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Original Article

Work-related strain and the prevalence of Burnout Syndrome in thoracic surgeons and research assistants in Turkey

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ABSTRACT

Background: Burnout syndrome (BS) is a slowly progressing clinical condition that can have negative effects on work life and cause serious social and economic losses. Our hypothesis in this study is that the working conditions of thoracic surgeons affect work-related stress and burnout levels (emotional exhaustion, depersonalization, personal success). The aim of our study is to determine work-related strain and the prevalence of BS among the thoracic surgeons and research assistants in our country.

Materials and Methods: Following the approval of the local ethics committee, 298 professionals were included in this cross-sectional survey study conducted between 01 December 2016 and 31 March, 2017. In addition to the 26 questions examining socio-demographic and work life sent via e-mail, participants were also sent the Work-Related Strain Inventory and the Maslach Burnout Inventory.

Results: 81.9% of the participants were male and the age average was found to be 42.0 ± 7.6 (26-63) years. Participants consisted of 112 specialist physicians, 47 research assistants, 29 doctor lecturers/chief assistants, 59 associate professors, 51 professors, while 40.9% were working in university hospitals. The study found that there is no difference in terms of gender in the subscales of Work-Related Strain Inventory and the Maslach Burnout Inventory ($p = 0.564, 0.760, 0.359$ and 0.579 respectively), and that the score from Work-Related Strain Inventory increased in line with increased academic status, while physicians working at the university got higher scores from Work-Related Strain Inventory ($p < 0.0001$). It was established that research assistants, and thoracic surgeons working in state hospitals and teaching hospitals had high scores in the emotional exhaustion ($p < 0.001$) and depersonalization subscales ($p < 0.001$) of the Maslach Burnout Inventory, while professors and those working in university hospitals had higher personal accomplishment scores ($p < 0.012$).

Conclusion: In the study, it was found that professors had higher point at Work-related Strain Inventory and personal accomplishment scores, whereas lower point at emotional burnout and depersonalization scores than in other academic titles. As a result, job-related strain was found to be significantly higher among academics with high workloads.

Keywords: burnout syndrome, specialist, thoracic surgeon, work-related strain

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Introduction

The most widely accepted definition of burnout today belongs to Christina Maslach, who also developed the Maslach Burnout Inventory (MBI). According to Maslach, burnout is defined as “emotional exhaustion (EE), depersonalization (DP) and low personal accomplishment (PA) seen in people who have intensive relations with people due to their job” [1]. Emotional exhaustion is the lack of energy and the feeling that one’s emotional resources have been drained, which emerges as a result of excessive psychological and emotional demands when helping people [2,3]. One who experiences such emotional intensity feels that they are unable to be as giving and responsible as they used to be towards the people they serve, and thus think they are not competent enough to provide the service [4]. DP is considered distancing from the recipient of the service; a strict and, in fact, inhumane approach. Increased distancing in the individual leads to an apathetic attitude towards the needs of others and the disregard of their feelings. This is usually due to the loss of idealism towards work, the rapidly increasing feeling of distancing, and the individual viewing the person they serve as an object [1,5]. Low PA defines the tendency of the individual to consider themselves negatively, as a result of which they feel inadequate, think they are not a competent individual and their motivation decreases [2]. As a result, they begin to feel a general inadequacy and failure in their work or in relationships with people whom they interact [6,7].

Burnout syndrome (BS) is as common in our country as it is around the world. BS is a clinical condition that starts quietly, progresses slowly with the impact of certain factors, affecting first the mental balance of the individual, and when it goes unnoticed, it paves the way for psychosomatic disorders, and significant issues in work-family and social life in the future. It is reported that 80% of employees face this syndrome at any time in their work life [4]. This commonly observed condition adversely affects work life with its undesirable personal and organizational results [8].

In their report, the International Labor Organization has reported that BS is seen more frequently in occupational groups such as doctors, nurses, teachers, police, lawyers, who work face to face with people, directly serve people, and which the human element has a very

important place in the quality of service [9]. In studies conducted in this area, it has been reported that there are many factors involved in the emergence of Burnout syndrome. In addition to individual characteristics such as age, gender, educational level, marital status, length of time in profession and seniority, the ability to use coping mechanisms, the effectiveness of organizational factors like workload, rewarding, control, belonging, justice, working time are also shown [9,10].

Medicine is an occupational group that manages the most sensitive periods of humans such as illness. Working face-to-face with people, tension caused by excessive patient load, uncertain and long working hours, insufficient hospital resources, problems in professional relations, dealing with chronic-fatal patients and patient relatives, economic concerns, inability to spare enough time for themselves and their private life lead to Burnout syndrome. In addition to these, the expectation from surgeons to think quickly and make critical decisions in the face of events, the pressure to avoid making mistakes increases the development of Burnout syndrome in this group [4].

Thoracic surgeons experience Burnout syndrome at equivalent rate to all surgeons (40% to 50%). Although more than 70% of thoracic surgeon members of The Society of Thoracic Surgeons report being satisfied with their career, surgeons are commonly affected by burnout (40%), though only a minority ever seek psychiatric or psychological help [11]. There are a few studies in the literature on burnout syndrome in thoracic surgeons [12,13]. Workforce Report from The Society of Thoracic Surgeons identified several characteristics common to thoracic surgeons at increased risk for burnout syndrome, including very long duration of residency training, high number of hours worked per week, frequent nights on call, and increasing caseload volumes [13].

Our hypothesis in this study is that the working conditions of thoracic surgeons affect work-related stress and burnout levels (emotional exhaustion, depersonalization, personal success). In this study, it was aimed to evaluate the work-related strain and burnout status of thoracic surgeons and research assistants working in our country.

Materials and Methods

Following the approval of the local ethics committee (No: 2016/388), this cross-sectional study was conducted between 01 December 2016 and 31 March 2017. The

study population was composed of 742 thoracic surgery research assistants and specialists who are members of the Turkish Society of Thoracic Surgery. Participants were provided detailed information about the study via e-mail. A questionnaire form consisting of three sections was sent, and 298 (40.2%) participants completed the questionnaire. The first section of the questionnaire consists of 26 questions containing socio-demographic information and the characteristics of work life, while the second section includes the 17-question Work-Related Strain Inventory (WRSI), and the third section includes the 22-question the Maslach Burnout Inventory.

Scales Used in the Study

Work-Related Strain Inventory is a 4-point Likert-type self-report scale consisting of 18 items that was developed by Revicki et al [14] in 1991 in order to determine work-related strain and stress in health workers. The scale was translated into Turkish and first applied to a nurse sample, and then to seven occupational groups working in the health field [15,16]. As item 15 significantly reduced the reliability coefficients in both studies, this item was removed from Aslan et al [8] study. In work-related strain inventory, the items are evaluated as “completely suitable for me”, “greatly suitable for me”, “partially suitable for me” and “not suitable for me at all”, and between 4-1 points. Items 2, 4, 8, 9, 11 and 15 are reverse scored. The lowest score on the scale is 18, and the highest score is 72. The strain increases as the score increases [8].

The Maslach Burnout Inventory was developed by Christina Maslach et al [1] and the reliability and validity of the Turkish version was prepared by Ergin et al [17]. It consists of 22 questions, with each question containing five-digit answer options. It has three components: Emotional Exhaustion, Personal Accomplishment and Depersonalization. The EE and DP scales contain negative responses, while low personal accomplishment scale contains positive responses. Scores are calculated separately for each scale. Since there is no cut-off value for the scores obtained from the subscales, there is no discrimination in the form of exhaustion is present or absent. Individuals experiencing burnout are expected to have high EE and DP, and low PA scores [1,17].

Statistical Analysis

SPSS v21 was used to evaluate the data. When the age and scale scores obtained as a result of the study were

evaluated using the Kolmogorov Smirnov Test in terms of suitability for normal distribution, it was found that they did not comply with normal distribution. Descriptive statistics were given as median (minimum-maximum), and the Mann Whitney U test was used to compare two groups to evaluate the data. The Kruskal Wallis Test was used in the comparison of more than two subgroups, and the significant parameters were compared with the Bonferroni corrected Mann Whitney U test. Statistical significance level was taken as $p < 0.05$, and after the Bonferroni correction, it was taken as $p < 0.01$.

Results

The median age of the 298 individuals who participated in the study was 43.2 (26.0-63.0) years, and 81.8% ($n = 244$) of them were male while 18.1% ($n = 54$) were female. In terms of positions at their institution of employment, 293 (98.4%) of the physicians stated they work as thoracic surgeons, 3 (1%) as deputy chief physicians, 1 (0.3%) as chief physician, and 1 (0.3%) as workplace doctor. 46.6% of the participants were academics, 37.6% were thoracic surgeons, and 40.9% ($n = 122$) worked at university hospitals, while 36.9% ($n = 110$) were working at teaching hospitals. The distribution of the socio-demographic characteristics of participants is presented in table 1. 90.3% of participants stated that they willingly chose the medical faculty and 86.6% stated they willingly chose the thoracic surgery residency. In the ranking of preferences in the Medicine Specialty Exam (MSE), thoracic surgery residency was among the top five choices for 47.7% of the participants. When participants were asked at the time of the study was conducted, “If you were given the chance to take the MSE again, would you prefer the thoracic surgery specialization again?”, 48.9% of the residents and 51% of the thoracic surgeons stated that they would choose thoracic surgery specialization again, while 51.1% of the residents stated that they were undecided and 49% of the thoracic surgeons would not choose thoracic surgery specialization again. Additionally, participants stated that they started their thoracic surgery residency median 3.0 (0-15.0) years after graduation from medical school, and residents stated that they have been working in this position for median 4.0 (1.0-6.0) years. Some work life-related characteristics of participants are presented in table 2.

Table 1. The demographic features of participants.

Variable	n	%
Sex		
Female	54	18.2
Male	244	81.8
Marital status		
Single	37	12.5
Married	248	83.5
Divorced	12	4.0
Spouse's working status		
Working	208	83.9
Not working	40	16.1
Region		
Marmara	107	36
Aegean	31	10.4
Mediterranean	17	5.7
Central Anatolia	78	26.3
Black Sea	32	10.8
Eastern Anatolia	16	5.4
South-eastern Anatolia	16	5.4
Institution		
State hospital	42	14.1
Training and research hospital	110	36.9
University hospital	122	40.9
Private hospital	21	7.1
Private clinic	1	0.3
Academic title		
Resident	47	15.8
Thoracic surgeon	112	37.6
Assistant professor	29	9.7
Associated professor	59	19.8
Professor	51	17.1

Table 2. Data on the participants' working life, earnings and time spent with their families.

	n=298	%
Faculty of medicine was preferred	269	90.3
Thoracic surgery residency was preferred	258	86.6
Thoracic surgery residency preference order in medical specialist exam		
1-5	142	47.7
6-10	90	30.2
≥11	66	22.1
Satisfaction with monthly income		
Sufficient	39	13.1
Partly	189	63.4
Insufficient	70	23.5
Time spending time with him-herself/ their families		
Sufficient	40	13.4
Partly	94	31.5
Insufficient	164	55.1

In terms of personal monthly incomes, at the time the study was conducted, 62.1% of participants were in the 5.000-10.000 TL range, while the monthly family incomes for 41.5% of participants were stated to be in the 10.000-15.000 TL range. 63.3% (n = 189) of participants stated that their monthly income was partially sufficient, yet 23.6% (n = 70) stated that it was insufficient. Table 2 is shown that, 83.5% of participants are married and 80.5% stated that they have children. The median number of children is 2.0 (0-4.0), and 19.5% (n = 58) of participants stated that they have people who need constant care and for whom they are obliged to provide care. When participants were asked to consider the time they allocate to themselves or their families, while 55.1% stated that this time was insufficient, 31.6% stated that it was partially sufficient.

Hundred seven (36.0%) of the participants stated that they had watch duty, and 188 (63.3%) had on-call duty. While the number of median watch duty on weekdays and weekends is 3 (1-11) and 2 (1-7) per month, respectively, the number of median on-call duty on weekdays and weekends was found to be 7 (1-30) and 3 (1-8) per month, respectively. 30.2% (n = 90) of the thoracic surgeons who participated in the study stated that they had a diagnosed disease. These diseases are hypertension (n = 27), cardiovascular diseases (n = 14), diabetes (n = 16), bone and joint diseases (n = 15), anxiety (n = 8), malignancy (n = 6), endocrine diseases (n = 5), and others (n = 22). 13.8% (n = 41) of participants stated that they have been using antidepressant drugs for the last 6 months.

The study's scores for the subscales of WRSI and MBI according to some characteristics are shown in Table 3. While no statistically significant difference was found in the subscales of WRSI and MBI in terms of participants' gender, choice of medical faculty and thoracic surgery based on their own will, there was difference in terms of the spouse's employment status, their institution of employment, and title.

Work-Related Strain Inventory does not have a cut-off value, and the level of tension due to work increases in direct proportion to the score obtained from the scale. In the study, it was found that there was a difference between the hospital groups studied in terms of work-related strain score (p = 0.012), and the highest score was found in university hospital staff. In terms of the institution of employment, difference was found in Work-Related Strain Inventory between state hospital and training and research hospital staff (p = 0.006) and between state hospital and university hospital staff (p = 0.002). In terms of academic title, Work-Related Strain Inventory presented a difference between residents and professors (p = 0.011), thoracic surgeons and associate professors (p = 0.001), and thoracic surgeons and professors (p < 0.0001). As in the institution studied, those whose academic degrees are associate professors and professors were found to have higher work-related tension (Table 3).

Table 3. Scores of work-related strain scale and subtitles of and Maslach burnout inventory according to sex, spouse's working status, work place, academic title and career choice.

	Work-related Strain Inventory mean (min-max)	Maslach Burnout Inventory		
		Emotional Ex-hausting mean (min-max)	Personal Accomplishment mean (min-max)	Depersonalization mean (min-max)
Sex				
Female	44 (27-63)	18.5 (2-35)	20 (5-28)	6 (0-17)
Male	45 (21-64)	17 (0-37)	20 (7-28)	6 (0-19)
p	0.564	0.760	0.359	0.579
Spouse's working status				
Working	44.5 (23-62)	18.5 (2-35)	20 (7-28)	8 (0-18)
Not working	45 (21-64)	17 (0-37)	20 (5-28)	5 (0-19)
p	0.913	0.787	0.874	0.019
Watch duty				
Yes	46(21-64)	19(2-35)	20(5-28)	8(1-19)
No	43(23-63)	16(0-37)	20(7-28)	5(0-17)
p	0.086	0.042	0.047	0.001
On-call duty				
Yes	46(24-63)	18(0-37)	20(7-28)	6(0-17)
No	43.5(21-64)	16(1-35)	20(5-28)	6(0-19)
p	0.028	0.058	0.786	0.701
Institution				
State Hospital	40 (21-61) *, †	19 (0-35)	19 (7-28) ‡	5 (0-17)
Training and research hospital	45 (24-63)*	17 (2-37)	19 (5-28)	7 (0-19)
University hospital	46.5 (21-64) †	17 (0-36)	21 (7-28) ‡	5.5 (0-18)
Private hospital and clinic	42.5 (27-63)	17 (5-36)	20 (11-28)	5.5 (0-12)
p	0.012	0.382	0.030	0.206
Academic title				
Resident	43.5 (29-58)1,2	19 (7-35)4,5,6	19.5 (5-28)8	9 (1-19)9,10,11
Specialist physicians	43 (21-63)3	19 (0-36)7	19 (7-28)	6.5 (0-17)9
Assistant professor	42 (28-64)	17 (0-35)	21 (7-28)	6 (0-16)
Associated professor	47 (27-64)1,2	15 (0-37)4,6	21 (7-28)8	5 (0-15)10
Professor	50 (29-63)3	13 (1-35)5,7	21 (12-28)	4 (0-17)11
p	□0.0001	0.001	0.012	□0.0001
Faculty of medicine was preferred				
Yes	45 (21-64)	17 (0-37)	20 (5-28)	6 (0-19)
No	43 (23-64)	19 (0-35)	21 (7-28)	6.5 (0-14)
p	0.558	0.487	0.768	0.999
Thoracic surgeon residency was preferred				
Yes	44 (21-64)	18 (0-37)	20 (5-28)	6 (0-19)
No	46 (21-63)	16 (4-35)	21 (7-28)	5 (0-16)
p	0.663	0.518	0.248	0.185

* p=0.006; † p=0.002; ‡ p=0.005

1p=0.001; 2p=0.001; 3p=0.0001; 4p=0.001; 5p=0.002; 6p=0.002; 7p=0.002; 8p=0.002; 9p=0.004; 10p=0.0001; 11p=0.0001

As the burnout increases in the Maslach Burnout Inventory, the score of the emotional exhaustion and depersonalization sub-dimensions increases and the personal achievement score decreases. When the Maslach Burnout Inventory results are analysed in this study, a statistically significant difference was found in all subtitles of the scale between those who held watch duty and those who did not (respectively 0.042, 0.047 and 0.001). It is found that there is a difference in the academic title in the emotional exhaustion subtitle in residents and thoracic surgeons is higher than the other academic titles. This result shows that emotional exhaustion of residents and thoracic surgeons is higher than other academic titles. In terms of the academic titles, difference was found in emotional exhausting between residents and professors ($p = 0.011$), thoracic surgeons and associate professors ($p = 0.001$), and thoracic surgeons and professors ($p \leq 0.0001$); the emotional exhaustion subscale presented a difference between residents and associate professors ($p = 0.001$), residents and professors ($p = 0.002$), thoracic surgeons and associate professors ($p = 0.002$), and thoracic surgeons and professors ($p = 0.002$). The personal accomplishment subscale presented a difference between thoracic surgeons and associate professors; and the depersonalization subscale presented a difference between residents and thoracic surgeons ($p = 0.004$), residents and associate professors ($p \leq 0.0001$), and residents and professors ($p \leq 0.0001$). As in the institution studied, those whose academic degrees are associate professors and professors were found to have higher work-related tension (Table 3).

A difference was also found in personal accomplishment between institutions ($p = 0.030$). Personal accomplishment score of those working in state hospital and training and research hospital is lower than those working in other institutions ($p = 0.005$). The personal accomplishment subscale presented a difference between thoracic surgeons and associate professors; and the depersonalization subscale presented a difference between residents and thoracic surgeons ($p = 0.004$), residents and associate professors ($p \leq 0.0001$), and residents and professors ($p \leq 0.0001$). In the last title, depersonalization, there is a difference in spouse's working status and academic title, the score was found to be lower in participant that spouse not working and professors than in other groups (Table 3).

Discussion

Factors influencing the emergence of Burnout syndrome include individual characteristics such as professionals' gender, age, education, marital status, number of children, professional experiences, the psycho-social stressors they face in private life, and the ability to cope with them, as well as environmental factors such as the work environment, work order, workload, whether they have watch duty and overtime, insufficient wages [10,18]. The majority of the time on the job for surgeons, more particularly for thoracic surgeons who are the subject of this research, is spent in the operating room. Operating rooms are environments where surgeries are performed, the surgical team under the management of the surgeon utilize their knowledge, skills, and experience, the efficient use of time and appropriate use of skills are necessary, being quick to make the right decisions is critical, work hours are lengthy and their duration is generally unforeseeable, and where staff are subjected to numerous physical, psychological, and social distress. Over time, these working conditions cause burnout in employees [19]. In 2008, a survey of the American College of Surgeons (ACS) revealed a burnout rate of 40%. The most burnout prevalence was found in cardiothoracic surgery, trauma, transplant and urology [12,20].

Studies conducted in the world and in our country show that BS is a common problem among physicians. In a study conducted by Karamanova et al [21], the average EE and DP scores of healthcare workers from seven South and Southeast European countries were found to be 31.9% and 33.2%, respectively. In the same study, it was reported that Turkish healthcare workers had higher emotional exhaustion and depersonalization scores (53.8% and 58.9%, respectively). In a 2009 study conducted by Shanafelt et al [20] among surgeons, 7,905 members of the American Surgical Association participated in the study. It was found that 40% of the participants showed at least one of the symptoms of burnout, 32% scored high in EE, 26% scored high in DP, and 13% scored low in personal accomplishment. Similar results were found in other studies evaluating surgical branches. In a 2001 study evaluating 521 general surgeons and orthopaedic specialists established high burnout rate in both branches, and 32% of participants scored high in emotional exhaustion, 13% scored high in depersonalization, and 4% scored low in personal ac-

accomplishment [22]. In another study from our country, Bolat et al [23] reported that Burnout syndrome was common among urology specialists, that EE and DP, which are subscales of BS, were frequently observed, and that this had an adverse effect on the psychosocial condition of urologists.

In our study, it was found that there was no difference in terms of gender in the subscales of Work-Related Strain Inventory and the Maslach Burnout Inventory. Some studies in the literature have found that burnout is more prevalent in female physicians [24,25] while other studies found it was more prevalent in male physicians [26,27]. Similarly, in a study conducted by Özkula et al [18], no difference could be found between genders. The absence of a difference between genders may be due to the fact that the structure of today's health system and heavy working conditions cause similar burnout in both genders regardless of gender. On the other hand, thoracic surgery residency being chosen more by men, and the lower number of female surgeons in the study may have affected this result.

Burnout syndrome occurs more frequently due to reasons such as intense work pace, heavy workload, and excessive watch duty particularly during the assistantship period, which is the first year of medicine. However, believing that all physicians experience similar problems during their assistantship period leads to this situation being recognized as a normal. In the long run, though, this situation leads to decreased job satisfaction and psychological problems. It is known that the rate of burnout specifically in surgical branches increases more compared to other branches as the number of work years increase [4,24]. In this study, approximately 90% of participants stating that they willingly chose both the medical faculty and thoracic surgery, with almost half of them stating that thoracic surgery specialty was among the top five choices in their MSE preferences shows that they chose their profession willingly. However, the study determined that the problems faced by physicians in the later years of their duration of work and their preparedness to cope with these problems caused changes in their decisions. As a matter of fact, only 1/3 of them stating that they would prefer thoracic surgery once more if they had the right to choose again, shows that they are experiencing problems in terms of professional satisfaction and BS.

More than half of the participants stated that the time

they allocate to themselves or their family was insufficient. Moreover, 83% of the participants stated that they are married, 80% have children and 1/5 of them have family members who need constant health care and for whom they are obliged provide care. Physicians' intense work pace, the uninterrupted service provided to patients, as well as the excessive number of watch and on-call duties on both weekdays and weekends prevents them from allocating adequate time for themselves and their family. A number of studies have reported that young age, having children, weekly working hours, the number of on-call duties, and sufficient financial opportunities are the individual risk factors related to burnout. In the same publications, only 36% of surgeons stated that they had enough time for themselves and their families [20,22,24].

While only 13% of participants found the wages received sufficient, it was established that the depersonalization score is higher in those whose spouse was not working. This shows that physicians have economic concerns and that this increases depersonalization. Sleep deprivation leads to deterioration in cognitive performance, memory, reaction time, and variation in circadian rhythm. As a result of sleep deprivation, increases risk of human error related accidents and increases work-related strain and burnout [12]. In this study, a statistically significant difference was found in all sub-titles of the Maslach Burnout Inventory between those who were watch duty and did not. Burnout was more common in those who had a on-call duty.

In studies which professional status is associated with work-related strain and burnout, it has been determined that those who are professors, associate professors or specialists scored significantly lower than assistants in Work-Related Strain Inventory and the Maslach Burnout Inventory. This is thought to be due to the decrease in professional uncertainty and concern for the future as professional status increases [28-30]. When the findings obtained from our research were examined, in stark contrast to the literature, it was found that the scores from WRSI increased as the academic status increased. It must be kept in mind that the result determined in the study may be related to reasons such as the intense communication of academics with students, intense pressures on them to publish and be successful, as well as pressures caused by the health system and performance system. In support of this finding, it was found that the thoracic surgeons working at the university got higher

scores in WRSI. This result in the study group suggests that work-related strain may differ in studies conducted in different conditions and organizational structures.

In the study, it was found that research assistants, who have the lowest academic status, scored higher in the emotional exhaustion and depersonalization subscales of the MBI, in contrast to WRSI. Research assistants, who are in the early years of their specialty education, strive to cope with heavy working conditions on the one hand. While on the other hand, they are expected to take responsibility, make decisions and solve problems in patient management. When all these demands exceed one's coping capacity, it can lead to emotional exhaustion. This causes depersonalization towards patients and the loss of occupational idealism [5]. Similar to the results In WRSI, it was found that emotional exhaustion and depersonalization scores were high among staff working at state hospitals and teaching hospitals. It is considered that this situation is associated with the failure of the thoracic surgeons working in state hospitals in our country to fulfil their duties sufficiently, thus leading to their loss of moral motivation.

Low personal accomplishment defines the tendency of the individual to consider themselves negatively, as a result of which they feel inadequate, think they are not a competent individual and their motivation decreases [2]. In the study, the personal accomplishment score was found to be higher in professors and those working in university hospitals. Rewarding in various ways the contributions those with high academic titles make to their institutions, making presentations in congresses and symposiums, showing both material and moral appreciation make the individual feel more successful and valuable. This is an important motivation tool for individuals. On the other hand, individuals being more autonomous in their work compared to others as the academic title increases, their ability to make and implement their decisions more freely, having initiative regarding their work boosts the feeling of PA and reduces burnout [2].

In the study, it was found that one-third of participants have chronic diseases, primarily HT, and 13.8% of them had been using antidepressant drugs for the last 6 months. When BS is not detected and prevented at the appropriate time, besides intangible losses such as job loss, financial losses, family problems, difficulties in social relations, and loneliness, it can also often lead to numerous psychiatric illnesses ranging from somato-

form disorders with physiological and psychological symptoms to depression [5].

As a result, in terms of Burnout syndrome, health-care professionals, particularly surgeons, are among the risky occupational groups today. Burnout is a problem that needs to be emphasized in order to protect the mental health of the individual and to intervene early when necessary. At an institution where burnout is experienced less frequently and employee job satisfaction is high, the quality of the health service to be provided will also be high. The professional and social measures to be taken by authorized institutions, primarily the Turkish Society of Thoracic Surgery, can help increase psychosocial well-being, reduce the incidence of burnout in thoracic surgeons, and improve health care quality. Furthermore, in order to obtain sufficient data on this subject, studies are needed in our country particularly in relation to determining effective methods in preventing and dealing with Burnout syndrome.

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Ethics Approval

The study was approved by the institutional ethical board of Ondokuz Mayıs University, School of Medicine (No: 2016/388).

Authors' contributions

BÇ, SC; co-wrote the paper, collected the data, performed the analysis, contributed data/analysis tools, conceived and designed the analysis.

References

1. Maslach C, Jackson SE. The measurement of experienced burnout. *J Occup Behav* 1981; 2: 99-113.
2. Maslach C, Schaufeli WB, Leiter MP. Job Burnout. *Ann Rev Psychol* 2001; 52: 397-422.
3. Thomas AW, Douglas GB. The contribution of burnout to work performance. *J Organiz Behav* 1997; 18: 491-9.
4. Aslan H. Hekimlerde tükenme sendromu ve önleme yolları. *Kahramanmaraş Sütçü İmam Üniversitesi Tıp Fakültesi Psikiyatri ABD Arşiv Dergisi* 2000; 9: 427-36.

5. Garden AM. Depersonalisation, a valid dimension of burnout? *Human Relations* 1987; 40: 545-60.
6. Leiter MP, Maslach C. The impact of interpersonal environment on burnout and organizational commitment. *J Organ Behav* 1988; 9: 297-308.
7. Maslach C. Job Burnout: New directions in research and intervention. *Curr Dir Psychol Sci* 2003; 12: 189-92.
8. Aslan H, Aslan RO, Kesepara C. Kocaeli'nde bir grup sağlık çalışanında işe bağlı gerginlik, tükenme ve iş doyumu. *Toplum ve Hekim Dergisi* 1997; 12: 24-9.
9. Chappell D, Di Martino V. Violence at work. International Labour Organization. ILO Report, 3rd Print Geneva: 2006.
10. Budak G, Sürgevil O. Tükenmişlik ve tükenmişliği etkileyen örgütsel faktörlerin analizine ilişkin akademik personel üzerinde bir uygulama. *DEÜİİBF Dergisi* 2005; 20: 95-108.
11. Squiers JJ, Lobdell KW, Fann JI, DiMaio JM. Physician Burnout: are we treating the symptoms instead of the disease? *Ann Thorac Surg* 2017; 104: 1117-2.
12. Jarral OA, Baig K, Shetty K, Athanasiou T. Sleep deprivation leads to burnout and cardiothoracic surgeons have to deal with its consequences. *Int J Cardiol* 2015; 179: 70-2.
13. Williams D, Tricomi G, Gupta J, Janise A. Efficacy of burnout interventions in the medical education pipeline. *Acad Psychiatry* 2015; 39: 47-54.
14. Revicki DA, May HJ, Whitley TW. Reliability and validity of the work-related strain inventory among health professionals. *Behav Med* 1991; 17: 111-20.
15. Aslan SH, Gürkan SB, Girginer HU, Ünal M. İşe bağlı gerginlik ölçeğinin bir hemşire örnekleminde geçerlik ve güvenilirliği. *Psikiyatri Psikoloji Psikofarmakoloji (3P) Dergisi* 1996; 4: 276-84.
16. Aslan SH, Alparlan ZN, Aslan RO ve ark. İşe bağlı gerginlik ölçeğinin sağlık alanında çalışanlarda geçerlik ve güvenilirliği. *Düşünen Adam: Psikiyatri ve Nörolojik Bilimler Dergisi* 1998; 11: 4-8.
17. Ergin C. Doktor ve hemşirelerde tükenmişlik ve Maslach Tükenmişlik Ölçeğinin uyarlanması. VII. Ulusal Psikoloji Kongresi Bilimsel Çalışmaları, sayfa 143-154, Türk Psikologlar Derneği Yayınları, Ankara 1992.
18. Ozkula G, Durukan E. Burnout syndrome among physicians: the role of socio-demographic characteristics. *Dusunen Adam The Journal of Psychiatry and Neurological Sciences* 2017; 30: 136-44.
19. Koraş, K, Öcalan D, Solak O. Cerrahi hekimlerin ameliyathane-deki gergin davranışlarının hemşireler üzerindeki etkileri. *Gümüşhane Üniversitesi Sağlık Bilimleri Dergisi* 2015; 4: 502-15.
20. Shanafelt T, Balch CM, Bechamps GJ, Russell T, Dyrbye L, Satele D et al. Burnout and career satisfaction among American surgeons. *Ann Surg* 2009; 250: 463-71.
21. Alexandrova-Karamanova AA, Todorova I, Montgomery A, Panagopoulou E, Costa P, Baban A et al. Burnout and health behaviors in health professionals from seven European countries. *Int Arch Occup Environ Health* 2016; 89: 1059-75.
22. Campbell DA Jr, Sonnad SS, Eckhauser FE, Campbell KK, Greenfieldet LJ. Burnout among American surgeons. *Surgery* 2001;130:696-702.
23. Bolat MS, Yürük E, Çınar Ö, Akdeniz E, Altunrende F, Özkuvancı Ü et al. The prevalence of Burnout Syndrome among Turkish urologists: results of a nationwide survey. *Turk J Urol* 2019; 45: 449-55.
24. Dimou FM, Eckelbarger D, Riall TS. Surgeon burnout: a systematic review. *J Am Coll Surg* 2016; 222: 1230-9.
25. Dyrbye LN, Shanafelt TD, Balch CM, Daniel Satele, Sloan J, Freischlag J. Relationship betwemotional exhaustion n work-home conflicts and burnout among American surgeons: a comparison by sex. *Arch Surg* 2011; 146: 211-7.
26. Ozyurt A, Hayran O, Sur H. Predictors of burnout and job satisfaction among Turkish physicians. *QJM* 2006; 99: 161-9.
27. Soler JK, Yaman H, Esteva M, Dobss F, Asenova RS, Katic M, Ozvacic Z, Desgranges JP, Moreau A, Lionis C, Kotanyi P, Carelli F, Nowak PR, de Aguiar Sá, Azeredo ZA, Marklund E, Churchill D, Ungan M; European General Practice Research Network Burnout Study Group. Burnout in European family doctors: the EGPRN study. *Fam Pract* 2008; 25: 245-65.
28. Dağdeviren N, Musaoğlu Z, Ömürlü İK, Öztora S. Akademisyenlerde iş doyumunu etkileyen faktörler. *Balkan Med J* 2011; 28: 69-74.
29. Çam O. The burnout in nursing academicians in Turkey. *Int J Nurs Stud* 2001; 38: 201-7.
30. Sünter AT, Canbaz S, Dabak Ş, Öz H, Pekşen Y. Pratisyen hekimlerde tükenmişlik, işe bağlı gerginlik ve iş doyumu düzeyleri. *Genel Tıp Derg* 2006; 16: 9-14.

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