U Test P<0,05 .

No statistically significant difference was found between scores of EE, DP, PA and depression according to blood group (P>0.05) (Table 6).

Table 6. Comparison of EE, DP, Personal Achievement and Depression Scores According to Blood Group.

	A (mean±sd)	**B (mean±sd)**	**AB (mean±sd)**	**0 (mean±sd)**	**Unknown (mean±sd)**	**P**
EE	28,5±8,3	39,5±7,2	26±7,4	27,8±8,8	26,4±8,6	0,41*
DP	12,98±4,7	12,8±4,3	10,4±2,4	11,6±5,4	11,5±2,5	0,155**
Personal Achievement	28,0±5,4	29,1±4,3	25,7±6,0	30,1±3,6	28,6±6,3	0,132**
Depression	19,1±13,9	17,9±12,9	19,3±7,3	13,8±10,6	12,7±9,2	0,15**

* One-Way ANOVA ** Kruskal-Wallis Test P<0,05 .

When EE, DP, PA and depression scores were compared according to age, BMI and work experience, there was no significant relationship between age, work experience and BMI and EE, DP, PA and depression scores (P<0.05). On the other hand, there were positive and moderate relationships between EE and depression scores (r=0.43), DP and depression scores (r=0.42) and negative and moderate relationships between PA and depression scores (r=0.5) (Table 7).

Table 7. Evaluation of the Relationship between Age, BMI, Work Experience, EE, DP, Personal Achievement and Depression Variables.

	EE	**DP**	**Personal Achievement**	**Depression**
Age	r=0,025*	r=-0,057*	r=0,036*	r=-0,165*
Work Experience	r=-0,009*	r=-0,082*	r=0,082*	r=-0,071*
BMI	r=0,043**	r=0,057*	r=0,058*	r=0,023*
EE	-	-	-	**r=0,43***
DP	-	-	-	**r=0,42***
Personal Achievement				**r=-0,5***

* Spearman Test ** Pearson Test.

In the intergroup comparisons made to investigate whether scores of EE, DP, PA and depression differed according to the institution of employment, a statistically significant difference was found only for EE (P<0.05). It was found that this difference was caused by both faculty-ODHC and private clinic-ODHC. It was found that the emotional BS scores of the dentists working in the faculty and private clinic were lower than those of the dentists working in the ODHC (P<0.05). On the other hand, no difference in EE was found between those working in faculty and private clinic (P>0.05) (Table 8).

Table 8. Comparison of EE, DP, Personal Achievement and Depression Variables According to Institution.

	Faculty	**Private Clinic**	**ODHC**	**P**

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	(mean±sd)	(mean±sd)	(mean±sd)	
EE	26,6±8,0	26,8±8,4	31,9±7,3	0,001*
DP	11,6±4,3	11,8±4,1	13,3±5,0	0,191**
Personal Achievement	28,2±5,5	29,6±4,9	28,5±4,4	0,545**
Depression	17,7±14,3	13,3±9,8	18,4±9,8	0,079**

* One-Way ANOVA ** Kruskal-Wallis Test.

When analysing the relationship between monthly income and EE, DP, PA and depression scores, it was found that there was only a relationship with depression and this relationship was negative and low moderate (r=-0.35). On the other hand, no significant relationship was found between monthly income and EE, DP and PA scores (r<0.3) (Table 9).

Table 9. Evaluation of the Relationship Between Monthly Income and EE, DP, Personal Achievement and Depression Variables.

	EE	DP	Personal Achievement	Depression
Monthly İncome	r=0,054	r=-0,013	r=0,121	r=-0,35*

* Spearman Test.

4. Discussion

BS has become increasingly common in almost all professions since the COVID-19 pandemic. It affects all health professionals, especially dentists and doctors [12]. Dentists are constantly in contact with people for professional reasons. Apart from patient-related factors, occupational, individual and other external factors affect the BS levels of dentists. When assessing BS, it can be seen that among the 3 subscales of the BS scale, EE is more related to BS, and among the levels of EE, high EE is related to BS syndrome [3]. For this reason, in this study we used the parameter of high EE as a reference when talking about BS. While the rate of EE in dentists was 0.9% in a study conducted in 2008 in Turkey, it was shown that this rate was 38% in a study conducted in 2016 and 73.5% in a study conducted in 2023 [5,26,27]. In this study, this rate was found to be 91.72%. In a study conducted in Egypt in 2022, it was reported that the rate of emotional BS was 62% [28], in a study conducted in Spain in the same year, this rate was 61.3% [2], and in a study conducted in Peru in 2020, this rate was 98.09% [17]. When these results were analysed, a dramatic increase in the prevalence of BS syndrome among dentists was observed from the past to the present, not only in Turkey but also in many other countries. The impact of COVID-19 on this increase is an undeniable fact when considered broadly on a country basis [29]. As dentists working in different regions of Turkey were included in this study, it would be appropriate to interpret our results for Turkey in general. The present study found that BS was higher among dentists working in ODHCs than among dentists working in faculties and private clinics. The BS levels of dentists working in faculties and private clinics were similar. These results support the study by Gürses et al. Gürses et al. stated that the reason for this result was the high number of patients in ODHCs [27]. We also think that one of the factors leading to this result is the high number of patients in ODHCs. In addition, we think that the presence of shifts and night shifts in ODHCs, in contrast to other institutions, is another reason for this result. Unlike dentists working in other facilities during the pandemic, the majority of dentists working in ODHMs were actively involved in COVID-19 field work, rather than providing routine dental services. They performed their duties in different working conditions to which they were not accustomed and with personal protective equipment that was difficult to adapt. For these additional reasons, we believe that the BS rate of dentists in ODCHs was higher. It is clear that these reasons we have mentioned are a source of stress and as a result, they cause BS of dentists. Apart from the unhappiness caused by

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these work-related stress factors, we think that dentists' EE increases when their expectations were not met and they were disappointed due to insufficient monthly earnings. This study found that there was a relationship between monthly income and depression levels, even at low levels. This finding supports the view that depression may also contribute to the high levels of BS among dentists with low monthly incomes, and that work-related stressors may also lead to depression.

When the relationship between BS and gender was analysed, different results were reported in the studies. Slabšinskienė et al. [16] and Huri et al. [5] reported that BS levels were higher in women. Similarly, in this study, it was found that the level of emotional BS was higher in women. In addition, DP, PA and depression levels were similar to men. We think that the higher level of emotional BS in women is due to the fact that women are more affected by work-related stress factors and physical fatigue than men. It is also possible that female dentists who are unhappy at work express their discomfort and feelings emotionally more than men. In their study, Mocny-Pachońska et al. found that the stress levels of female dental students were higher than those of males [30]. Queirolo et al. reported that patient confrontation caused more anxiety in female dentists [31]. These findings support our thoughts about high burnout in female dentists. In this study, there were no differences in BS and depression levels according to marital status, age, BMI, work experience and blood group. The fact that there were no differences between the groups according to these factors, which we can consider as single factors, i.e. the effect of the single factors was similar, suggests that the high levels of BS and depression among the dentists in the current study were due to the institution in which they work. In this study, marital status was found to have no effect on burnout, supporting the findings of Huri et al. and Radwan and Mursy [5,28]. G'omez-Polo et al, Jin et al and Kanai-Pak et al found a relationship between age and burnout and reported that younger people had higher levels of burnout [32,33]. In this study, contrary to the literature, no relationship was found between age and burnout. We believe that the main reason for this difference is the low average age of the dentists included in the study and the low number of older dentists included. Bahlaq et al. found that BMI levels of dental and medical students were associated with burnout [34]. Vasquez-Purí et al. reported that BMI had no effect on burnout levels of health professionals working in public hospitals [35]. This study found that the BMI of dentists was not associated with burnout. Slabšinskienė et al, Gorter et al and Gomez-Polo et al reported that work experience and BMI were related and that burnout was higher in dentists with less work experience [2,14,16]. In this study, contrary to the literature, no relationship was found between work experience and burnout. We believe that the reason for this difference was due to the fact that the mean work experience of the dentists included in the study was lower than in the other studies. We did not find any studies in the literature that investigated the relationship between the blood group of either dentists or healthcare workers and burnout. In this study, no relationship was found between the blood group of dentists and their burnout levels. Yadav et al showed that the most common blood group among dental students was group B [36]. In this study, the most common blood group among dentists was group A.

There is some debate about whether BS and depression are two different disorders. The fact that emotional BS can be caused by both disorders is the basis of the debate [9,10,37]. To answer the question of whether emotional BS is caused by BS syndrome or depression, we thought that both BS and depression in dentists should be assessed at the same time, so we assessed both BS and depression in this study. In their study investigating BS and depression in dentists, Huri et al. found that BS subscales, especially emotional BS, were strongly correlated with depressive outcomes [5]. In this study, emotional BS, DP and low PA of dentists were found to be correlated with depression levels, supporting the study of Huri et al. The correlation between BS and depression levels in this study suggests that, if we accept that BS syndrome reflects work-related BS, then work-related BS leads to depression, or depression prevents people from coping with work-related stressors. In either case, it is obvious that dentists will show similar results. The limitations of the study were The data in this study consists of the responses to the questionnaires at one time. If the evaluation had been carried out at 2 or more different times, the results might have been different. The fact that the dentists answered the questions at different times of the day, i.e. before, during or after work, may have influenced the results because it may have affected their current emotional state. As the dentists'

current psychological, emotional and health status may be different, this difference may have influenced the results. The presence of unrecognised BS and/or depression among the dentists participating in the study may have influenced the results.

5. Conclusions

In conclusion, this study showed that dentists working in ODHCs had more EE. Monthly income was found to be related to the level of depression, and BS and depression were also found to be related. These findings suggest that there is a need for improvement in the working conditions of dentists, particularly in ODHCs. Treatment will be more successful if it is recognised that the reasons for BS in dentists are not only work-related but also due to a general BS situation.

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Data Availability Statement: The dataset used in this study is available on request. The data is not publicly available as it contains information that could compromise the privacy of research participants.

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