The prevalence of burnout in Iranian residents: a cross-sectional study

Background: Burnout is a feeling of emotional exhaustion, depersonalization and low sense of personal accomplishment that frequently occurs in people-related professionals such as healthcare personnel. The present cross-sectional study aimed to evaluate burnout in one of the tertiary hospitals of Tehran University of medical sciences through different medical specialities.

Methods: Maslach Burnout Inventory (MBI) was administered personally to 204 residents along with a demographic scale including participants' age, gender, marital status, the level of residence, the field of specialty. We categorized all specialities into 3 subgroups of surgery, internal medicine, and paramedical.

Results: Mean age of participants (n = 204) was 51.1 ± 4.6, among them 127 (62.6%) participants were female. The results showed that totally, 188 residents (92.2%) were burnout. For emotional exhaustion, 173 (84.8%) residents had a moderate or high score, for depersonalization score, 197 (96.6%) residents, and for low personal accomplishment score, 182 (89.2%). There was no significant difference of emotional exhaustion score (p = 0.07, p = 0.60) and personal accomplishment (t = 0.59, p = 0.16) between two genders; however, depersonalization was significantly more prevalent in male residents (females: 21.9 ± 5.5, males: 20.6 ± 7.1; t = 1.467, p = 0.046).

Conclusion: In this study, burnout was very frequent in residents of all groups with regard to their genders, residency years, marital status, and specialties. Given the very high level of burnout in our residents, it is essential to conduct further studies to find the possible causes of burnout and to look for ways to alleviate the situation.

Keywords: Burnout; Residents; Iran; Gender; Marital status

شیوع فروشگاهی غفلت در دستیاران تخصصی پزشکی: یک مطالعه مقطعی

نظامه و همبستگی فروشهگی شفی محصول عمومی، سرطان یک عامل، عطش و کپسول

یکی از راه‌های کاهش احساس‌های باور نمکان سیستم بیماری در جهت بهبود می‌تواند از طریق کنترل فردی یا تغییر در ساختار کاری و محیط کاری بیمارستان باشد. در این مطالعه، اثرات سطحی و عاملی نسبت به فروشگاهی غفلت با توجه به گروه‌های مختلف در دستیاران رضایت‌بخشی یک بیمارستان از زبان روان‌پزشکی بررسی شد.

روش‌ها: پژوهشی

본 연구는 '한국의 의료진의 스트레스 정도'를 조사하여 구체적인 자료와 다양한 통계 분석을 통해 스트레스의 원인과 경도를 분석하고 싶다는 연구이다. 본 연구는 의료진의 스트레스를 조사하기 위해 '한국의 의료진의 스트레스 정도'와 '한국의 의료진의 스트레스 원인'의 두 주요 항목으로 구성되며, 각 항목은 '한국의 의료진의 스트레스 정도'와 '한국의 의료진의 스트레스 원인'의 두 주요 항목으로 구성된다. 각 항목은 '한국의 의료진의 스트레스 정도'와 '한국의 의료진의 스트레스 원인'의 두 주요 항목으로 구성된다. 각 항목은 '한국의 의료진의 스트레스 정도'와 '한국의 의료진의 스트레스 원인'의 두 주요 항목으로 구성된다. 각 항목은 '한국의 의료진의 스트레스 정도'와 '한국의 의료진의 스트레스 원인'의 두 주요 항목으로 구성된다. 각 항목은 '한국의 의료진의 스트레스 정도'와 '한국의 의료진의 스트레스 원인'의 두 주요 항목으로 구성된다.
INTRODUCTION

Burnout is a constellation of emotional exhaustion, depersonalization and low sense of personal accomplishment that frequently occurs in people-related professions such as healthcare personnel (1,2). Symptoms of burnout include exhaustion, frustration, anger, cynicism, a feeling of ineffectiveness and fatigue. One diagnostic symptom of this syndrome is an adverse impact on job performance (3).

Three dimensions of the syndrome are described as the emotional exhaustion (EE) which is the depletion of one’s emotional resources and reflecting the basic stress dimension of burnout, depersonalization (DP) that usually develops due to the effect of EE and exhibited features of detachment, dehumanization, and decreased personal accomplishment (PA) that reflects reduced competence and productivity at work, and is linked to depression (1).

Compared with many other occupations, healthcare professions are reported to cause higher levels of burnout; however, among healthcare trainees, residents are usually faced with considerable degree of burnout due to their responsibilities in educational hospitals and their unsupported decision-makings (4).

Although there are several studies in the world evaluating burnout in residents, such studies in Iran are limited; a study in Tehran University of Medical sciences across different medical specialties and look for its association with gender, residency year and marital status.

METHODS

The participants of this study were medical residents registered in four different levels and different medical fields. The study was conducted in one of Tehran University of Medical Sciences teaching hospitals, in 2017. Maslach Burnout Inventory (MBI) (5), was handed out to all residents of the hospital who were willing to participate in the study.

The demographic scale consisted of some questions about residents’ age, gender, marital status, their level of residency (year of residency), and their field of residency.

All specialties were categorized into three subgroups of surgery (general surgery, neurosurgery, gynecology, emergency medicine, otolaryngology, urology), internal medicine (including internal medicine, neurology, and cardiology) and paraclinical study (radiology, pathology, and nuclear medicine).

Maslach Burnout Inventory (MBI):

Burnout was measured through MBI. It is a self-administered, 22-item questionnaire that was developed to measure burnout in human-service workers. It includes 22 questions. Nine evaluating emotional exhaustion, five quantitating depersonalization, and eight assessing personal accomplishments. The items of MBI are rated from 0 to 6 (0=never; 1=a few times per year; 2=once a month; 3=a few times per month; 4=a few times per week; and 6=every day). Burnout is detected by following cut-off scores for emotional exhaustion: low < 16, moderate 17-26, high ≥ 27; for depersonalization: low 0-6, moderate7-12, high ≥ 13; and for personal accomplishment: low ≥ 37, moderate 31-36, high 0-30 (6).

Several studies using the MBI delineate burnout as high emotional exhaustion or depersonalization; however, the personal accomplishment scores are not commonly included since they are believed to associate less with psychological tension (7). As a result, in this study, we considered burnt out residents as either having emotional exhaustion score ≥ 27 or depersonalization score ≥ 13.

The validity and reliability of the Persian translation of MBI have been proved by Rostami et al (8). We assured all participants that their responses would be confidential and their answers would not influence their educational and practical status in the hospital.

Ethics:

We confirm that the work complies with the Declaration of Helsinki, in that there was no potential harm to participants, the anonymity of participants was guaranteed, and participants were informed about the aim of study in the first paragraph of the questionnaire.

Statistical Analysis:

We used SPSS version 20 for statistical analysis. The Shapiro-Wilks test was used to test normality. To compare burnout score in subscales between two genders, and between married and unmarried participants, we used T-student test. To compare burnout subscale scores in different levels of residency and different specialties we used one-way ANOVA. Mean values are described as Mean ± Standard Deviation (SD) and descriptive values as number (percent). A p-value below 0.05 was considered significant.

RESULTS

In this study, 204 residents were enrolled. Mean age of participants was 31.1 ± 4.6, 127 (62.3%) participants were female; and 113 (55.4%) of them were married. Seventy-three (35.8%) residents were in year 1, 67 (32.8%) in year 2, 44 (21.6%) in year 3, and 20 (9.8%) in year 4 of their residency. The number of fourth year residents was low because of limited access to them.

MBI Descriptive Results

The mean score for emotional exhaustion subscale was 29.3 ± 11.8; for depersonalization: 21.4 ± 6.2; and for personal accomplishments: 27.4 ± 7.8.

For emotional exhaustion, 173 (84.8%) residents had a moderate or high score, for depersonalization 197 (96.6%) residents had a moderate or high score and for personal accomplishment 182 (89.2%) residents had a moderate or high score. In all, 188 residents (92.2%) were burnt-out (Figure 1).

MBI Analytical Results

Between two genders, there was no significant difference of emotional exhaustion score (t = 0.07, p = 0.60) and
The prevalence of burnout in Iranian residents

Figure 1. The severity distribution of burnout in three MBI subscales

personal accomplishment score (t = -0.59, p = 0.15); however, depersonalization score was significantly higher in males (females: 21.9 ± 5.5, males: 20.6 ± 7.1; t = 1.47, p = 0.04).

There was no significant difference between married and unmarried residents in their scores on emotional exhaustion (t = 1.18, p = 0.24), depersonalization (t = -0.86, p = 0.39), and personal accomplishment (t = -1.50, p = 0.14).

Regarding residency year, one-way ANOVA showed no significant difference in scores of emotional exhaustion (F = 2.19, p = 0.09), depersonalization (F = 2.27, p = 0.08), and personal accomplishment (F = 1.30, p = 0.28) among residents.

Among different specialties, there was no significant difference in scores of emotional exhaustion (F = 1.06, p = 0.35), depersonalization (F = 2.33, p = 0.10), and personal accomplishment (F = 0.75, p = 0.47).

In addition, there was no significant correlation between the age of participants and their scores of emotional exhaustion (r = 0.07, p = 0.37), depersonalization (r = 0.11, p = 0.13), and personal accomplishment (r = 0.10, p = 0.15).

The reliability for the MBI scale using Cronbach alpha was 0.93.

**DISCUSSION**

Burnout has been in the focus of many research in recent years as a frequent phenomenon in various professions, and is especially important in health workers (4). The present study showed a very high rate of burnout in Iranian clinical residents. Roughly speaking, 90% of them have high scores in all three areas evaluated by MBI.

In 2004, Martini et al (9) compared burnout rates among various specialties using MBI. Overall, the rate of burnout was 50%. Burnout rates among different specialties were as follows: 75% in obstetrics-gynecology followed by 63% in internal medicine, 63% in neurology, 60% in ophthalmology, 50% in dermatology, 40% in general surgery, 40% in psychiatry, and 27% in family medicine. In our study, burnout was marginally higher in men in the subscale of personal accomplishment. We found no difference in other subscales. In addition, we found no significant difference in burnout considering factors such as different specialties, residency year, and marital status.

Recently, many studies have evaluated burnout in the residents (10-29). It seems that the prevalence of burnout in Iranian residents is markedly higher than other countries. In figure 2, a comparison of recently performed studies during the residency period is depicted and compared to our study. As demonstrated, the prevalence of burnout in our study is much higher than other studies.

In a Belgian study (10), among 236 residents of 29 specialties, 42% met standard criteria for burnout, and they found an inverse association between Residency Educational Climate Test scores and the risk of burnout. In a survey of 947 the federation of resident doctors of Quebec members (11), 55% reported signs of burnout and around 65% felt exhausted after work as a minimum of once a week. In a Saudi Arabian study (12), more than 70% of residents expressed severe burnout. A total of 43% demonstrated emotional exhaustion, 72% experienced depersonalization and 41% suffered from low accomplishment. In a North American study (n = 86) (13), 31% of residents met criteria for burnout. Burned-out residents also had higher mean levels of stress due to
uncertainty and lower mean levels of resilience compared to residents who were not burned out. In another broad study from the United States \((n = 7395)\), female residents reported more frequently staying in the hospital >28 hours or working >80 hours in a week (≥3 times in a month) and more regularly feeling fatigued and burned out from their work.\(^{18}\) In an extensive study from the Netherlands, of 1,231 residents from 33 specialties, 15% met criteria for burnout, and they found a consistent inverse association between the Scan of Postgraduate Educational Environment Domains (SPEED) scores and the risk of burnout.\(^{17}\) In a Brazilian study \((n = 129)\) \((23)\), the prevalence of burnout was 28% with a low level of professional achievement in 95%, a high level of depersonalization in 32%, and a high level of emotional exhaustion in 60%. In a Pakistani study among gynecological residents \((n =102)\) \((24)\), emotional exhaustion and depersonalization were significantly higher among residents working in government institutions than those who worked in the private institutions. The residents with more than two years of post-graduate skill had substantially higher depersonalization than those with lesser amount of experience.

In a survey that was conducted in a surgery ward \((n = 40)\), 25% of residents suffered from burnout, and they found no association of burnout with USMLE scores, American Board of Surgery In-Training Exam percentile, or surgical milestones \((14)\). Among 566 surgical residents who participated in an online survey in the United States \((20)\), the prevalence of burnout was just below 70%. Higher burnout score was associated with higher stress, depression, and suicidal ideation. Among the United States neurosurgery residents \((n = 255)\) \((22)\), the prevalence of burnout was 37% and no significant difference in median burnout scores between gender, age, or postgraduate year was observed. Notably, neurosurgery residents had a significantly lower prevalence of burnout than other residents/fellows, early career physicians and practicing physicians.

From among 166 pediatric residents from Canada \((15)\), 42% met criteria for burnout. Burnout was associated with the year of residency, with third-year residents at maximum risk. More than 79% of residents who were at risk of depression also met criteria for burnout. In another pediatric residents study from the United States \((16)\), just less than 40% of respondents complained of burnout.

For radiation oncology residents in the United States \((19)\), filling the MBI \((n = 205)\), high levels of emotional exhaustion was reported in 28%, depersonalization in 17%, and low rates of personal accomplishment in 12% of residents.

For neurology residents and fellows of the United States \((21)\), around three-fourths of residents and higher than 50% of fellows had at least one symptom of burnout; however, the difference principally related to higher scores for depersonalization among residents. For residents, more satisfaction with work-life balance, and older age were linked to less risks of burnout.

Among psychiatric trainees in Japan \((n = 40)\) \((25)\), the burnout rate was 40%, and among hematology and radiotherapy residents in Portugal \((n = 118)\) \((26)\), the prevalence of burnout and stress was estimated as 45% and 50%, respectively.

Comparing burnout between psychiatry and anesthesiology residents in a French study \((27)\), the investigators only found a significant difference in depersonalization subscale \((10.2 ± 6.5)\) in anesthesiology residents, \(n =123\) vs. \(6.8 ± 5\) in psychiatry residents, \(n =149\). In another study comparing burnout among anesthesia and surgical residents in North
India (28), the score of burnout was significantly higher in surgical residents and markedly increased progressively with the year of residency. However, in our study, we found no difference of burnout considering factors such as marital status, the field of specialty, and gender. Among dermatology residents in Canada (n = 116) (29), over 50% of them experienced high levels of emotional exhaustion and depersonalization, even though 40% had low levels of personal accomplishment.

In a systematic review it was revealed that burnout is prevalent in medical students (28%–45%), and residents (27%–75%), depending on their specialty (7). Most studies have reported different amounts of burnout between different specialties (usually higher in surgical residents) and different levels of the residency; however, in our study, no such associative factor was detected. It is noticeable that in the present study, depersonalization score was significantly higher in female residents.

Factors causing burnout in residency training are believed to stem from lack of autonomy, volume, and scheduling of working hours, stressful job situations, insecurity about the future job, difficulties in balancing professional and private life and interpersonal relations as stressors leading to burnout in developing countries, economic issues, low income, recent negative reflections from media and society that may cause a feeling of desperation, and lower mean levels of resilience (2,7).

Burnout deteriorates steadily over time described in three stages: Stage 1: stress arousal, Stage 2: energy conservation, Stage 3: exhaustion. These stages usually occur sequentially from Stage 1 to Stage 3, although the process can be stopped at any point (30). Depersonalization can occur in response to chronic negative and stressful situations (31). This stressful contact with patients forms cynical and negative attitudes that may cause a feeling of desperation, and lower mean levels of resilience (2,7).

In summary, most studies have reported different amounts of burnout between different specialties (usually higher in surgical residents) and different levels of the residency; however, in our study, no such associative factor was detected. It is noticeable that in the present study, depersonalization score was significantly higher in female residents.

Burnout deteriorates steadily over time described in three stages: Stage 1: stress arousal, Stage 2: energy conservation, Stage 3: exhaustion. These stages usually occur sequentially from Stage 1 to Stage 3, although the process can be stopped at any point (30). Depersonalization can occur in response to chronic negative and stressful situations (31). This stressful contact with patients forms cynical and negative attitudes in the patient-physician relationship. Inadequate support from the supervisor can be a factor associated with burnout, especially emotional exhaustion. As medical residents are in training, it is common for them to be limited by lack of experience and knowledge. A good supporting team can not only help to reduce stress, but also to improve quality of care. In sum, stress can be a possible cause of depersonalization and emotional exhaustion in burnout.

Personal Accomplishment is a dimension of burnout that is associated with feelings of competence, high self-efficacy, and sense of achievement (32). Role autonomy and high perception of teaching can cause much more self-confidence while continuing with a sense of personal accomplishment. Burnout and stress may be symptomatically analogous, with burnout explicitly recognized as occupational or academic stressors (33). It is suggested that there is a cyclical relationship between stress and emotional exhaustion; in other words, elevated levels of stress and poor coping strategies may be significant providers in burnout development (34). Recognizing such stressors and reinforcing coping strategies in residents may assist in reducing burnout.

Our study has some limitations: some measurement issues are peculiar to the MBI itself. The MBI does not consider non-professional confounders of burnout, such as childcare problems, life events, and financial concerns. We faced some issues accessing final year residents because of their limited presence in the wards. Residents with a negative opinion about the educational system or immensely burned out may not have participated in this study. Also, we did not study the level of anxiety or depression of the present participants.

In this study, we exclusively demonstrated that burnout was very high in our residents without finding any contributing etiology. To better understand the leading causes, we need to conduct complementary studies, mainly qualitative surveys such as structured interviews or panel interviews, which may give more in-depth insights into the reasons for high prevalence of burnout.

In conclusion, in this study, the amount of burnout was very high in residents of all groups including different genders, residency years, marital status, and specialties. This was probably higher than previously reported studies in other parts of the world. Residency period is a time when occupation and training tie each other. Accordingly, it is essential to pay attention to the satisfaction of residents in educational environments. Since the level of burnout was very high in our residents, it is essential to conduct further studies to find the possible causes of burnout.

Ethical considerations
Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

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REFERENCES


34. McManus IC, Keeling A, Paice E. Stress, burnout and doctors’ attitudes to work are determined by personality and learning style: A twelve year longitudinal study of UK medical graduates. BMC Med. 2004;21(29).