

Severe burnout among critical care workers in Turkey

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ABSTRACT

الأهداف: لتحديد مدى انتشار ومخاطر عوامل الإرهاق في موظفين وحدات العناية المركزة (ICU) في تركيا. فالاحترق المهني سائد لدى الأطباء والممرضات في وحدة العناية المركزة في جميع أنحاء العالم. معظم موظفين وحدة العناية المركزة لديهم خطة لترك عملهم. ويؤدي الاستبدال المتكرر لموظفي وحدة العناية المركزة من زيادة التكلفة وتقلل من جودة الرعاية. ولذلك فإن انتشار الاحتراق المهني وعوامل الخطر الإرهاق في موظفي وحدة العناية المركزة في تركيا غير معروف.

الطريقة: أجريت هذه دراسة مقطعية. جمعت البيانات باستخدام مقياس (MBI) الذي تم توزيعه خلال شهر أغسطس 2018م على 1161 عامل في وحدة العناية المركزة في تركيا.

النتائج: ظهر الاحتراق في مقياس فرعي واحدة على الأقل في 99% من المشاركين وفي جميع 3 مقاييس فرعية في 15% من المشاركين. اشتملت عوامل خطر الإرهاق العاطفي على الجنس الإناثي (نسبة الأرجحية واردة العمل المتناوبه (OR=1.87 95% CI: 1.26-2.78؛ $p<0.01$)، واردة العمل المتناوبه (OR=3.93 95% CI: 1.66-9.30؛ $p<0.01$)، وحدوث الرعاية في مرحلة الاحتضار (OR=1.01 95% CI: 1.00-1.03؛ $p<0.01$) ولاضطراب الشخصية، اشتملت على واردة العمل المتناوبه (OR=2.22 95% CI: 1.15-4.26؛ $p<0.05$)، حدوث الرعاية في مرحلة الاحتضار (OR=2.22 95% CI: 1.15-4.26؛ $p<0.05$)، واشتمل انخفاض الإنجاز الشخصي على حدوث الرعاية في مرحلة الاحتضار (OR=1.02 95% CI: 0.96-0.98؛ $p<0.01$).

الخاتمة: أشارت النتائج إلى أن موظفي وحدة العناية المركزة في تركيا لديهم نسبة احتراق عالية.

Objectives: To determine the prevalence and risk factors for burnout in the intensive care units (ICU) staff in Turkey. Burnout is prevalent in physicians and nurses in the ICU worldwide. Most ICU workers with burnout plan to leave their professions. Frequent replacement of ICU staff increases cost and decreases the quality of care. Prevalence and risk factors of burnout in ICU staff in Turkey are largely unknown.

Methods: This is a cross-sectional study. Data were gathered using the Maslach Burnout Inventory (MBI) which was distributed during August 2018, among all 1161 ICU workers in Turkey.

Results: Burnout was detected in at least one subscale in 99% of participants and in all 3 subscales in 15% of the participants. Risk factors for emotional exhaustion included female gender (odds ratio [OR]=1.87 [95% CI: 1.26-2.78]; $p<0.01$), alternate-day shift (OR=3.93 [95% CI: 1.66-9.30]; $p<0.01$), and incidence of end of life care (OR=1.01 [95% CI: 1.00-1.03]; $p<0.01$). For depersonalization it included alternate-day shift (OR=2.22 [95% CI: 1.15-4.26]; $p<0.05$), incidence of end of life care (OR=1.02 [95% CI: 1.01-1.03]; $p<0.01$), and for reduced personal accomplishment it included incidence of end of life care (OR=0.97 [95% CI: 0.96-0.98]; $p<0.01$).

Conclusion: The results indicated that ICU staff in Turkey had a high rate of burnout.

*Saudi Med J 2019; Vol. 40 (9): 943-948
doi: 10.15537/smj.2019.9.24520*

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Received 10th May 2019. Accepted 21st August 2019.

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Burnout can be seen as one of the common healthcare worker condition in both developing and developed countries.¹ There may be more conflicts in developing countries because there are fewer protocols and checklists.² These conflicts and problems at work in developing countries may prevent a successful and peaceful working environment.³ Suboptimal working conditions may cause serious complications and inconvenience among the workers.⁴ Restricted resource conditions may cause mental burnout, spoil patient and employee satisfaction.⁵ Studies have found that high work load, long working hours, low work experience cause burnout.^{6,7}

The number of trained personnel in developing countries is lacking. This situation may hinder the ability to cope with problems and may cause anxiety. Some claim that, burnout decreases as worker education increases.⁸⁻¹⁰ In developing countries multidisciplinary teams are low and there may be lack of team spirit beside the lack of order in intensive care units (ICU), high rates of patient readmission and lack of worker education. Increasing team communication and the team's ability to combat problems collaboratively may lower burnout.¹¹ High mortality rates in developing countries is one of the most important problems.¹² In developed countries, a number of arrangements are made to combat burnout.¹³ It is equally important to try to find and correct the causes of burnout in developing countries. Turkey is a developing country, and burnout studies were generally carried out in just one center.¹⁴⁻¹⁶

A recent World Health Organization (WHO) report highlighted that the health of healthcare professionals should also be considered while improving healthcare systems. Intensive care units have a reported mortality rate of 10-29%. A previous study indicated that the overall incidence rate of burnout is 6-47%, with 25-61% in the emotional exhaustion (EE), 19-45.5% in the depersonalization (DP), and 6-59% in the reduced personal accomplishment (PA) domain. Another study that was conducted in the United State of America also reported that the incidence rate of burnout was 61% in the EE, 44% in the DP, and 51% in the PA domain.¹⁷

Based on these high rates, the Critical Care Societies Collaborative (CCSC) emphasized that burnout is highly causing decreased quality of healthcare and thus the development of burnout in health care professionals should be prevented.¹⁸ As we know there is few studies

in the literature, about prevalence and risk factors of burnout in developing countries.¹ In this study, we aimed to investigate the prevalence and risk factors of burnout in the ICU staff in Turkey as a developing country. Our study aimed to describe and measure burnout among all ICU workers in Turkey.

Methods. There is still no clear, definite, and standard definition for the term burnout.¹⁹ Maslach et al,²⁰ defined burnout as a psychological syndrome and developed the Maslach burnout inventory (MBI), which consists of 22 items and 3 subscales: EE, DP, and PA. In MBI, EE refers to the individual's depletion of emotional resources and rapid loss of energy which results from performing many tasks within limited time frame.¹⁷ Depersonalization is characterized by negative, insensitive, cynical attitudes towards patients and colleagues and blaming patients for their health problems.²⁰ Personal accomplishment, on the other hand, refers to the tendency to consider oneself and one's work worthless, accompanied by weak self-confidence.²⁰

The study was announced on the Turkish society of intensive care medicine web group which included the ICUs directors and members. Through the ICU directors, 2032 potential participants were contacted. Individuals who were not working in the ICUs and those who visited the ICUs for patient consultations were excluded from this study. Following the invitation, 708 of the 2,032 invitees consented to participate in the survey. A second invitation was then issued by telephoning the ICU supervisors and an additional 611 participants consented to participate. Of the total 1,319 consenting participants, 1,241 participated in the survey, of whom 76 were excluded due to the presence of psychiatric disorders since they had psychiatric disorders before working in the ICU.

This is a cross sectional study. Data were gathered using the 22 MBI items which were distributed in August 2018 to ICU workers in Turkey. An online survey eliciting sociodemographic and working conditions of the ICU staff in Turkey was prepared and published online using Survey Monkey (www.surveymonkey.com; SurveyMonkey, San Mateo, CA, USA). (Supplemental Digital Content1, <https://tr.surveymonkey.com/r/3DTYS27>). In our investigation, sociodemographic and occupational risk factors were identified by literature review.

The reliability and validity of MBI for health care professionals in Turkey was determined by Çam et al,²¹ in 1981, who reported Cronbach's alpha coefficients of 0.81 for EE, 0.70 for DP, and 0.77 for PA. In our study,

Disclosure. Authors have no conflict of interests, and the work was not supported or funded by any drug company.

Cronbach's alpha coefficients was 0.81 for EE, 0.70 for DP, and 0.77 for PA, and 0.92 for all 22 scale items. In the Turkish version of MBI cut-off score for burnout was defined by subscale as a score greater than or equal to 30 for EE, a score ≥ 12 for DP, and a score ≤ 33 for PA.

Ethical approval was obtained from the Katip Çelebi Training and Research Hospital Ethics Committee (approval no. 31829978).

Statistical analysis. Statistical analysis was performed using the Statistical Package for Social Sciences (SPSS) for Windows version 24.0 (IBM Corp., Armonk, NY, USA). We used parametric methods for conducting all the analyses. The normality of distribution of continuous variables was tested using the Shapiro-Wilk test. Spearman's rank correlation coefficient was used to investigate the relationships between 2 numerical variables, while the chi-squared test was used to assess the relationship between categorical variables. Separately, multivariable logistic regression analysis was performed to identify the risk factors independently associated with severe burnout in at least one subscale. A p -value < 0.05 was considered to be significant.

Results. Mean age was 32.16 ± 6.94 years. A total of 1,161 participants were included in this study. Of the 1,161 participants, 61% were women, 64% were married, 46% were physicians, and 51% were nurses and 3% were other types of workers. Mean career experience was 8.21 (3-35) years, mean ICU experience was 4.69 (0,10-31) years and the mean number of weekly working hours was 56.8 (9-120) hours. Seventy percent of the participants reported working in an anesthesia ICU, 20% were working on an alternate-day shift system. Shift work takes place on a schedule outside from 9 a.m. to 5 p.m. per day. It involves evening or night shifts. The mean incidence of end-of-life care was 25.11 ± 17.62 cases. Among the physicians, major specialists (29%) presented the highest rate of burnout. Of all the participants, 7% performed an extra job including nurses. Alcohol use or smoking was present in 26% of the participants.

Table 1 presents the demographic data and Tables 2 & 3 present the work-related characteristics of the participants. Based on the MBI scores, severe burnout was detected in at least one subscale in 99% and in all 3 subscales in 15% of the participants.

Multivariate regression analysis indicated that the risk factors for EE included female gender (OR=1.87, 95% confidence interval [CI]: 1.26-2.78; $p < 0.01$), alternate-day shift (OR=3.93, 95% CI: 1.66-9.30; $p < 0.01$), and incidence of end-of-life care (OR=1.01, 95% CI: 1.00-1.03; $p < 0.01$), whereas the risk factors

Table 1 - Sociodemographic characteristics, (N=1161).

Demographics	n (%)
Age (years), (mean \pm SD)	32.16 \pm 6.94
Gender	
Female	712 (61)
Male	447 (38)
Marital status	
Single	411 (35)
Married or has a partner	747 (64)
Child ownership	
Yes	587 (51)
No	574 (49)
Profession	
Physician	543 (47)
Nurse	594 (51)
Others	24 (2)
Title	
Academic	58 (11)
ICU expert	69 (13)
Major specialist	159 (29)
Minor assistant	144 (26)
Major assistant	113 (21)
Number of children, (mean \pm SD)	2.00 \pm 0.85
Extra job off the clock, n (%)	81 (7)
Alcohol, smoking use, n (%)	304 (26)
Travel time to work (min), (mean \pm SD)	26.45 \pm 17.20

ICU - Intensive care unit, min - minute.

for DP included alternate-day shift (OR=2.22, 95% CI: 1.15-4.26; $p < 0.05$) and incidence of end-of-life care (OR=1.02, 95% CI: 1.00-1.03; $p < 0.01$). The only risk factor for PA was incidence of end-of-life care (OR=0.97, 95% CI: 0.96-0.98; $p < 0.01$). Table 4 present the multivariate analysis results.

Discussion. The results of our survey indicated that the most important risk factors for burnout in ICU staff included female gender, alternate-day shift, and the incidence of end-of-life care. Other studies have shown that the incidence of burnout in ICU staff is remarkably high, since ICU workers provide care to the individuals with lack of a decision-making capacity; relatives fail to meet the patients' recovery; and the staff are not fully competent in using the technical devices in the ICU, which requires advanced technical skills in life-sustaining medical treatment.^{22,23}

In our study, women constituted 61% of the participants, among whom the risk of burnout in the EE subscale was 1.87 times greater, independent of marital status and child ownership. Similarly, the higher risk of burnout in women has already been shown by numerous studies.²⁴ Shanafelt et al,²⁵ found an inverse relation between the burnout and professional

Table 2 - Work-related characteristics and Maslach Burnout inventory scores.

Characteristics	n (%)
<i>Type of ICU</i>	
Anesthesia	818 (70)
Surgery	21 (2)
Medical	280 (24)
Pediatric	6 (0.5)
<i>ICU experience</i>	
<5 years	809 (69)
>5 years	352 (30)
Professional experience (years), (mean±SD)	8.21±5.90
ICU experience (years), (mean±SD)	4.69±3.97
Mean weekly working hours, (mean±SD)	56.84±15.91
Incidence of end-of-life care (cases per month), (mean±SD)	25.11±17.62
<i>Working Schedule (hour per week)</i>	
Full time	146 (12)
Alternate-day shift	232 (20)
<i>Subscales</i>	
Emotional exhaustion	783 (67)
Depersonalization	660 (56)
Personal accomplishment	259 (59)
Burnout in at least one's subscales	1158 (99)
Burnout in all 3 subscales	180 (15)
Considering that they hold the position they deserve	488 (42)

ICU - Intensive care unit, MBI - Maslach Burnout inventory

Table 3 - Work-related characteristics and Maslach Burnout inventory scores.

Characteristics	Unstandardized coefficients		P-value
	B	Std. Error	
Gender	4.07	2.22	NS
Marital status	-2.32	3.19	NS
Educational status of physicians	0.26	0.95	NS
Doing extra work off the clock	4.54	4.28	NS
Weekly working hours	0.06	0.06	NS
Incidence of end-of-life care	0.29	0.06	<0.01
Child ownership	-0.30	3.13	NS
Shiftwork	-4.50	3.65	NS
Age	-0.64	0.22	<0.01

NS - non-significant

experience time. The higher ratios of burnout levels in young workers could be attributed to their relatively lower work experience, overwhelming workload, lack of experience in coping with work stress, and higher frequency of night shifts in young workers as compared with older workers.^{24,26} We did not obtain similar findings although in our study mean age was 32 years

Table 4 - Multivariate analysis of significant risk factors.

Variables	OR [95% CI]	P-value
<i>Risk factors for emotional exhaustion</i>		
Female/male	1.87 [1.26-2.78]	<0.01
Single/married	1.44 [0.82-2.54]	NS
Academic/major assistant	0.50 [0.22-1.13]	NS
Major specialist/assistant	0.99 [0.51-1.93]	NS
Minor specialist/major assistant	0.99 [0.44-2.18]	NS
Minor/major assistant	0.96 [0.50-1.83]	NS
Alternate-day shift/other	3.93 [1.66-9.30]	<0.01
Weekly working hours ≤40/≥80	0.89 [0.47-1.67]	NS
Weekly working hours 41-79/≥80	1.14 [0.67-1.93]	NS
Age	1.26 [0.70-2.27]	NS
Incidence of end-of-life care	1.01 [1.00-1.03]	<0.01
Child ownership	1.11 [0.66-1.88]	NS
<i>Risk factors for depersonalization</i>		
Female/male	1.27 [0.88-1.85]	NS
Single/married	0.91 [0.54-1.54]	NS
Academic/major assistant	0.54 [0.25-1.17]	NS
Major specialist/assistant	0.86 [0.47-1.57]	NS
Minor specialist/major assistant	0.81 [0.39-1.69]	NS
Minor/major assistant	0.86 [0.48-1.53]	NS
Alternate-day shift/other	2.22 [1.15-4.26]	<0.05
Weekly working hours ≤40/≥80	0.68 [0.37-1.23]	NS
Weekly working hours 41-79/≥80	0.88 [0.54-1.43]	NS
Age	0.88 [0.52-1.51]	NS
Incidence of end-of-life care	1.02 [1.01-1.03]	<0.001
Child ownership	0.75 [0.46-1.24]	NS
<i>Risk factors for reduced personal accomplishment</i>		
Female/male	0.72 [0.48-1.05]	N
Single/married	0.89 [0.53-1.51]	NS
Academic/major assistant	1.12 [0.50-2.49]	NS
Major specialist/assistant	0.81 [0.44-1.49]	NS
Minor specialist/major assistant	0.95 [0.44-2.02]	NS
Minor/major assistant	0.99 [0.56-1.77]	NS
Alternate-day shift/other	0.68 [0.37-1.26]	NS
Weekly working hours ≤40/≥80	1.21 [0.66-2.22]	NS
Weekly working hours 41-79/≥80	1.02 [0.62-1.65]	NS
Age	1.45 [0.84-2.50]	NS
Incidence of end-of-life care	0.97 [0.96-0.98]	<0.01
Child ownership	1.49 [0.89-2.48]	NS

NS - non-significant

and the mean ICU experience was less than 5 years.

In our study, the risk of burnout in the participants working an alternate-day shift system was 3.93 times greater in the EE domain and 2.22 times greater in the DP domain. Meaningfully, working on a night shift and the longer working hours on the night shift typically lead to an increased risk of burnout.²⁴ Moreover, our results also indicated that 20% of participants were working an alternate day shift system, which is remarkably high and interestingly leads to an increased risk of burnout, while a normal shift schedule does not. Additionally, working night shifts not only increases stress levels, but also does not allow health care professionals to easily schedule days off. The results from this study revealed that the overall MBI increased by 0.29 times, for every one-unit

increase in the incidence of end-of-life care, whereas EE increased by 1.12, DP increased by 1.02, and PA increased by 0.97 times. Futile patient treatments may be a cause of burnout.²⁷

Long term care centers are very important. Patients requiring long-term care are followed up in the ICUs that are specially designed for the treatment of complications occurring after the onset of acute conditions.²⁸ Hospital in Turkey may be one that promotes keeping the patient hospitalized for long term care. It is shown in previous studies providing long term care may cause burnout.¹⁴ Another reason is that nurses workload is higher than developed countries.²⁹ The number of patients given to each nurse is high. Thus, workload is high, shift work is excessive.¹⁴ The average income relative to cost of living is lower in developing countries.³⁰ Poncet et al,²⁴ reported that physicians and nurses who deal with death or those involved in foregoing life-sustaining therapy have an increased prevalence of burnout. Özden et al,¹⁴ indicated that 68% of nurses feel distressed about performing end-of-life care. In our study, although the participants had remarkably high rates of burnout, 42% of the participants declared that they currently hold the position they desire. This finding suggests that some participants feel satisfied with their position, since they have a tenured position. The high rate of burnout among our participants could be an indication of widespread burnout in the health care system as well as suboptimal patient care and medical malpractice. Therefore, burnout should be investigated to ensure patient safety and quality in the health care system.³¹

Study limitations. First, the physical characteristics of the ICUs were not inquired in the survey, since our primary goal was to investigate the burnout-related characteristics of the participants rather than the features of their ICUs or the treatment methods used in the ICUs. Second, the participants were not asked to declare the number of patients they were dealing with per shift. Additionally, as it is commonly known, some patients who do not meet the criteria for patient admission to the ICU are still admitted to the ICU for reasons including an avoidance of time loss of the patients in emergency services, absence of a postanesthesia care unit in the hospital, and the decision by physicians to monitor patients in the ICU whose follow-up could be risky in the general ward. Accordingly, although the criteria for patient admission to the ICU are the same for every patient, the severity of the cases may not be the same. Therefore, in some cases, 2 patients being monitored in an ICU can be more exhausting for the health care staff to oversee than

5 patients being monitored in a different ICU. Finally, considering that the participants have an overwhelming workload, conflicts of interest among ICU staff were not probed so as to avoid a lengthier survey that could lead to partial and incomplete survey responses.

In conclusion, female gender, individuals working in alternate-day shift state and performing futile treatment are found as risk factors for burnout.

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