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ORIGINAL ARTICLE

Resident Burnout may be Correlated with Immature and Neurotic Ego Defenses in a Sample from Turkey

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ABSTRACT

Objective: This study aimed to examine the levels of burnout syndrome in residents and demonstrate the relationship between burnout and sociodemographic variables. We also aimed to show whether the use of immature and neurotic defenses were related to burnout syndrome.

Methods: We aimed to include all 156 residents who were working at Kahramanmaraş Sütçü Imam University's Medical School Hospital during October 2017. A sociodemographic data form, the Maslach Burnout Inventory (MBI), the Defense Style Questionnaire, and the Beck Depression and Beck Anxiety Inventories were administered to all participants.

Results: Higher MBI-Emotional Exhaustion (EE) scores were associated with an increased number of night shifts, being unwilling to train at the selected specialty, and increasing working hours. There were significant correlations between mature defense mechanism scores and MBI-Personal Accomplishment (PA) scores as well as immature defense mechanism scores and MBI-EE and MBI-Depersonalization (DP) scores.

Conclusions: A higher rate of burnout was encountered with the increased workload of residents. The increased use of immature defense mechanisms increases the severity of these symptoms. To be able to combat this situation; it is necessary to organize training modules on sound defense strategies against the difficulties in work environment and to set limitations on working prolonged hours.

Keywords: Anxiety, burnout, defense mechanisms, depression, professional, residents

INTRODUCTION

Medical profession is stressful with an intense workload due to many negative factors caused by the working environment. Career education is an imperative transitional period in professional training. In today's world, long working hours increased professional responsibilities and coalescence of financial difficulties can lead to heavy workload and eventual burnout (1).

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Burnout is often observed in occupations who are in contact with people, especially in the presence of long and intensive working hours (2). According to Maslach, there are three main dimensions of work-related burnout: severe emotional exhaustion, a sense of depersonalization, and a lack of professional efficacy (3). Work intensity, working conditions, low interpersonal communication in the working environment, mobbing, the thought that treatment is not beneficial, and being involved with dying patients have been shown to increase stress among doctors in the earlier studies (4-6). The most important causes of burnout are claimed to be extended working times and working in shifts (7). Many studies have proven that the prevalence of burnout in doctors exposed to intense stress in professional

life is high (8, 9). Burnout affects 30% to 70% of resident physicians (10, 11). This has led to an increased prevalence of suicide, loss of income, and disruptive behavior in the workplace (12, 13). Residents who are experiencing burnout, increased medical errors could amplify feelings of burnout. This can impact to advocate for more interventions to prevent medical errors (14). It is essential to examine the burnout in the early stages of the career, to prevent burnouts, and to develop strategies for coping (15). More recent studies have noted that there are relationships between coping and burnout (12, 16). Along with defensive mechanisms may be an important factor in experiencing burnout in medical doctors. There are a few studies in nurses that examine the relationship between burnout resulting from intense, long-term work stress and defensive mechanisms used to cope with stress (17, 18).

Defense mechanisms are adaptive involuntary coping mechanisms that are often used by individuals to reduce perceived illness, anxiety, and depression, often disrupting the individual's perception of internal and external reality (19). Although defense mechanisms are not actual psychopathological processes, it has been suggested that the use of maladaptive defense mechanisms may cause some psychiatric disorders. In many studies, immature or maladaptive defense mechanisms have been associated with various psychiatric disorders or their symptoms (20-22).

This study aimed to examine the levels of burnout syndrome in resident physicians and determine affecting variables related to sociodemographic and working conditions. We also aimed to show whether the use of immature and neurotic defenses were related to burnout syndrome.

METHODS

Study Type and Setting

The study protocol was approved by the Scientific Research Ethics Committee of Kahramanmaraş Sütçü Imam University (approval date:01.03.2017 number:03). This cross-sectional and descriptive study was conducted to evaluate the burnout levels in residents at Kahramanmaraş Sütçü Imam University's School of Medicine Hospital during October 2017.

Study Sample

The study population consisted of a total of 156 residents working at Kahramanmaraş Sütçü Imam University Medical School Hospital. All 156 doctors were invited to join the study. Excluding non-respondents (n=4), junior residents in the first six months of the occupation (n=3), doctors on sick leave or vacation (n=2), and incomplete respondents to the study questions (n=1), responses of 147 participants were analyzed. Participants and excluded subjects were compared on available demographic data, and no significant differences were found.

The Sociodemographic Data Form

The Sociodemographic Data Form was prepared by the researchers to assess the sociodemographic and working conditions of the participants. The Sociodemographic Data Form queried age, gender, marital status, time spent working as a residents, willingness of doing the selected specialty, number of working hours per week, mean number of night shifts per month, presence of current psychiatric treatment, alcohol dependence, and the amount of caffeine consumed per day, making up a total of 11 questions.

The Maslach Burnout Inventory

In the study; the Maslach Burnout Scale was used to determine the perceived burnout of the residents. Adaption of the inventory into Turkish was done by Ergin (23), and validity and reliability studies were conducted by Çam (24). The scale evaluates burnout in three subscales: emotional exhaustion (EE), depersonalization (DP), and a personal sense of accomplishment (PA), and consists of 22 items. Accordingly, scores that can be taken from subscales of the inventory vary between 0–36 for emotional exhaustion, 0–20 for desensitization and 0–32 for personal success. Due to no defined thresholds for the researches carried out in Turkey, there are no cut-off points in our study(24). In our study, the reliability coefficients of the

MBI (Cronbach's alpha values) were calculated and found to be as follows: emotional exhaustion dimension=0.877; depersonalization dimension=0.723 and personal accomplishment dimension=0.727.

The Defense Style Questionnaire-40 (DSQ-40)

Developed by Andrews et al., the DSQ is a self-assessment scale consisting of a total of 40 items and 20 defenses, evaluating the reflections of unconscious defense mechanisms experimentally (25).

In this scale, defense mechanisms are categorized into "mature", "neurotic", and "immature". Mature defense mechanisms consist of sublimation, humor, anticipation, and suppression. Neurotic defense mechanisms are made up of undoing, pseudo-altruism, idealization, and reaction formation. Immature defense mechanisms consist of projection, passive aggression, acting out, isolation, devaluation, autistic fantasy, denial, displacement, dissociation, splitting, rationalization, and somatization. Each item is evaluated between 1 (strongly disagree) and 9 (strongly agree). The Turkish validity and reliability study of the tool was conducted by Yilmaz et al. (26). In our study, the reliability coefficients of the DSQ-40 (Cronbach's alpha values) were calculated and found to be as follows: Mature defense mechanisms=0.633; Neurotic defense mechanisms=0.591 and Immature defense mechanisms=0.787.

The Beck Depression Inventory (BDI)

The BDI was developed by Beck in 1961 for emotional, cognitive, somatic and motivational evaluation (27). It is a measure of 21 items and is used worldwide to evaluate the characteristic attitudes and symptoms of depression. There is a score between 0 and 3 for each question. In the validity and reliability article for Turkish, the cutoff score was accepted as 17(28). In our study, the reliability coefficient of the BDI (Cronbach's alpha value) was calculated and found as 0.932.

The Beck Anxiety Inventory (BAI)

This inventory was created by Beck in 1988 to separate the assessment of anxiety and depression symptoms (29). The BAI consists of 21 items and these items are evaluated with scores between 0 and 3 according to the intensity of symptoms experienced. The validity and reliability testing for Turkish was performed by Ulusoy et al. (30). In our study, the reliability coefficient of the BAI (Cronbach's alpha value) was calculated and found as 0.904.

Statistical Analysis

In the statistical analysis of the data, normal distribution was examined by the Kolmogorov Smirnov test. The Mann-Whitney U test was used to compare independent groups for the variables without normal distribution. The Pearson correlation test was applied when the relationship between numerical variables was examined for normally distributed variables. The Chi-Square or Fisher's Exact tests were employed for comparing categorical variables. Regression analysis was applied to determine the effect of predictor variables on burnout. Data were presented as median (Min-Max). Statistical significance was accepted as $p<0.05$. Data analysis was performed with the R 3.3.2 statistical software and IBM SPSS for Windows version 22 (IBM Corporation, Armonk, New York, United States).

RESULTS

Characteristics of the Study Population

The participant's age ranges between 25 and 40 years with a median age of 29 years. Of the participants 80 (54.4%) were men, 67 (45.6%) were women. 106 of the participants (72.1%) were married, while 41 (27.9%) were single.

Median Scores on the Questionnaire

When the subscales of the MBI were examined, mean scores for the EE, DP, and PA subscales were found as 19.48, 7.56, and 21.15, respectively. The median score of the BDI scale was 9 (min. 0, max. 56), and the median score of BAI was 8 (min. 0, max. 52) (Table 1). When the main dimensions of the defense mechanisms were examined, mature defense mechanisms had higher scores (median 5.63, min. 2.63, max. 8.38) than the other

Table 1: Descriptive findings

Variables		Median (Q1-Q3)	IQR
Age (years)	Median (Q1-Q3)	29.00 (28.00-32.00)	4.00
Duration of residency (months)	Median (Q1-Q3)	21.00 (12.00-39.00)	27.00
Number of monthly night shifts	Median (Q1-Q3)	7.00 (1.00-10.00)	9.00
Weekly working hours	Median (Q1-Q3)	72.00 (40.00-93.00)	53.00
Beck Anxiety Inventory Score	Median (Q1-Q3)	8.00 (2.00-14.00)	12.00
Beck Depression Inventory Score	Median (Q1-Q3)	9.00 (4.00-15.00)	11.00
Maslach Burnout Inventory Score			
Emotional exhaustion	Mean±SD	19.48±7.63	
Personal accomplishment	Mean±SD	21.15±4.96	
Depersonalization	Mean±SD	7.56±3.92	
Defense mechanisms			
Mature	Median (Q1-Q3)	5.63 (4.63-6.25)	1.62
Neurotic	Median (Q1-Q3)	4.88 (4.00-5.75)	1.75
Immature	Median (Q1-Q3)	4.21 (3.54-4.88)	1.34

Q1: %25 Quartile; Q3: 75% Quartile; IQR: Inter quartile Range; SD:Standard deviation

Table 2: Median scores on ego defense mechanisms

	Category	Median (Q1-Q3)	IQR
Anticipation	Mature	6.50 (5.00-7.50)	2.50
Pseudo altruism	Neurotic	6.50 (5.00-7.50)	2.50
Humor	Mature	5.50 (4.00-7.00)	3.00
Rationalization	Immature	5.50 (4.00-7.00)	3.00
Somatization	Immature	5.50 (4.00-7.00)	3.00
Sublimation	Mature	5.00 (4.00-6.50)	2.50
Suppression	Mature	5.00 (3.50-6.00)	2.50
Undoing	Neurotic	5.00 (3.50-6.00)	2.50
Isolation	Immature	5.00 (3.50-6.00)	2.50
Reaction formation	Neurotic	4.50 (3.00-5.50)	2.50
Idealization	Neurotic	4.00 (2.50-5.50)	3.00
Projection	Immature	4.00 (3.00-5.50)	2.50
Passive aggression	Immature	4.00 (2.50-5.00)	2.50
Acting out	Immature	4.00 (2.50-5.50)	3.00
Displacement	Immature	4.00 (2.50-5.00)	2.50
Autistic fantasy	Immature	4.00 (2.50-6.00)	3.50
Devaluation	Immature	3.50 (2.50-5.00)	2.50
Denial	Immature	3.50 (2.50-5.00)	2.50
Dissociation	Immature	3.50 (2.50-5.00)	2.50
Splitting	Immature	3.50 (2.00-5.00)	3.00

Q1: %25 Quartile; Q3: 75% Quartile; IQR: Inter quartile range

subscales, whereas, scores of the neurotic defense mechanisms (median 4.88, min. 2.38, max. 8) were found to be higher than the immature defenses (median 4.21, min. 1.88, max. 7.13), (Table 1). Most commonly employed defense mechanisms were anticipation, anticipation, pseudo-altruism, whereas the least commonly employed defense mechanisms were devaluation, denial, splitting and dissociation (Table 2).

Table 3: Correlations between weekly working hours and Maslach Burnout Inventory subscale scores, Beck Anxiety Inventory, and Beck Depression Inventory scores

	r	p
MBI-EE	0.388	p<0.001*
MBI-DP	0.076	0.358
MBI-PA	-0.026	0.752
BAI	0.183	0.027*
BDI	0.229	0.005*

Pearson Correlation test; α:0,05; r: Correlation Coefficient; *Correlation is statistically significant; MBI-EE: Maslach Burnout Inventory-Emotional Exhaustion; MBI-DP: Maslach Burnout Inventory-Depersonalization; MBI-PA: Maslach Burnout Inventory-Personal Accomplishment; BAI: Beck Anxiety Inventory; BDI: Beck Depression Inventory

Association of Burnout Symptom Severity with Working Conditions

In Pearson's correlation test, the MBI-EE subscale showed statistically significant correlation with weekly working hours (r=0.388; p<0.001), the BAI (p=0.027) and BDI (p=0.005) (Table 3). There was a statistically significant difference (p<0.001) in the MBI-EE subscale scores in favor of the group with a higher number of night shifts (p<0.001) (Table 4). MBI-EE subscale scores were found in the Mann-Whitney U test to be statistically significant in favor of the residents' unhappiness with their specialty (p=0.046) (Table 4).

Burnout and Psychological Defense Mechanisms

There was a weak but statistically significant correlation in Pearson's correlation test between the mature defense mechanisms and the MBI-PA subscale scores, as a result of evaluating the DSQ-40 and MBI subscale scores of the residents (r=0.235; p=0.004). Significant correlations were found in between the immature defense mechanisms and MBI-EE (r=0.199; p=0.016) subscale scores, while there was a moderate correlation with MBI-DP (r=0.461, p=0.001) (Table 5). Significant correlations were also found in between the immature defense mechanisms of projection (r=0.601, p<0.001) and splitting (r=0.600; p<0.001) and MBI-DP subscale scores. Passive aggression (r=0.437, p<0.001), devaluation (r=0.563, p<0.001), denial (r=0.443, p<0.001), and dissociation (r=(r=0.407, p<0.001) from image-distorting defense styles, idealization (r=0.405; p<0.001) defense style from neurotic defense mechanisms, and humor (r=0.477, p<0.001) defense style from mature defense mechanisms were found to be moderately correlated with the MBI-DP subscale (Table 5).

Regression Analysis for Burnout Domains

We conducted a regression analysis to determine the independent variables with respect to burnout dimensions. Higher total mature defense scores found to be negatively associated with emotional exhaustion, depersonalization and positively associated with personal accomplishment. Higher total immature defense scores found to be positively associated with depersonalization and negatively associated with personal accomplishment. Higher anxiety scores increase emotional exhaustion in the regression analysis (Table 6).

Table 4: Comparison of Maslach Burnout Inventory subscale scores with the number of night shifts and preference of the studied specialty

	≤7/month		>7/month			
	Median (Q1-Q3)	**IQR**	**Median (Q1-Q3)**	**IQR**	**p**	**ES**
MBI-EE	17.00 (11.00-23.00)	12.00	22.00 (18.00-27.00)	9.00	p<0.001*	0.67
MBI-PA	21.50 (18.00-25.00)	7.00	21.00 (18.00-24.00)	6.00	0.991	0.09
MBI-DP	7.00 (4.00-10.00)	6.00	8.00 (6.00-11.00)	5.00	0.085	0.31
	Preferred		**Not preferred**			
	Median (Q1-Q3)	**IQR**	**Median (Q1-Q3)**	**IQR**	**p**	
MBI-EE	20.00 (13.00-24.00)	11.00	23.00 (19.00-26.00)	7.00	0.046*	0.50
MBI-PA	22.00 (18.00-24.00)	6.00	18.00 (15.00-24.00)	9.00	0.101	0.45
MBI-DP	7.00 (5.00-10.50)	5.50	8.00 (4.00-10.00)	6.00	0.945	0.01

Mann-Whitney U test; α:0,05; Q1: 25% Quartile; Q3: 75% Quartile; IQR: Interquartile range; ES: Effect size; *Difference is statistically significant; MBI-EE: Maslach Burnout Inventory-Emotional Exhaustion, MBI-DP: Maslach Burnout Inventory-Depersonalization, MBI-PA: Maslach Burnout Inventory-Personal Accomplishment

Table 5: Correlations between main scores and subscales of defense mechanisms and MBI subscales

	EE		DP		PA	
	r	p	r	p	r	p
Mature	-0.153	0.063	0.088	0.287	0.235	0.004*
Sublimation	-0.155	0.060	0.215	0.009*	0.164	0.047*
Humor	-0.138	0.096	0.477	p<0.001*	0.147	0.076
Anticipation	-0.010	0.908	0.169	0.041*	0.127	0.124
Suppression	-0.114	0.168	0.200	0.015*	0.205	0.013*
Neurotic	0.057	0.495	0.046	0.579	0.121	0.143
Undoing	0.081	0.327	0.161	0.051	0.105	0.205
Pseudo altruism	0.014	0.864	0.080	0.336	0.082	0.322
Idealization	0.012	0.883	0.405	p<0.001*	0.009	0.916
Reaction formation	0.040	0.634	0.067	0.419	0.134	0.104
Immature	0.199	0.016*	0.461	0.001*	-0.059	0.474
Projection	0.365	p<0.001*	0.190	0.021*	-0.037	0.653
Passive aggression	0.024	0.772	0.437	p<0.001*	-0.078	0.351
Acting out	0.111	0.180	0.601	p<0.001*	-0.173	0.036*
Isolation	0.332	p<0.001*	0.208	0.011*	-0.074	0.372
Devaluation	0.193	0.019*	0.563	p<0.001*	-0.211	0.010*
Autistic fantasy	0.072	0.383	0.356	p<0.001*	-0.004	0.963
Denial	-0.066	0.429	0.443	p<0.001*	0.008	0.919
Displacement	0.131	0.113	0.249	0.002*	-0.089	0.284
Dissociation	-0.103	0.215	0.419	p<0.001*	0.236	0.004*
Splitting	0.041	0.620	0.600	p<0.001*	-0.032	0.704
Rationalization	-0.198	0.016*	0.353	p<0.001*	0.221	0.007*

Pearson correlation test; α: 0.05; r: Correlation coefficient; *Correlation is statistically significant; EE: Emotional exhaustion; DP: Depersonalization; PA: Personal accomplishment

Table 6: Regression of predictor variables affecting burnout

	EE				DP				PA			
Predictor variables	**Rc**	**Beta**	**t**	**p**	**Rc**	**Beta**	**t**	**p**	**Rc**	**Beta**	**t**	**p**
Mature	-1.003	-0.155	-1.985	0.049*	-0.504	-0.152	-1.992	0.048*	1.278	0.304	3.397	0.001*
Neurotic	0.128	0.020	0.255	0.799	-0.424	-0.125	-1.681	0.095	0.644	0.151	1.718	0.088
Immature	1.010	0.128	1.557	0.122	1.919	0.471	5.901	p<0.001*	-1.274	-0.248	-2.638	0.009*
Anxiety	0.152	0.177	2.034	0.044*	0.052	0.118	1.386	0.168	-0.079	-0.141	-1.413	0.160
Depression	0.130	0.164	1.754	0.082	0.077	0.191	2.086	0.039*	0.069	0.134	1.251	0.213
Duration of residency (months)	0.060	0.128	1.664	0.098	0.013	0.054	0.718	0.474	0.033	0.108	1.230	0.221
Weekly working hours	0.026	0.090	0.701	0.484	-0.014	-0.095	-0.757	0.450	0.003	0.018	0.120	0.904
Number of monthly night shifts	0.534	0.301	2.386	0.018*	0.211	0.230	1.875	0.063	0.012	0.011	0.073	0.942
Age	0.015	0.006	0.082	0.935	-0.077	-0.060	-0.834	0.406	-0.009	-0.005	-0.063	0.950

EE: Emotional exhaustion; DP: Depersonalization; PA: Personal accomplishment; Rc: Regression coefficient regression analysis; a:0.05; R^2 (explanatory coefficient): 0.346; *Effect is statistially significant; Dependent variable; EE R^2 (explanatory coefficient): 0.379; *Effect is statistially significant; Dependent variable; DP R^2 (explanatory coefficient): 0.141; *Effect is statistially significant; Dependent variable; PA

DISCUSSION

In the present study, we found that higher MBI-Emotional Exhaustion (EE) scores were associated with the increased number of night shifts, being unwilling to study the selected specialty, and increasing working hours. There was a significant correlation between mature defense mechanism scores and MBI-Personal Accomplishment (PA) scores as well as immature defense mechanism scores and MBI-EE and MBI-Depersonalization (DP) scores. It is the first study demonstrating the relationship between defense mechanisms and burnout levels in doctors.

Our results supported the theory that emotional exhaustion was at the center of burnout syndrome and was the most observed dimension (3). According to the literature, the lowest burnout scores were observed in Europe, while the highest burnout scores were observed in North America, Japan, and Taiwan (31). In a study conducted on 800 doctors in the UK, the mean MBI-EE, MBI-DP, and MBI-PA scores were found as 9.3 (range 0–30), 19.6 (range 0–54), and 40.3 (range 0-48), respectively(31). In the study conducted on 2357 physicians in Germany, the mean scores of the MBI-EE, MBI-DP, and MBI-PA were found as 21.3 (range 0–54), 9.9 (range 0-30), and 36.3 (range 0–48), respectively, and 11% of physicians participating in the study had higher burnout levels in all subscale scores (32). Because no cut-off point was determined for the MBI scale in Turkey, no equivalent value related to burnout was given in our study. The fact that the values in our study are higher than those reported from Europe can be explained by the fact that working hours and workload are higher.

As to our findings, increased work intensity due to overtime hours and the number of night shifts were associated with high emotional exhaustion scores in accordance with the literature. In doctors, variables such as age, gender, and specialty have been shown to relate to burnout. However, longer working hours and shift working conditions have been suggested as the most important causes of burnout development (33). It has been reported that work intensity is high in the case of longer working hours or shift work environments and that burnout increases in these conditions (34). In a study conducted in Germany, it was shown that high occupational load led to significantly higher emotional burnout scores in doctors (32). The number of weekly working hours varies from specialty to specialty. Due to the differences between the specialties, the number of weekly working hours and night shifts varied widely. For this reason, our study is quite suitable for assessing the relationship between work intensity and burnout levels of doctors.

We divided the participants into two groups: those who willingly entered into their specialty training and those who chose the specialty because they had no other option. The reason for making such a distinction is the difficulty of entering post-doctoral specialty medical education in Turkey; many doctors are not able to select their desired area of training. As a result, some doctors are placed in specialties they do not prefer at first place. Emotional exhaustion scores of doctors who were reluctant to train for their current specialty were found significantly higher compared to those who were in their desired specialties. In line with our work, other studies conducted in Turkey demonstrated higher burnout levels among doctors forced to study specialties they do not prefer at first hand (35, 36).

Similar to our work, other studies have demonstrated that doctors usually use mature defense mechanisms (37, 38). Mature defense mechanisms help to maintain psychological balance. Therefore, individuals with mature defense mechanisms can deal more easily with the problems they face, and in consequence, improve their quality of life (37).

According to our results, there is a positive correlation between mature defense mechanisms and the sense of personal achievement, as well as a positive correlation between immature defense mechanisms and emotional exhaustion and depersonalization. Hence, we infer that while mature defense mechanisms show particular resistance to burnout, the immature defense mechanisms lead to a fragile structure and burnout.

Limited literature evaluating the relationship between defense mechanisms and burnout syndrome is available. Besides, the majority of the present research is only in nurses. While one work is done in a small group of nurses shows that the defensive mechanisms are not predictors of burnout (39), in contrast, immature defenses such as masochism and introjection, have been shown to be

associated with emotional exhaustion in a study of 120 nurses in various areas of expertise (17). In a study of nurses and doctors in Greece, there was a positive relationship between psychotic and neurotic traits and emotional exhaustion and depersonalization, with negative relationships between emotional exhaustion and depersonalization (7). In the study of Reagan et al., in intensive care nurses using the same scales as our study, they found that burnout scores were higher among nurses who used immature defense mechanisms (isolation, denial, projection, and somatization) while lower burnout scores were observed in nurses using mature defense mechanisms such as sublimation, humor, anticipation, and suppression (18). In a study of nurses in which defense mechanisms and burnout revealed as predictors of despair and consequently suicide; depersonalization scores showed a positive correlation with self-harm (turning against the self), displacement, and regressive behavior (turning against the object), while it showed negative correlations with intellectualization, rationalization (principalization), and reversal (17). Again in the same study, emotional exhaustion scores showed a positive correlation with self-harm to cope with stress. Doolittle et al. found that several emotional coping strategies correlated against burnout, namely, those residents who employed the strategies of acceptance, active coping, and positive reframing had lower emotional exhaustion and depersonalization, in contrast, residents who employed denial or disengagement had higher emotional exhaustion and depersonalization scores (12).

This present study has certain limitations. Our research was a questionnaire study, and there was no structured psychiatric interviews with the participating resident physicians. Due to no certain threshold presence between the variables in the correlation, the statistical significance level was low. The total working hours, the number of night shifts and salaries of doctors in Turkey vary from hospital to hospital. Also, we excluded residents who are in the first six months of the occupation. For these reasons, the generalization of research results may not be possible. Additionally, the present study has a lack of analysis of organizational factors (e.g., organizational culture, mobbing, etc.) and surgical versus non-surgical specialties on burnout. Finally, since this present study did not include long-term monitoring, we cannot make any postulations on changes over time.

CONCLUSIONS

In conclusion, there is a significant relationship between burnout syndrome and working conditions. Limitations in the number of monthly night shift and improvement of working conditions can be effective in decreasing burnout in resident physicians. Our data indicate that the increased use of immature and neurotic defense mechanisms increases the severity of burnout symptoms. Further work are needed to promote awareness of the burnout issues to recognize adaptive coping mechanisms of resident physicians who experiencing burnout and to consider developing wellness programs helping resident physicians.

Ethics Committee Approval: The study protocol was approved by the Scientific Research Ethics Committee of Kahramanmaras Sutcu Imam University (Approval date: 01.03.2017 number: 03).

Conflict of Interest: None declared.

Financial Disclosure: None declared.

REFERENCES

1. Kealy D, Halli P, Ogrodniczuk JS, Hadjipavlou G. Burnout among Canadian psychiatry residents: a national survey. The Canadian Journal of Psychiatry 2016;61(11):732-6. [CrossRef]
2. Awa WL, Plaumann M, Walter U. Burnout prevention: A review of intervention programs. Patient Educ aCouns 2010;78(2):184-90. [CrossRef]
3. Maslach C, Schaufeli WB, Leiter MP. Job burnout. Annual Rev Psychol 2001;52(1):397-422. [CrossRef]
4. Duquette A, Kérowc S, Sandhu BK, Beaudet L. Factors related to nursing burnout a review of empirical knowledge. Issues Ment Health Nurs 1994;15(4):337-58. [CrossRef]
5. Dikmetaş E, Top M, Ergin G. An examination of mobbing and burnout of residents. Turk Psikiyatri Derg 2011;22(3):137-49.
6. Borritz M, Rugulies R, Christensen K, Villadsen E, Kristensen T. Burnout as a predictor of self-reported sickness absence among human service workers: prospective findings from three year follow up of the PUMA study. Occup Environ Med 2006;63(2):98-106. [CrossRef]
7. Ntantana A, Matamis D, Savvidou S, Giannakou M, Gouva M, Nakos G, et al. Burnout and job satisfaction of intensive care personnel and the relationship with personality and religious traits: An observational, multicenter, cross-sectional study. Intensive and Crit Care Nurs 2017;41:11-7. [CrossRef]
8. Shanafelt TD, Boone S, Tan L, Dyrbye LN, Sotile W, Satele D, et al. Burnout and satisfaction with work-life balance among US

physicians relative to the general US population. Archives of Internal Medicine 2012;172(18):1377-85. [CrossRef]
9. Asai M, Morita T, Akechi T, Sugawara Y, Fujimori M, Akizuki N, et al. Burnout and psychiatric morbidity among physicians engaged in end-of-life care for cancer patients: a cross-sectional nationwide survey in Japan. Psycho-Oncology 2007;16(5):421-8.
10. Navines R, Olive V, Ariz J, Lopez J, Tortajada M, Varela P. Stress and Burnout During the First Year of Residence Training in a University Teaching Hospital: Preliminary Date. Dual Diagnosis: Open Access 2016;1:17. [CrossRef]
11. Dyrbye L, Shanafelt T. A narrative review on burnout experienced by medical students and residents. Medical Education 2016;50(1):132-49. [CrossRef]
12. Doolittle BR, Windish DM, Seelig CB. Burnout, coping, and spirituality among internal medicine resident physicians. J Grad Med Educ 2013;5(2):257-61. [CrossRef]
13. Williams ES, Konrad TR, Linzer M, McMurray J, Pathman DE, Gerrity M, et al. Refining the measurement of physician job satisfaction: results from the Physician Worklife Survey. Medical Care 1999:1140-54. [CrossRef]
14. West CP, Huschka MM, Novotny PJ, Sloan JA, Kolars JC, Habermann TM, et al. Association of perceived medical errors with resident distress and empathy: a prospective longitudinal study. JAMA 2006;296(9):1071-8. [CrossRef]
15. McCray LW, Cronholm PF, Bogner HR, Gallo JJ, Neill RA. Resident physician burnout: is there hope? Family medicine. 2008;40(9):626.
16. Koh MYH, Chong PH, Neo PSH, Ong YJ, Yong WC, Ong WY, et al. Burnout, psychological morbidity and use of coping mechanisms among palliative care practitioners: A multi-centre cross-sectional study. Palliative Medicine 2015;29(7):633-42.
17. Pompili M, Rinaldi G, Lester D, Girardi P, Ruberto A, Tatarelli R. Hopelessness and suicide risk emerge in psychiatric nurses suffering from burnout and using specific defense mechanisms. Arch Psychiatr Nurs 2006;20(3):135-43. [CrossRef]
18. Regan A, Howard RA, Oyebode JR. Emotional exhaustion and defense mechanisms in intensive therapy unit nurses. J Nerv Ment Dis 2009;197(5):330-6. [CrossRef]
19. Freud A. The ego and the mechanisms of defense. NY: International Universities Press. 1936 196650-3.
20. Bond M, Perry JC. Long-term changes in defense styles with psychodynamic psychotherapy for depressive, anxiety, and personality disorders. Am J Psychiatry 2004;161(9):1665-71.
21. Akkerman K, Lewin TJ, Carr VJ. Long-term changes in defense style among patients recovering from major depression. J Nerv Ment Dis 1999;187(2):80-7. [CrossRef]
22. Pollock C, Andrews G. Defense styles associated with specific anxiety disorders. Am J Psychiatry 1989;146(11):1500-2. [CrossRef]
23. Ergin C. Doctor, nurses burnout and Maslach burnout scale adaptation. VII National Psychology Congress Scientific Studies. 1992;22:25.
24. Çam O. Investigation of validity and reliability of burnout inventory. Turkish Journal of Psychology. 1992:155-60.
25. Andrews G, Singh M, Bond M. The Defense Style Questionnaire. J Nerv Ment Dis 1993;181(4)246-56. [CrossRef]
26. Yılmaz N, Gençöz T, Ak M. Psychometric Properties of the Defense Style Questionnaire: A Reliability and Validity Study. Turkish Journal of Psychiatry 2007;18(3):244-53.
27. Tanaka S, Yoshida K, Katayama H, Kohmura K, Kawano N, Imaeda M, et al. Association of Beck Depression Inventory score and Temperament and Character Inventory-125 in patients with eating disorders and severe malnutrition. J Eat Disord 2015;3(1):36. [CrossRef]
28. Hisli N. Reliability and validity of Beck Depression Inventory among university students. Journal of Turkish Psychology 1989:7:3-13.
29. Beck AT, Epstein N, Brown G, Steer RA. An inventory for measuring clinical anxiety: psychometric properties. J Consult Clin Psychol 1988;56(6):893-7. [CrossRef]
30. Ulusoy M, Sahin NH, Erkmen H. the Beck Anxiety Inventory: Psychometric Properties. J Cogn Psychother 1998;12(2):163-72.
31. McManus I, Winder B, Gordon D. The causal links between stress and burnout in a longitudinal study of UK doctors. The Lancet 2002;359(9323):2089-90. [CrossRef]
32. Pantenburg B, Luppa M, König H-H, Riedel-Heller SG. Burnout among young physicians and its association with physicians' wishes to leave: results of a survey in Saxony, Germany. J Occup Med Toxicol 2016;11(1):2. [CrossRef]
33. Keeton K, Fenner DE, Johnson TR, Hayward RA. Predictors of physician career satisfaction, work–life balance, and burnout. Obstet Gynecol 2007;109(4):949-55. [CrossRef]
34. Biaggi P, Peter S, Ulich E. Stressors, emotional exhaustion and aversion to patients in residents and chief residents-what can be done? Swiss Med Wkly 2003;133(23-24):339-46.
35. Armutlukuyu M. The evaluation of burnout levels of the academic staff and research assistants working at Medical faculties. Master thesis Selcuk University School of Medicine, Konya 2014. (Turkish).
36. Can H, Güçlü YA, Doğan S, Erkaleli MB. Burnout Syndrome Among The Resident Doctors In Surgical And Nonsurgical Clinics. The Journal of Tepecik Education and Research Hospital 2010;20 (1):33-40. [CrossRef]
37. Miranda B, Louzã MR. The physician's quality of life: Relationship with ego defense mechanisms and object relations. Compr Psychiatry 2015;63:22-9. [CrossRef]
38. Machado L, Tavares H, Petribú K, Pinto T, Cantilino A. Happiness and defense styles in psychiatrists. J Nerv Ment Dis 2016;204(3):181-7. [CrossRef]
39. Raggio B, Malacarne P. Burnout in intensive care unit. Minerva Anestesiol 2007;73(4):195-200.