# Evaluation of the relationship between burnout, depression, anxiety, and stress levels of primary health-care workers (Center Anatolia)

İrem Akova, Öznur Hasdemir & Esma Kiliç

Published online: 28 Jan 2021.

Submit your article to this journal ↗

Article views: 1920

View related articles ↗

View Crossmark data ↗

Taylor & Francis
Taylor & Francis Group

# Evaluation of the relationship between burnout, depression, anxiety, and stress levels of primary health-care workers (Center Anatolia)

İrem Akova [ID][a], Öznur Hasdemir [ID][b] and Esma Kiliç [ID][c]

aDepartment of Public Health, Faculty of Medicine, Sivas Cumhuriyet University, Sivas, Turkey; bProvincial Health Directorate, Sivas, Turkey; cIbn Sina Community Health Center, Sivas, Turkey

**ABSTRACT**

**Background:** The aim of this study was to evaluate the relationship between burnout, depression, anxiety, and stress levels of primary health-care workers.

**Methods:** This cross-sectional study included 338 health-care workers. The sociodemographic data form, the Maslach Burnout Inventory (MBI), and the Depression Anxiety Stress Scale-21 (DASS-21) were applied. Mann Whitney U test, Kruskal Wallis test, Chi square test, and Logistic regression analysis were used. The error level was taken as 0.05.

**Results:** The burnout levels of the health workers were lower level in Emotional Exhaustion (EE) (79.0%), Depersonalization (D) (81.1%), and Personal Accomplishment (PA) (54.1%). The level of the depression, anxiety, and stress were found to be 10.9%, 14.8%, and 5.0%, respectively. The rates of low-moderate-high EE and D, low-moderate PA were higher in physicians than midwives and nurses. There were significant differences between the mean of burnout levels and gender, marital status, occupation, and total working times. Mean depression was higher among physicians while mean stress was lower among who worked 5 years and under. EE and PA were the factors associated with depression and anxiety, while EE was the factor associated with stress.

**Discussion:** Considering that burnout, depression, anxiety, and stress are intertwined concepts, it is thought that's needed to develop strategies for health workers to regain working energy.

## 1. Introduction

The concept of burnout is one of the phenomena issues of the recent studies [1,2]. Burnout Syndrome, which can be defined as the disease of modern life, is seen in occupational groups requiring one-to-one communication with people, and it is defined as a syndrome that causes physical, emotional, and mental exhaustion of individuals [2,3]. In studies conducted in the world and in Turkey, especially health-care workers are one of the riskiest professions likely to experience burnout [4–6]. According to US 2014 data, burnout was found to be 63% in family physicians [7]. In the study of The European General Practice Research Network on burnout, up to 12% of respondents have been shown to be extremely burnout, in the UK, Yemen, and Saudi Arabia, these rates were around 30% [8]. According to the results of a systematic review and meta-analysis conducted in France, the burnout level of physicians was found to be 49% [9]. In fact, studies conducted in recent years show that physicians' burnout level is higher than 50% [10]. In midwives, the prevalence of moderate and high burnout varies between 20% and 59% in countries such as Sweden [11], Norway [12], England [13–15] and Australia [16–18]. Health Professionals

Burnout Survey in Turkey showed that health workers experienced medium levels in terms of emotional exhaustion (EE) and depersonalization (D) subscales, while in terms of personal accomplishment (PA) subscale experienced high levels of burnout [19]. Altay et al. [4], showed that nurses' EE levels were high and D and PA levels were moderate.

Primary health care is the basis of all health services. Failure or inefficiency of primary health-care services may result in failure of the entire health system [20]. In order to prevent this failure, burnout levels of primary health-care workers should be determined. At the same time, negative emotions such as depression, anxiety, and stress that negatively affect mental and physical health need to be seriously emphasized. Research shows that health workers can provide high-quality health-care services by preventing burnout and also shows that health institutions have an important role in achieving their goals by reducing the risks that may arise from the reluctance and carelessness toward burnout [1–3,20,21]. In a study evaluating depression, anxiety, and stress in intern physicians in Australia, depression was found to be 53%, anxiety 46%, and stress 51% [22]. In another study, it was found that midwives had mod/severe/extreme depression (17%), anxiety (20.5%),

and stress (22%) symptoms [23]. Maharaj et al. [24] had found that the prevalence rates of depression, anxiety, and stress were 32.4%, 41.2%, and 41.2%, respectively, in nurses.

According to the literature, burnout is positively related to depression, stress, and anxiety [23,25]. The concept of burnout was used as a synonym for stress when it first appeared, and then it was understood that burnout emerged as a result of stress. While there is a continuous and reciprocal link between stress and depression, the presence of burnout is seen as a risk factor for depression [26]. There are also studies showing that there is a significant relationship between anxiety and burnout and also that anxiety increases susceptibility to burnout [27]. However, it is also argued in the literature that depression and burnout are considered as different pathologies and that the relationships among them are still unclear [28,29].

There are many studies evaluating the burnout, depression, anxiety, and stress levels of health workers separately and examining the factors affecting these concepts [1–3,20,21,25]. However, there are limited number of studies evaluating the relationship between burnout levels, depression, stress, and anxiety levels of health workers (physicians, nurses, midwives) [23]. There was not found a study evaluating the relationship between burnout levels and depression, stress, and anxiety levels in primary health-care workers in Turkey and in abroad. In this context, the aim of this study was to determine the extent of burnout among physicians, nurses, and midwives in primary care, to evaluate whether depression, anxiety, and stress levels are related to burnout and to make comparisons among groups.

## 2. Materials and Methods

This cross-sectional study was conducted between April 2019 and June 2019 for family physicians and family health workers working in primary health-care institutions in Sivas located in Turkey's Central Anatolia Region.

The population of the study consisted of all family physicians (n = 200) and all family health workers (n = 170) working in 27 Family Health Centers in the city center and 22 Family Health Centers in the districts. The response distribution was taken as %50 the sample size was calculated as 189 health workers using the Raosoft program with 95% confidence interval and 5% error margin. However, 338 health workers (168 family physicians – 84%, 170 family health workers – 100%) who agreed to participate in the study were studied. No exclusion criteria were applied. All subjects gave their informed consent for inclusion before they participated in the study. The study was conducted in accordance with the Declaration of Helsinki, and the protocol was approved by the Ethics Committee of Cumhuriyet University

(Decision No: 2019–04/17, Date: 17.04.2019). The permission of the Provincial Health Directorate (numbered 19,448,395–044 dated 21.06.19) was obtained.

Sociodemographic Data Form, Maslach Burnout Inventory (MBI) and Depression Anxiety Stress Scale-21 (DASS-21) were used to obtain the study data. These data collection tools were delivered to all participants by the researchers and collected on the same day.

The Sociodemographic Data Form consisted of a total of six questions totally as in which age, gender, marital status, occupation, total working time, and smoking were questioned.

MBI was developed by Maslach and Jackson [30]. Turkish adaptation of the scale was carried out by Ergin [31]. Consisting of 22 items, the scale evaluates burnout in 3 subdimensions: emotional exhaustion (EE), depersonalization (D), and personal accomplishment (PA). Nine items (1, 2, 3, 6, 8, 13, 14, 16, 20) for EE, 5 items (5, 10, 11, 15, 22) for D and 8 items (4, 7, 9, 12, 17, 18, 19, 21) for PA are used to calculate the scoring. The EE subdimension describes the feelings of being overconsumed of the people in working life. The D subdimension refers to the person's behaving in a strict, cold, indifferent, and emotion-free manner toward the people he serves. The PA subdimension describes the feelings of sufficient, successful self-study. High EE and D scores and low PA scores indicate a high level of burnout. The data obtained were analyzed based on the burnout subdimension value ranges used in Ergin's study, and each subdimension was evaluated at three levels, low, moderate, and high [31]. Scores for EE were evaluated as ≤20 low, 21–27 moderate, and ≥28 high; in terms of D, scores ≤8 were evaluated as low, 9–12 as moderate, and ≥13 as high, while for PA, scores ≤23 were evaluated as low, 24–27 as moderate, and ≥28 as high. Reliability of the MBI among Turkish physicians and nurses were confirmed by Ergin Cronbach alpha values 0.83, 0.65, and 0.72 for EE, D, and PA, respectively, [31].

The DASS-21 which is a self-report 4-point Likert scale that includes seven questions for each of the dimensions of depression, stress, and anxiety to measure. 0 is coded as "did not apply to me at all," 1 is coded as "applied to me rarely," 2 is coded as "applied to me usually" and 3 is coded as "applied to me very much" [32]. According to Lovibond, S. and Lovibond, P [33] normal scores on the three subscales are scores that are less than 9 for Depression, 7 for Anxiety, and 14 for Stress. The validity and reliability study of the Turkish version of the scale was conducted by Yılmaz et al. [34]. According to the Turkish validity and reliability study, the Cronbach's alphas for the DASS-21 subscales found to be 0.81 for Depression, 0.80 for Anxiety, 0.75 for Stress [34].

Our study data were evaluated using the SPSS 22.0 program. In the evaluation, descriptive statistics such

as the mean, standard deviation, and percentage distribution were calculated. Data were analyzed by the Kolmogorov–Smirnov test. Since the data did not meet the parametric conditions, Mann–Whitney U test was used for two independent groups and Kruskal–Wallis test (post-hoc Mann–Whitney U test) was used for more than two groups. Chi square test was used to evaluate the data obtained by counting. Logistic regression analysis was performed. To determine the reliability of scales, internal consistency analysis (Cronbach's alpha) was used. The error level was taken as 0.05.

## 3. Results

The distribution of the MBI and DASS-21 subscale scores according to sociodemographic characteristics of individuals and reliability values are shown in Table 1. Most of the health workers who participated in our study were women (66.9%), most of them were married (75.4%) and physician (49.7%) and under 40 years of age (63.9%) and the average age was 35.9. The rate of people working more than 16 years (34.6%) and nonsmokers (77.2%) was high. The burnout levels of the health workers participating in our study were lower level in EE (79.0%), D (81.1%), and PA (54.1%). The level of the depression, anxiety, and stress were found to be 10.9%, 14.8%, and 5.0%, respectively. A significant difference was found in the D subscale by gender, the low D rate was higher in women ($p < 0.05$). A significant difference was found in the EE subscale by age, the rate of low and moderate EE was higher under 40 years of age, and the rate of high EE was higher at age 40 and over ($p < 0.05$). The rates of D subscale were found to be higher in married compared to single or widowed ($p < 0.05$). The rates of low-moderate-high EE and D, low-moderate PA subscales were higher in physicians than midwives and nurses ($p < 0.05$). The rates of PA subscale were higher in those whom working for 16 years or more ($p < 0.05$) (Table 1).

The distribution of MBI and DASS-21 subscale score means according to sociodemographic characteristics of individuals are shown in Table 2. The mean of D subscale was higher in males and the mean of PA subscale was higher in females ($p < 0.05$). The means of EE and D subscales were found to be higher in single or widowed ($p < 0.05$). Physicians' EE and D subscales means were higher than midwives and nurses, while the PA subscale mean was lower ($p < 0.05$). The depression subscale mean of physicians was higher than midwives ($p < 0.05$). The means of the PA and stress subscales were lower those whom worked 5 years or less than those whom worked 6–10 years ($p < 0.05$) (Table 2).

Tables 3, 4 and 5 present logistic regression model predicting respectively depression, anxiety and stress

scores. Logistic regression analysis showed that EE (OR = 1.19, $p = 0.001$) and PA (OR = 0.92, $p = 0.047$) were the factors associated with depression (Table 3). EE (OR = 1.14, $p = 0.001$) and PA (OR = 0.92, $p = 0.014$) were the factors associated with anxiety (Table 4). EE (OR = 1.16, $p = 0.001$) was the factor associated with stress (Table 5).

## 4. Discussion

In this study, the relationship between burnout levels and depression, anxiety, and stress levels of primary health-care workers was investigated.

The burnout levels of the health workers participating in our study were lower level in EE (79.0%), D (81.1%), and PA (54.1%). The findings of the study differed from similar studies in the literature. In a study conducted by Zarei et al. [35] in Iran, burnout levels of health workers according to subscales of MBI were higher level in D (90.5%) and EE (55.3%), while lower level in PA (98.9%). In a systematic review by Elbarazi et al. 36, burnout levels among health-care workers were higher in EE (81.0%) and D (80.0%), while lower in PA (85.8%). In another study evaluating the burnout levels of health-care workers in Turkey, EE and D were found to be at moderate levels, on the other hand, PA was found to be at a high level [19]. The reason of these results differed from our study may be that those studies included hospital workers. According to the results of two separate studies conducted in Lebanon, similar to our study, while physicians' high EE levels (67.7%) were high [37]; nurses' high EE levels (77.5%) were low [38]. Unlike our study Kosan et al. [39] had found that the burnout levels among the physicians were low (EE in 75%, D in 76.2%, and low PA in 69.6%) in their study in 2008. The reason for the higher burnout levels in physicians in our study may be that today's health working conditions are wearier.

In a study evaluating depression, anxiety, and stress in intern physicians in Australia, depression was found to be 53%, anxiety 46%, and stress 51% [22] similar to our study (for physicians). In the study in the United Kingdom, the researches [40] had found that midwives scored in the moderate/severe/extreme range for stress (36.7%), anxiety (38%), and depression (33%) similar to our study (for midwives). On the other hand, there are also studies that found different results from our study. In a study in Australia, it was found that midwives had mod/severe/extreme depression (17%), anxiety (20.5%), and stress (22%) symptoms [23]. Maharaj et al. [24] had found that the prevalence rates of depression, anxiety, and stress were 32.4%, 41.2%, and 41.2%, respectively, in nurses. These differences may be due to these studies had included not only primary health-care workers but also health-care professionals working in other health-

**Table 1.** Distribution of the Maslach Burnout Inventory and Depression, anxiety and Stress Scale-21 subscale scores according to sociodemographic characteristics of individuals and reliability values.

| Characteristic (n-%) | Emotional Exhaustion Low n(%) | Moderate n(%) | High n(%) | Depersonalization Low n(%) | Moderate n(%) | High n(%) | Personal Accomplishment Low n(%) | Moderate n(%) | High n(%) | Depression Normal n(%) | High n(%) | Anxiety Normal n(%) | High n(%) | Stress Normal n(%) | High n(%) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 267(79.0) | 48(14.2) | 23(6.8) | 274(81.1) | 47(13.9) | 17(5.0) | 183(54.1) | 86(25.4) | 69(20.4) | 301(89.1) | 37(10.9) | 288(85.2) | 50(14.8) | 321(95.0) | 17(5.0) |
| **Gender** | | | | | | | | | | | | | | | |
| Male (112–33.1) (226–66.9) | 88(33.0) | 17(35.4) | 7(30.4) | 80(29.2) | 25(53.2) | 7(41.2) | 67(36.6) | 30(34.9) | 15(21.7) | 102(33.9) | 10(27.0) | 99(34.4) | 13(26.0) | 105(32.7) | 7(41.2) |
| Female | 179(67.0) | 31(64.6) | 16(69.6) | 194(70.8) | 22(46.8) | 10(58.8) | 116(63.4) | 56(65.1) | 54(78.3) | 199(66.1) | 27(73.0) | 189(65.6) | 37(74.0) | 216(67.3) | 10(58.8) |
| | $x^2=0.192$ p = 0.908 | | | $x^2=10.947$ p = **0.004** | | | $x^2=5.162$ p = 0.076 | | | $x^2=0.424$ p = 0.515 | | $x^2=0.997$ p = 0.318 | | $x^2=0.210$ p = 0.647 | |
| **Age group (years)** (Mean age (X ± SD) = 35,9 ± 8,1 (Min = 22, Max = 64)) | | | | | | | | | | | | | | | |
| <40 (216–63.9) | 174(65.2) | 33(68.8) | 9(39.1) | 177(64.6) | 30(63.8) | 9(52.9) | 113(61.7) | 57(66.3) | 46(66.7) | 191(63.5) | 25(67.6) | 182(63.2) | 34(68.0) | 205(63.9) | 11(64.7) |
| ≥40 (122–36.1) | 93(34.8) | 15(31.3) | 14(60.9) | 97(35.4) | 17(36.2) | 8(47.1) | 70(38.3) | 29(33.7) | 23(33.3) | 110(36.5) | 12(32.4) | 106(36.8) | 16(32.0) | 116(36.1) | 6(35.3) |
| | $x^2=6.793$ p = **0.033** | | | $x^2=0.943$ p = 0.624 | | | $x^2=0.807$ p = 0.668 | | | $x^2=0.096$ p = 0.756 | | $x^2=0.244$ p = 0.622 | | $x^2=0.000$ p = 1.000 | |
| **Marital status** | | | | | | | | | | | | | | | |
| Single + Widow (83–24.9) | 61(22.8) | 14(29.2) | 8(34.8) | 58(21.2) | 18(38.3) | 7(41.2) | 49(26.8) | 18(20.9) | 16(23.2) | 73(24.3) | 10(27.0) | 72(25.0) | 11(22.0) | 79(24.6) | 4(23.5) |
| Married (255–75.4) | 206(77.2) | 34(70.8) | 15(65.2) | 216(78.8) | 29(61.7) | 10(58.8) | 134(73.2) | 68(79.1) | 53(76.8) | 228(75.7) | 27(73.0) | 216(75.0) | 39(78.0) | 242(75.4) | 13(76.5) |
| | $x^2=2.270$ p = 0.321 | | | $x^2=9.023$ p = **0.011** | | | $x^2=1.167$ p = 0.558 | | | $x^2=0.028$ p = 0.867 | | $x^2=0.077$ p = 0.782 | | $x^2=0.010$ p = 0.920 | |
| **Occupation** | | | | | | | | | | | | | | | |
| Physician (168–49.7) | 123(46.1) | 27(56.3) | 18(78.3) | 116(42.3) | 39(83.0) | 13(76.5) | 103(56.3) | 41(47.7) | 24(34.8) | 151(50.2) | 17(45.9) | 146(50.7) | 22(44.0) | 160(49.8) | 8(47.1) |
| Nurse (52–15.4) | 42(15.7) | 9(18.8) | 1(4.3) | 50(18.2) | 1(2.1) | 1(5.9) | 23(12.6) | 13(15.1) | 16(23.2) | 45(15.0) | 7(18.9) | 43(14.9) | 9(18.0) | 49(15.3) | 3(17.6) |
| Midwife (118–34.9) | 102(38.2) | 12(25.0) | 4(17.4) | 108(39.4) | 7(14.9) | 3(17.6) | 57(31.1) | 32(37.2) | 29(42.0) | 105(34.9) | 13(35.1) | 99(34.4) | 19(38.0) | 112(34.9) | 6(35.3) |
| | $x^2=11.294$ p = **0.023** | | | $x^2=32.179$ p = **0.001** | | | $x^2=10.309$ p = **0.036** | | | $x^2=0.456$ p = 0.796 | | $x^2=0.805$ p = 0.669 | | $x^2=0.086$ p = 0.958 | |
| **Total working time (years)** | | | | | | | | | | | | | | | |
| ≤5 (82–24.3) | 64(24.0) | 14(29.2) | 4(17.4) | 60(21.9) | 17(36.2) | 5(29.4) | 54(29.5) | 17(19.8) | 11(15.9) | 74(24.6) | 8(21.6) | 72(25.0) | 10(20.0) | 80(24.9) | 2(11.8) |
| 6–10 (70–20.7) | 56(21.0) | 10(20.8) | 4(17.4) | 57(20.8) | 10(21.3) | 3(17.6) | 31(16.9) | 16(18.6) | 23(33.3) | 60(19.9) | 10(27.0) | 55(19.1) | 15(30.0) | 63(19.6) | 7(41.2) |
| 11–15 (69–20.4) | 56(21.0) | 10(20.8) | 3(13.0) | 61(22.3) | 5(10.6) | 3(17.6) | 39(21.3) | 20(23.3) | 10(14.5) | 61(20.3) | 8(21.6) | 60(20.8) | 9(18.0) | 66(20.6) | 3(17.6) |
| ≥16 (117–34.6) | 91(34.1) | 14(29.2) | 12(52.2) | 96(35.0) | 15(31.9) | 6(35.3) | 59(32.2) | 33(38.4) | 25(36.2) | 106(35.2) | 11(29.7) | 101(35.1) | 16(32.0) | 112(34.9) | 5(29.4) |
| | $x^2=4.204$ p = 0.649 | | | $x^2=6.488$ p = 0.374 | | | $x^2=13.808$ p = **0.032** | | | $x^2=1.236$ p = 0.744 | | $x^2=3.168$ p = 0.366 | | $x^2=4.980$ p = 0.176 | |
| **Smoking** | | | | | | | | | | | | | | | |
| No (261–77.2) | 210(78.7) | 34(70.8) | 17(73.9) | 215(78.5) | 34(72.3) | 12(70.6) | 141(77.0) | 69(80.2) | 51(73.9) | 236(78.4) | 25(67.6) | 227(78.8) | 34(68.0) | 249(77.6) | 12(70.6) |
| Yes (77–22.8) | 57(21.3) | 14(29.2) | 6(26.1) | 59(21.5) | 13(27.7) | 5(29.4) | 42(23.0) | 17(19.8) | 18(26.1) | 65(21.6) | 12(32.4) | 61(21.2) | 16(32.0) | 72(22.4) | 5(29.4) |
| | $x^2=1.567$ p = 0.457 | | | $x^2=1.303$ p = 0.521 | | | $x^2=0.876$ p = 0.645 | | | $x^2=1.627$ p = 0.202 | | $x^2=2.253$ p = 0.133 | | p = 0.553 | |
| **Cronbach alpha** | 0.84 | | | 0.80 | | | 0.79 | | | 0.90 | | 0.90 | | 0.91 | |

**Abbreviations:** X Mean, SD standard deviation, **Bold values:** p< 0.05

**Table 2.** Distribution of Maslach Burnout Inventory and Depression, anxiety and Stress Scale-21 subscale score means according to sociodemographic characteristics of individuals (n = 338).

| Sociodemographic characteristics | | MBI Emotional Exhaustion X ± SD | MBI Depersonalization X ± SD | MBI Personal Accomplishment X ± SD | DASS-21 Depression X ± SD | DASS-21 Anxiety X ± SD | DASS-21 Stress X ± SD |
|---|---|---|---|---|---|---|---|
| **Gender** | | | | | | | |
| Male | | 15.17 ± 7.90 | 5.67 ± 4.41 | 20.79 ± 6.62 | 3.85 ± 4.67 | 3.16 ± 4.21 | 4.92 ± 5.42 |
| Female | | 13.98 ± 8.05 | 3.73 ± 4.01 | 22.82 ± 5.91 | 3.38 ± 4.77 | 3.56 ± 4.51 | 4.87 ± 5.01 |
| | | U = 11,359.50 | U = 9038.00 | U = 14,966.00 | U = 11,376.50 | U = 13,312.50 | U = 12,956.00 |
| | | p = 0.125 | p = **0.001** | p = **0.006** | p = 0.116 | p = 0.428 | p = 0.719 |
| **Age group (years)** | | | | | | | |
| <40 | | 14.06 ± 7.41 | 4.26 ± 4.09 | 22.35 ± 6.02 | 3.58 ± 4.75 | 3.51 ± 4.17 | 4.94 ± 5.14 |
| ≥40 | | 14.92 ± 8.98 | 4.59 ± 4.51 | 21.80 ± 6.57 | 3.46 ± 4.74 | 3.29 ± 4.82 | 4.79 ± 5.16 |
| | | U = 13,400.50 | U = 13,506.50 | U = 12,598.50 | U = 13,055.50 | U = 12,059.50 | U = 12,947.00 |
| | | p = 0.795 | p = 0.700 | p = 0.503 | p = 0.885 | p = 0.186 | p = 0.788 |
| **Marital status** | | | | | | | |
| Single + Widow | | 15.95 ± 7.91 | 5.87 ± 4.83 | 22.07 ± 5.83 | 4.09 ± 5.17 | 3.09 ± 4.36 | 4.80 ± 5.59 |
| Married | | 13.86 ± 7.99 | 3.89 ± 3.91 | 22.18 ± 6.36 | 3.36 ± 4.58 | 3.54 ± 4.43 | 4.92 ± 5.00 |
| | | U = 8971.50 | U = 7972.00 | U = 11,043.50 | U = 9846.50 | U = 11,579.50 | U = 11,134.00 |
| | | p = **0.037** | p = **0.001** | p = 0.550 | p = 0.323 | p = 0.188 | p = 0.469 |
| **Occupation** | | | | | | | |
| 1.Physician | | 16.16 ± 8.11 | 6.04 ± 4.45 | 20.93 ± 6.45 | 3.91 ± 4.58 | 3.35 ± 4.24 | 5.05 ± 5.20 |
| 2.Midwife | | 12.52 ± 7.64 | 2.76 ± 3.45 | 22.92 ± 6.18 | 3.10 ± 4.82 | 3.53 ± 4.52 | 4.83 ± 4.14 |
| 3.Nurse | | 12.82 ± 7.33 | 2.67 ± 2.90 | 24.34 ± 4.55 | 3.36 ± 5.06 | 3.48 ± 4.76 | 4.51 ± 5.00 |
| | | $\chi^2$ = 17.258 | $\chi^2$ = 57.447 | $\chi^2$ = 14.851 | $\chi^2$ = 6.485 | $\chi^2$ = 0.107 | $\chi^2$ = 0.307 |
| | | p = **0.001*** | p = **0.001*** | p = **0.001*** | p = **0.039*** | p = 0.948 | p = 0.858 |
| *Significant difference ($\chi^2$; p) | 1–2 | 45.442; **0.001** | 80.563; **0.001** | −33.188; **0.014** | 28.099; **0.039** | - | - |
| | 1–3 | 40.772; **0.025** | 78.557; **0.001** | −52.136; **0.002** | - | - | - |
| **Total working time (years)** | | | | | | | |
| 1. ≤5 | | 14.78 ± 7.62 | 5.36 ± 4.56 | 20.76 ± 6.45 | 3.41 ± 4.67 | 2.98 ± 4.07 | 3.82 ± 4.90 |
| 2. 6–10 | | 13.51 ± 8.05 | 3.92 ± 4.04 | 23.54 ± 6.00 | 4.11 ± 5.43 | 3.94 ± 4.35 | 6.02 ± 5.77 |
| 3. 11–15 | | 14.24 ± 7.35 | 3.92 ± 3.69 | 21.94 ± 5.46 | 3.57 ± 4.49 | 3.71 ± 4.33 | 5.15 ± 4.75 |
| 4. ≥16 | | 14.69 ± 8.65 | 4.23 ± 4.36 | 22.41 ± 6.47 | 3.27 ± 4.51 | 3.28 ± 4.73 | 4.80 ± 5.04 |
| | | $\chi^2$ = 1.176 | $\chi^2$ = 5.362 | $\chi^2$ = 9.064 | $\chi^2$ = 0.938 | $\chi^2$ = 5.575 | $\chi^2$ = 8.641 |
| | | p = 0.759 | p = 0.147 | p = **0.028*** | p = 0.816 | p = 0.134 | p = **0.034*** |
| *Significant difference ($\chi^2$; p) | 1–2 | - | - | −45.619; **0.024** | - | - | −42.848; **0.037** |
| **Smoking** | | | | | | | |
| Yes | | 15.23 ± 8.57 | 5.07 ± 4.72 | 22.55 ± 6.26 | 4.23 ± 5.40 | 4.38 ± 5.15 | 5.61 ± 5.53 |
| No | | 14.12 ± 7.83 | 4.17 ± 4.07 | 22.03 ± 6.22 | 3.34 ± 4.51 | 3.15 ± 4.14 | 4.68 ± 5.01 |
| | | U = 10,741.00 | U = 11,145.00 | U = 10,502.50 | U = 11,100.50 | U = 11,437.50 | U = 11,004.00 |
| | | p = 0.358 | p = 0.143 | p = 0.546 | p = 0.147 | p = 0.060 | p = 0.198 |

**Abbreviations:** *MBI* Maslach Burnout Inventory, *DASS-21* Depression, Anxiety and Stress Scale-21, *X* Mean, *SD* standard deviation, **Bold values:** p< 0.05

**Table 3.** Logistic Regression Model Predicting Depression Scores (n = 338).

| Category | OR (95% CI) | P |
|---|---|---|
| **Gender** | | |
| Male | 1.00 | |
| Female | 0.75(0.21–2.58) | 0.648 |
| **Age group (years)** | | |
| <40 | 1.00 | |
| ≥40 | 1.20(0.58–2.48) | 0.623 |
| **Marital status** | | |
| Single + Widow | 1.00 | |
| Married | 1.10(0.36–3.38) | 0.863 |
| **Occupation** | | |
| 1.Physician | 1.00 | |
| 2.Midwife | 0.47(0.13–1.66) | 0.246 |
| 3.Nurse | 1.56(0.48–5.03) | 0.458 |
| **Total working time (years)** | | |
| 1. ≤5 | 1.00 | |
| 2. 6–10 | 1.35(0.35–5.24) | 0.657 |
| 3. 11–15 | 2.47(0.81–7.48) | 0.110 |
| 4. ≥16 | 1.53(0.48–4.82) | 0.466 |
| **Smoking** | | |
| Yes | 1.00 | |
| No | 0.49(0.19–1.28) | 0.151 |
| **Emotional Exhaustion** | 1.19(1.12–1.28) | **0.001** |
| **Depersonalization** | 0.96(0.86–1.07) | 0.542 |
| **Personal Accomplishment** | 0.92(0.86–0.99) | **0.047** |

Abbreviations: *OR* Odds ratio, *CI* Confidence interval, **Bold values:** p< 0.05

**Table 5.** Logistic Regression Model Predicting Stress Scores (n = 338).

| Category | OR (95% CI) | P |
|---|---|---|
| **Gender** | | |
| Male | 1.00 | |
| Female | 4.73(0.59–37.42) | 0.140 |
| **Age group (years)** | | |
| <40 | 1.00 | |
| ≥40 | 0.98(0.09–10.03) | 0.989 |
| **Marital status** | | |
| Single + Widow | 1.00 | |
| Married | 1.10(0.26–4.64) | 0.888 |
| **Occupation** | | |
| 1.Physician | 1.00 | |
| 2.Midwife | 0.18(0.02–1.53) | 0.118 |
| 3.Nurse | 1.38(0.27–6.95) | 0.691 |
| **Total working time (years)** | | |
| 1. ≤5 | 1.00 | |
| 2. 6–10 | 0.73(0.03–14.11) | 0.838 |
| 3. 11–15 | 3.92(0.33–46.68) | 0.279 |
| 4. ≥16 | 1.05(0.13–8.44) | 0.958 |
| **Smoking** | | |
| Yes | 1.00 | |
| No | 1.12 (0.31–3.96) | 0.858 |
| **Emotional Exhaustion** | 1.16(1.06–1.27) | **0.001** |
| **Depersonalization** | 1.00(0.86–1.15) | 0.997 |
| **Personal Accomplishment** | 0.95(0.86–1.04) | 0.320 |

Abbreviations: *OR* Odds ratio, *CI* Confidence interval, **Bold values:** p< 0.05

**Table 4.** Logistic Regression Model Predicting Anxiety Scores (n = 338).

| Category | OR (95% CI) | P |
|---|---|---|
| **Gender** | | |
| Male | 1.00 | |
| Female | 0.68(0.23–2.04) | 0.498 |
| **Age group (years)** | | |
| <40 | 1.00 | |
| ≥40 | 1.52(0.40–5.80) | 0.536 |
| **Marital status** | | |
| Single + Widow | 1.00 | |
| Married | 0.77(0.28–2.06) | 0.771 |
| **Occupation** | | |
| 1.Physician | 1.00 | |
| 2.Midwife | 0.52(0.18–1.52) | 0.237 |
| 3.Nurse | 1.31(0.47–3.58) | 0.599 |
| **Total working time (years)** | | |
| 1. ≤5 | 1.00 | |
| 2. 6–10 | 0.79(0.16–3.83) | 0.774 |
| 3. 11–15 | 1.62(0.39–6.71) | 0.502 |
| 4. ≥16 | 0.67(0.18–2.50) | 0.561 |
| **Smoking** | | |
| Yes | 1.00 | |
| No | 0.47(0.21–1.08) | 0.077 |
| **Emotional Exhaustion** | 1.14(1.08–1.21) | **0.001** |
| **Depersonalization** | 0.98(0.89–1.08) | 0.721 |
| **Personal Accomplishment** | 0.92(0.87–0.98) | **0.014** |

Abbreviations: *OR* Odds ratio, *CI* Confidence interval, **Bold values:** p< 0.05

care settings and so that the differences in workplace conditions.

In our study, it was found that the rates of low-moderate-high EE and D, low-moderate PA subscales were higher in physicians than midwives and nurses. Similar to our study, in a study, it was found that burnout levels of general practitioners, residents, and specialists were higher compared to other health professions [41].

The mean of D score were higher in males and the mean of PA score was higher in females in our study. These findings are compatible with the previous literature. In the study in a public hospital, the researchers [42] had found that the EE scores of the female health workers were significantly higher than male ones. In a systematic review, it was found that males were significantly related to EE [36]. In the study conducted with primary health-care staff in Iran, it was found that EE was significantly higher female participants [35]. In the study in Turkey, it was found that male physicians' PA scores were significantly higher than those of females [39]. According to Maslach et al. [43], it is difficult to find any definite statement regarding the effect of the gender variable in burnout.

In our study, no significant difference was found between the mean scores of burnout, depression, anxiety and stress, and age groups. Elbarazi et al. [36] had found that aged more than 40 years was significantly related to EE. Zarei et al. [35] had found that the mean scores of EE and D were significantly higher among employees under the age of 35 years while the mean score of PA was lower in employees under the age of 35 years. Kosan et al. [39] had found that mean EE and D were significantly higher among physicians aged under 25 while the mean PA scores were significantly lower among physicians aged under 25. Hunter et al. [40] had found that younger midwives (those aged 40 and below) recorded significantly higher scores than older midwives on the personal and work-related burnout subscales, and on each of the DASS scales. The reason for these differences in studies may be due to the fact that they were conducted in countries with different health conditions and with health-care professionals in different positions.

The means of EE and D subscales were found to be higher in single or widowed in our study. There are studies [35] that had found similar results to our study, as well as studies [42] that had not found a correlation between marital status and burnout. Unlike our study, Hunter et al. [40] had found that midwives who were married recorded lower levels of depression. This may be due to our study also including non-midwife health workers.

In our study, it was found that physicians' EE and D score means were higher than midwives and nurses, while the PA score mean was lower. And also the depression score mean of physicians was higher than midwives. The reason that these levels were higher especially in physicians than in other health-care workers may be resulted from the primary responsibility of the physician in the provision of health care and there may be heavy load caused by it. Nazik et al. [42] had found that the EE scores of the nurses were higher than other health workers, and the D scores of nurses and physicians were higher than the other health worker. Similar to our study Zarei et al. [35] had found that EE was significantly higher among physicians but unlike our study, they found that the mean score of PA was lower in those with non-physician staff. The reason for the differences in these studies may be that these studies also include hospital staff.

In our study, we had determined that the means of the PA and stress subscales were lower those who worked 5 years or less than those who worked 6–10 years. Similar to our study Kosan et al. [39] had found that mean PA scores were significantly lower among physicians with 6 years or less professional experience. In a systematic review in Arab countries, the researches [36] had stated that working for more than 10 years was significantly related to EE. On the other hand, in another study, it was found that EE was significantly higher among employees with fewer than 10 years of work experience and the mean score of PA was lower in those with less than 10 years of work experience [35]. Hunter et al. [40] had found that midwives with 30 or more years of experience recorded lower scores on the Burnout-Personal, Burnout-Work, and the DASS scales. The reason for these differences in studies may be the difference in working conditions in the places where the studies were conducted.

Unlike our study, in the study in Turkey the researches [39] had found that mean EE and D were significantly higher among physicians' smokers. The reason for this may be that our study also included non-physician health-care workers.

It was found, in our study, that EE and PA were the factors associated with depression and anxiety, while EE was the factor associated with stress. In a systematic review and meta-analysis examining the relationship between burnout, depression, and anxiety, a significant positive correlation was found between burnout and depression (r = 0.520) and also between burnout and anxiety (r = 0.460) [28]. In the studies conducted in midwives, it was found a strong and statistically significant correlation between each of the subscales of the Copenhang Burnout Scale and the DASS-21 [23,40].

In conclusion, the burnout levels of the health workers participating in our study were lower level in EE (79.0%), D (81.1%), and PA (54.1%). The level of the depression, anxiety, and stress were found to be 10.9%, 14.8%, and 5.0%, respectively. The rates of low-moderate-high EE and D, low-moderate PA subscales were higher in physicians than midwives and nurses. Mean EE was higher among single or widows and physicians. Mean D was higher among males, single or widows, and physicians. Mean PA was higher among females while lower among physicians and who worked 5 years and under. Mean depression was higher among physicians while mean stress was lower among who worked 5 years and under. EE and PA were the factors associated with depression and anxiety, while EE was the factor associated with stress.

The impact of burnout in the health sector on patient safety and quality of care cannot be overlooked and requires attention. Considering that burnout, depression, anxiety, and stress are intertwined concepts, it is thought that it is needed to develop strategies (through training on mechanisms to deal with professional burnout, stress, and pressure, or by giving incentive rewards, etc.) for health workers to regain working energy.

## Notes on contributors

*İrem Akova* is a public health physician by training. She worked for close to 9 years in Turkey and 6 months researching and teaching in the Sivas Cumhuriyet University, Faculty of Medicine Department of Public Health as an Asst. Prof. Her research interests include epidemiology, infectious diseases, non- infectious diseases, occupational health and all public health issues.

*Öznur Hasdemir* is a midwife. She worked for close to 7 years in Turkey, 3 years working and researching in the Sivas Provincial Health Directorate as a midwife specialist. Her research interests include infectious diseases, non-infectious diseases, occupational health and all public health issues.

*Esma Kiliç* is a public health physician by training. She worked for close to 8 years in Turkey, 2 year working and researching in the Sivas Provincial Health Directorate as a public health specialist. Her research interests epidemiology, infectious disaeses, non- infectious diseases, occupational health and all public health issues.

## ORCID

İrem Akova http://orcid.org/0000-0002-2672-8863
Öznur Hasdemir http://orcid.org/0000-0003-1087-2112
Esma Kiliç http://orcid.org/0000-0001-8503-4995

## References

[1] Esen M. The relationship between job stress, burnout and organizational commitment: a research on health employees. Int J Economic Soc Res. 2019;15(1):1–13: https://dergipark.org.tr/tr/pub/esad/issue/49560/530534

[2] Kaya ŞD, Arıöz A. Burnout Level of Midwife and Nurse Students and Triggering Factors. Selcuk Univ J Ins Soc Sci. 2014;31:89–99.

[3] Karsavuran S. Burnout in Healthcare Sector: burnout Level of the Managers at the Ministry of Health Hospitals in Ankara. Hacettepe Univ J Econ Admi Sci. 2015;32(2):133–165.

[4] Altay B, Gönener D, Demirkıran C. The Level of Burnout and influence of Family Support in Nurses working in a University Hospital. Firat Med J. 2010;15 (1):10–16.

[5] Çalgan Z, Yeğenoğlu S, Aslan D. Eczacılarda Mesleki Bir Sağlık Sorunu : tükenmişlik. *Hacettepe Univ J Faculty Pharm*. 2009;29(1):61–74.

[6] Piko BF. Burnout, role conflict, job satisfaction and psychosocial health among Hungarian health care staff: A questionnaire survey. Int J Nurs Stud. 2006;43(3):311–318.

[7] Shanafelt TD, Hasan O, Dyrbye LN, et al. Changes in Burnout and Satisfaction With Work-Life Balance in Physicians and the General US Working Population Between 2011 and 2014. Mayo Clin Proc. 2015;90 (12):1600–1613.

[8] Kumar S. Burnout and Doctors: prevalence, Prevention and Intervention. Healthcare. 2016;4(3):37.

[9] Kansoun Z, Boyer L, Hodgkinson M, et al. Burnout in French physicians: A systematic review and meta-analysis. J Affect Disord. 2019;246:132–147.

[10] West CP, Dyrbye LN, Shanafelt TD. Physician burnout: contributors, consequences and solutions. J Intern Med. 2018;283(6):516–529.

[11] Hildingsson I, Westlund K, Wiklund I. Burnout in Swedish midwives. Sex Rep Healthcare. 2013;4 (3):87–91.

[12] Henriksen L, Lukasse M. Burnout among Norwegian midwives and the contribution of personal and work-related factors: A cross-sectional study. Sex Rep Healthcare. 2016;9:42–47.

[13] Sandall J. Burnout and midwifery: an occupational hazard? Br J Midwifery. 1995;3:246–248.

[14] Sheen K, Spiby H, Slade P. Exposure to traumatic perinatal experiences and posttraumatic stress symptoms in midwives: prevalence and association with burnout. Int J Nurs Stud. 2015;52(2):578–587.

[15] Yoshida Y, Sandall J. Occupational burnout and work factors in community and hospital midwives: A survey analysis. Midwifery. 2013;29(8):921–926.

[16] Jordan K, Fenwick J, Slavin V, et al. Level of burnout in a small population of Australian midwives. Women Birth. 2013;26(2):125–132.

[17] Mollart L, Skinner VM, Newing C, et al. Factors that may influence midwives work-related stress and burnout. Women Birth. 2013;26(1):26–32.

[18] Newton MS, McLachlan HL, Willis KF, et al. Comparing satisfaction and burnout between caseload and standard care midwives: findings from two cross-sectional surveys conducted in Victoria, Australia. BMC Pregnancy Childbirth. 2014;14 (1):426.

[19] Türkiye'de Sağlık Çalışanları Tükenmişlik Araştırması Sonuçları. (2012). Türkiye'de Sağlık Çalışanları Tükenmişlik Araştırması Sonuçları. April 1, 2019. http://www.saglikcalisanisagligi.org/tezler2/tukenmislikarastirmasi.pdf

[20] Tok Ş, Şerik B, Ekerbiçer HÇ, et al. Burnout Levels and Related Factors of Family Doctors Who Work At Family Health Centers in Sakarya Province. Sakarya Med J. 2017;7(1):39–46.

[21] Yıldırım A, Hacıhasanoğlu R. Quality of Life and Effective Variables Among Health Care Professionals. Psikiyatri Hemşireliği Dergisi. 2011;2 (2):61–68.

[22] Axisa C, Nash L, Kelly P, et al. Burnout and distress in Australian physician trainees: evaluation of a wellbeing workshop. Australas Psychiatry. 2019;27 (3):255–261.

[23] Creedy DK, Sidebotham M, Gamble J, et al. Prevalence of burnout, depression, anxiety and stress in Australian midwives: a cross-sectional survey. BMC Pregnancy Childbirth. 2017;17(1):13.

[24] Maharaj S, Lees T, Lal S. Prevalence and Risk Factors of Depression, Anxiety, and Stress in a Cohort of Australian Nurses. Int J Environ Res Public Health. 2018;16(1):61.

[25] da Costa BRC, Pinto ICJF. Stress, Burnout and Coping in Health Professionals: A Literature Review. Psychol Brain Stud. 2017;1(1):1–8: http://www.imedpub.comhttp://www.imedpub.com/psychology-and-brain-studies/

[26] Bakker AB, Schaufeli WB, Demerouti E, et al. Using Equity Theory to Examine the Difference Between Burnout and Depression. Anxiety Stress Coping. 2000;13(3):247–268.

[27] Turnipseed DL. Anxiety and Burnout in the Health Care Work Environment. Psychol Rep. 1998;82 (2):627–642.

[28] Koutsimani P, Montgomery A, Georganta K. The Relationship Between Burnout, Depression, and Anxiety: A Systematic Review and Meta-Analysis. Front Psychol. 2019;10:284.

[29] Toker S, Biron M. Job burnout and depression: unraveling their temporal relationship and considering the role of physical activity. J Appl Psychol. 2012;97(3):699–710.

[30] Maslach C, Jackson SE, Leiter M. The Maslach Burnout Inventory Manual. In: Zalaquett CP, Wood RJ, editors. Evaluating Stress: A Book of Resources. The Scarecrow Press; 1997. p. 191–218.

[31] Ergin C. Adoption of Maslach Burnout Inventory in doctors and nurses. Nat Psychol Congress Sci Stud. 1992.

[32] Henry JD, Crawford JR. The short-form version of the Depression Anxiety Stress Scales (DASS-21):

construct validity and normative data in a large non-clinical sample. Br J Clin Psychol. 2005;44 (2):227–239.

[33] Lovibond SH, Lovibond PF. Manual for the depression anxiety stress scales. 2nd ed. Sydney; Psychology Foundation of Australia; 1995.

[34] Yılmaz Ö, Boz H, Arslan A. The Validity and Reliability of Depression Stress and Anxiety Scale (Dass21) Turkish Short Form. Res Financial Econ Soc Stud. 2017;2(2):78–91.

[35] Zarei A, Sial H. Prevalence of Burnout among Primary Health Care Staff and Its Predictors: A Study in Iran. Int J Environ Res Public Health. 2019;16(12):2249.

[36] Elbarazi I, Loney T, Yousef S, et al. Prevalence of and factors associated with burnout among health care professionals in Arab countries: a systematic review. BMC Health Serv Res. 2017;17(1):491.

[37] Ashkar K, Romani M, Musharrafieh U, et al. Prevalence of burnout syndrome among medical residents: experience of a developing country. Postgrad Med J. 2010;86(1015):266–271.

[38] Alameddine M, Saleh S, El-Jardali F, et al. The retention of health human resources in primary healthcare centers in Lebanon: a national survey. BMC Health Serv Res. 2012;12(1):419.

[39] Kosan Z, Calikoglu EO, Guraksin A. Levels of burnout and their associated factors among physicians working in Northeast Anatolia. Niger J Clin Pract. 2018;21(7):875–881.

[40] Hunter B, Fenwick J, Sidebotham M, et al. Midwives in the United Kingdom: levels of burnout, depression, anxiety and stress and associated predictors. Midwifery. 2019;79:102526.

[41] Shams T, El-Masry R. Job Stress and Burnout among Academic Career Anaesthesiologists at an Egyptian University Hospital. Sultan Qaboos Univ Med J. 2013;13(2):287–295.

[42] Nazik F, Yilmaz E, Tatli H. Burnout in health sector: sample of public hospital. Med Sci. 2018;7(4):821–825.

[43] Maslach C, Schaufeli WB, Leiter MP. Job Burnout. Annu Rev Psychol. 2001;52(1):397–422.