



THE RELATIONSHIP BETWEEN OCCUPATIONAL BURNOUT AND DEPRESSION DURING THE COVID-19 PANDEMIC IN RESIDENCY PROGRAM ASSISTANTS

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Abstract

Introduction: In addition to the significant burden of mortality and morbidity imposed on the body of various societies, the outbreak of the Covid-19 pandemic was accompanied by a work burden on the medical staff. This high work load in health and treatment centers has been associated with adverse consequences among the medical staff, such as job burnout, psychological disorders. The major part of this burden has been imposed on medical assistants because they have been faced with a significant increase in working hours in the departments and a much higher load of care and treatment of patients with covid-19. In this study we tried to evaluate the job burnout among medical assistants during the Covid-19 era, as well as the determination of related factors.

Material and Methods: in this cross-sectional study on subjects including residency assistants at Tehran University of Medical Sciences affiliated Hospitals. The standardized Maslach questionnaire was used for job burnout, and the K10 questionnaire was used for depression screening.

Results: Regarding the component of emotional exhaustion from job burnout, mild, moderate and severe cases of this complication among the participants were 3.8%, 58.7% and 37.5%, respectively. In terms of the depersonalization component, mild, moderate and severe cases of this disorder were reported in 4.3%, 64.1% and 31.5% of the assistants, and in terms of the personal sufficiency disorder component, mild, moderate and severe cases of this disorder were reported. It was also reported in 0.5%, 12.0% and 87.5% respectively.

The occurrence of emotional exhaustion with higher intensity was expected in assistants who had experienced the previous history of taking psychoactive substances. The increase in working hours per week was also associated with the increase in the prevalence and intensity of emotional exhaustion and depersonalization components. Regarding depression, only 26.1% of people had a

normal psychological state, while 14.1% had a mild disorder, 20.7% had a moderate disorder, and 39.1% had a severe disorder. This disorder was significantly more severe in women than men.

Conclusion: A significant part of our assistants suffer from burnout as well as depression during the covid-19 pandemic. Job burnout occurred mainly in men assistants, people with high weekly working hours, previous history of taking psychiatric medication, increasing the number of years of employment in a residency course were the factors related to the occurrence of job burnout. Also, the incidence of depression was much more common among female assistants than males.

Keywords: Job burnout, Depression, Residency program.

Introduction

Sources of occupational stress in the workplace include environmental and physical, personality, society, and organizational factors. Not able to effectively deal with these stressful factors, will result in experiencing a decrease in job satisfaction and eventually lead to job burnout (1). The most important definition of job burnout is based on Maslach psychosocial theory in 1981, which considers the three dimensions of emotional exhaustion, depersonalization and reduction of individual success (2). Job burnout is a psychological syndrome that is considered as a prolonged response to chronic interpersonal stressors at work, and the three key dimensions of this response include excessive fatigue, pessimism and detachment from work, and feelings of ineffectiveness and lack of personal success (3).

Emotional exhaustion is the stress dimension and the basic and main dimension of job burnout and it refers to excessive mental and physical fatigue, the feeling of draining mental energy, the lack of energy to complete tasks and the feeling of not being able to renew the lost energy. Following extreme emotional exhaustion, depersonalization occurs, which refers to a negative response, or a complete lack of isolation to other people, and is characterized by the way of treating others as objects and in a pessimistic way, devoid of emotion and without a sense of sympathy (5).

A decrease in individual success refers to a decrease in the feeling of efficiency and productivity in the work environment; this feeling of reduced self-efficacy is related to depression and the inability to adapt to job requirements and can be aggravated in the absence of social support (6). Research results show that burnout causes a drop in the quality of services provided by employees and can be a factor for absenteeism, demoralization and lack of responsibility (7). Job burnout has harmful effects on the aspects of general health (8), physical, mental-psychological condition and occupational and social performance of a person (9, 10).

Although some researches have listed individual and personality factors in burnout, but factors related to the work environment play a much more prominent role (11). The most important sources of burnout among doctors are chronic occupational stress, long working hours and lack of sleep, high workload, time pressure, conflicting requirements of different job duties, speed of work, work piling up, imbalance between work and family time, financial issues and low reward. Also, the nature of medical doctors' duties, i.e. the addition of administrative and managerial duties to their previous duties, spending considerable time to fill out paper and electronic forms, correcting transcripts and other clerical duties also play a role in doctors' burnout experience (12). Also, due to the nature of their work, doctors always experience a series of intense emotions such as sadness, fear and despair (13). Other studies have shown that burnout among medical students and medical doctors has a significant prevalence around the world (14). The prevalence of burnout among doctors and medical students has been reported in the range of 17 to 87 percent (15). In February 2003, the European Medical Association and the World Health Organization published a statement on the symptoms of burnout among doctors and expressed serious concern about the increase in its levels and needed the attention of all national medical associations (16). Also, researches have shown that the prevalence of burnout among residency assistants is higher than general medical students and medical doctors (10).

Evidences over the last decade indicates an approximately 2-fold increase in the level of burnout among medical physicians compared to the general population, with more than half of physicians reporting at least one symptom of burnout. Job burnout has a negative impact on many aspects of personal and professional life of medical doctors and the ability to provide quality medical care to patients, especially for those whose activities are directly related to the death of patients. Among this ability, we can mention effective communication, showing empathy and establishing therapeutic relationships with patients (17-22).

Meanwhile, the assistantship period is a challenging and important period that requires high levels of physical and mental energy (23). In addition to working, assistants must study for long hours and in addition to improving their medical knowledge and skills, they must develop psychological skills such as empathy and compassion towards patients. Also, in many situations, they must have quick medical judgment and decision-making, which is scrutinized by professors (23).

Medical assistants are at the beginning of their professional career and it is necessary to have the energy and psychological preparation to continue their career effectively. Unfortunately, self-care is not part of medical training and is usually the last priority on a medical doctor's list. Medical doctors deal with people's personal problems every day, but it is very unlikely that they pay enough attention to their own problems. They do not easily admit that they are under stress (24). Studies has shown that only a small number of medical students with psychological problems seek help for reasons such as embarrassment, and fear of being judged and discriminated against (25).

Considering the importance of the role of medical assistants in the health system of the country in providing the highest quality medical services to maintain and improve the health of the society, the importance of the risks and unfortunate consequences of job burnout, among the assistants of different fields. Therefore, the aim of this study is to investigate the prevalence of this job burnout in medical residency program assistants was determined and the relationship between their job burnout between different subgroup of medical residency program assistants.

Material and Methods

Participants: This cross-sectional study on population including medical residency program assistants at Tehran University of Medical Sciences affiliated hospitals.

Sample size: Due to the lack of similar articles, based on the opinion and experience of the expert, the effect size (less than average) is equal to 0.1, type 1 and 2 errors are 5% and 20%, respectively, and the number of independent variables is equal to 9 variables based on the regression test. Linear and G-POWER software, the number of sample size was estimated to be 166 people, which is considered to be 183 people with the assumption of missing 0.1 of the sample size. Online questionnaires designed by the researcher as well as pre-existing standardized questionnaires were sent to the assistants. Information was collected by available sampling method and the exclusion criteria included assistants who refused to participate in the study for any reason. A researcher-made questionnaire was used to evaluate the demographics and examine the included study variables. A standardized questionnaire called Maslash was used for job burnout and K10 questionnaire was used for depression screening, the validity and reliability of which has been confirmed in many studies in Iran and abroad.

Statistical analysis

Quantitative data were expressed as mean and standard deviation (mean \pm SD) and for categorical qualitative variables as percentage. Comparison between quantitative variables was done by t-test or Mann-Whitney test. Comparison between qualitative variables was also done using Chi-square test. SPSS version 23 software was used for statistical analysis of data. A significance level of less than 0.05 was considered.

Ethical Considerations

All participants were assured of the confidentiality of their information and that their involvement in the study was solely for research purposes. Informed consent was obtained from all participants, and they answered the research questions with satisfaction. This research received ethical approval from the ethics committee of Tehran University of Medical Sciences, Tehran, Iran, with the code of ethics IR.TUMS.IKHC.REC.1400.368.

Result

In this study, a total of 184 assistants in various disciplines were included in the study. In terms of gender distribution, 74 cases (40.2%) were male and 110 cases (59.8%) were female. In terms of age distribution, 42 cases (22.8%) are under 30 years old, 113 cases (61.4%) between 30 and 35 years old, 17 cases (9.2%) between 36 and 40 years old and 12 cases (5.5 6%) were over 40 years old. In terms of marital status, 85 cases (46.2%) were single, and 99 cases (53.8%) were married. In terms of educational level, 25 cases (13.6%) were in the first year of residency, 43 cases (23.4%) were in the second year of residency, 38 cases (20.7%) were in the third year of residency, 62 cases (33.7%) were in the second year of residency. In total, 11 cases (0.6%) had a history of taking psychiatrics medication. In terms of weekly working hours, 22 cases (0.12%) were determined below 40 hours, 79 cases (42.9%) between 40 and 70 hours, and 83 cases (45.1%) were determined. Also, 71 cases (38.6%) were from Tehran and 113 cases (61.4%) were from the city.

Job burnout and related factors

The various characteristics of job burnout subtypes, and the average score of each part is summarized in Table 1.

Table 1. The severity of job burnout subtypes among population.

	Mild, N (%)	Moderate, N (%)	Severe, N (%)
Emotional exhaustion	7 (3.8)	108 (58.7)	69 (37.5)
Depersonalization	8 (4.3)	118 (64.1)	58 (31.5)
Personal accomplishment disorder	1 (0.5)	22 (12)	161 (87.5)

Regarding the relationship between the gender of people and the occurrence of job burnout, the average score of emotional exhaustion in men and women is 26.32 ± 7.14 and 27.72 ± 6.76 in men and women, respectively (p-value = 0.179), the average score of personality disorder respectively equal to 11.17 ± 4.50 and 9.87 ± 3.37 (p-value = 0.026) and the average score of personal sufficiency disorder equal to 26.00 ± 5.25 and 23.86 ± 4.80 respectively (p-value = 0.005) which indicated the higher prevalence of the two components of personality disorder and personal sufficiency disorder in men than in women (Table 2).

The average score of emotional exhaustion in men and women is 26.32 ± 7.14 and 27.72 ± 6.76 in men and women, respectively (p value is 0.179), the average score of personality disorder respectively equal to 11.17 ± 4.50 and 9.87 ± 3.37 (p value equal to 0.026) and the average score of personal sufficiency disorder equal to 26.00 ± 5.25 and 23.86 ± 4.80 respectively (p-value equal to 0.005) which indicated the higher prevalence of the two components of personality disorder and personal sufficiency disorder in men than in women (Table 2).

Regarding the relationship between educational level and job burnout, the average score of emotional exhaustion in first, second, third, fourth year is 26.12 ± 6.13 , 29.46 ± 7.06 , respectively. 26.52 ± 6 , 26.96 ± 6.57 and 24.87 ± 7.89 (p-value equal to 0.114), the average score of personality distortion equals 3.76 ± 10.76 , ± 4.29 respectively. 11.18 , 10.55 ± 3.73 , 10.11 ± 3.76 , and 8.43 ± 3.70 (p-value equal to 0.173) and the average score of personal sufficiency disorder is 92.4 ± 4.32 , respectively. 22, it was 24.41 ± 4.74 , 26.78 ± 4.74 , 23.82 ± 5.53 and 26.93 ± 4.15 (p value equal to 0.005), which indicates the increase of personal incompetence with increasing He was studying for years (Table 2).

Table 2. The severity of job burnout subtypes.

Variable	Emotional exhaustion	Depersonalization	Personal accomplishment disorder	
Male, N (%)	26.32 (7.14)	11.17 (4.5)	26 (5.25)	
Female, N (%)	72.27 (6.76)	87.9 (3.37)	86.23 (4.8)	
P-Value	0.179	0.026	0.005	
Age	<30 years	27.28 (7.91)	11.40 (3.98)	24.88 (4.68)
	30<age<35	26.99 (6.55)	10.20 (3.84)	24.55 (5.25)
	36<age<40	28.12 (7.69)	9.88 (3.65)	24.64 (5.88)
	40 years<	27 (6.46)	9.41 (4.42)	25.83 (3.9)
P-Value	0.939	0.251	0.867	
Marital status	Single	28.09 (7.13)	10.69 (4.11)	24.80 (4.76)
	Married	36.26 (6.69)	14.10 (3.73)	65.24 (5.37)
P-Value	0.093	0.341		
1 st year of residency program	6/13(26/12)	10/76± 3/76	92.22 (4.32)	
2 nd year of residency program	7/78 (29/46)	11.18 (4.29)	24.41 (4.74)	
3 rd year of residency program	6/06 (26/52)	10.55 (3.73)	26.78 (4.74)	
4 th year of residency program	(6.57)26/96	10.11 (3.76)	23.82 (5.53)	
P-Value	0.114	0.173	0.005	
History of psychiatrics medication	Pos.	34 (7.58)	12.27 (5.51)	27.45 (4.27)
	Neg.	72.26 (6.68)	27.10 (3.77)	54.24 (5.09)
P-Value	0.001	0.263	0.066	
Weekly working hours	<40 hours	25.22 (6.39)	9.59 (2.55)	25.09 (4.37)
	40<<70 hours	26.19 (6.58)	9.58 (3.28)	24.49 (5.30)
	<70 hours	28.60 (7.18)	11.38 (4.51)	24.84 (5.09)
	p-Value	0.032	0.007	0.853

Correlation between aspects of depression and job burnout

Strong and significant correlation between depression score with all three aspects of job burnout, including emotional exhaustion (correlation coefficient = 0.755, P value = 0.001), personality disorder (correlation coefficient = 0.500, P value = 0.001) 0) and personal sufficiency disorder (correlation coefficient = 0.755, P value = 0.456) was observed.

In men and women, respectively, normal status in 27 cases (36.5%) and 21 cases (19.1%), mild disorder in 10 cases (13.5%) and 16 cases (14.5%), disorder Average in 12 cases (16.2%) and 26 cases (23.6%) and severe disorder in 25 cases (33.8%) and 47 cases (42.7%) were reported, which indicates the severity of the disorder in women compared to It was to men (P-value = 0.021).

In different age groups, including under 30 years, 30 to 35 years, 36 to 40 years, and over 40 years, no significant difference was observed between age subgroups (P-value = 0.816). In different marital status of people, no significant difference was observed between age subgroups (P-value = 0.267).

Regarding the educational level, no significant difference was observed between the sub-educational levels in the first to fourth year assistants (P-value = 0.267).

There was no significant difference between the two groups in people with and without a history of taking psychoactive substances (P-value = 0.744). In subgroups with weekly working hours below 40, 40 to 70 and above 70 hours, no significant difference was observed between the two groups (P value equal to 0.395).

Regarding the relationship between the history of psychiatrics medication use and job burnout, the average score of emotional exhaustion in people with and without drug use is 34.00 ± 7.58 and 26.72 ± 6.68 , respectively (p value equal to 0.001). The average score of personality disorder is 12.27 ± 5.51 and 10.27 ± 3.77 respectively (p value is 0.263) and the average score of personal sufficiency disorder is 27.45 ± 4.27 and 5.09 respectively. It was $24.54 \pm$ (p value equal to 0.066), which indicated the high level of emotional fatigue in patients with a history of taking these medications.

Regarding the relationship between working hours per week and job burnout, the average score of emotional exhaustion in people with working hours below 40, between 40 and 70 and above 70 hours is 25.22 ± 6.39 , 26.19 ± 6.58 , respectively. and 28.60 ± 7.18 (p value equal to 0.032), the average score of personality distortion equals 9.59 ± 2.55 , 9.58 ± 3.28 and 11.38 ± 4.51 respectively (p value equal to 0.007) and the average score of personal sufficiency impairment was equal to 25.09 ± 4.37 , 24.49 ± 5.30 and 24.84 ± 5.09 respectively (p-value equal to 0.853), which indicates

the relationship between the increase in working hours per week was accompanied by an increase in emotional exhaustion and personality disorder.

The average score of K10 was 26.97 ± 9.60 , which indicates normal condition in 48 cases (26.1%), mild disorder in 26 cases (14.1%), and moderate disorder in 38 cases (20.7%). And the disorder was severe in 72 cases (39.1%) of people.

In men and women, respectively, normal status in 27 cases (36.5%) and 21 cases (19.1%), mild disorder in 10 cases (13.5%) and 16 cases (14.5%), disorder Average in 12 cases (16.2%) and 26 cases (23.6%) and severe disorder in 25 cases (33.8%) and 47 cases (42.7%) were reported, which indicates the severity of the disorder in women compared to It was to men (P value equal to 0.021).

Discussion

The occurrence of the covid-19 pandemic, in addition to the significant burden of mortality and morbidity that it imposed on the body of various societies, was accompanied by the work erosion burden on the medical staff. This high work load in health and treatment centers has naturally been associated with adverse consequences among the medical staff, such as job burnout, and psychological disorders.

What we discussed in this study was the evaluation of job burnout among medical assistants during the Covid-19 era, as well as the determination of related and effective factors. What we have achieved in the present study can be summarized in the form of the following: 1) regarding the component of emotional exhaustion from job burnout, the mild, moderate and severe cases of this complication among the participants were 3.8%, 7.7% respectively. It was 58% and 37.5%, which indicated that more than one third of assistants are suffering from severe emotional exhaustion. 2) In terms of the depersonalization component, mild, moderate and severe cases of this condition were reported in 4.3%, 64.1% and 31.5% of the assistants and 3) In terms of the status of the component of personal sufficiency disorder, mild, moderate and severe cases of this disorder were also reported in 0.5%, 12.0% and 87.5%, respectively, which indicated the fact that the majority of assistants believed in this There were those who did not have acceptable personal sufficiency. 4) The two components of job burnout, including personality distortion and personal sufficiency disorder, were significantly more common in men than in women, and therefore male gender was considered as one of the factors related to the severity of job burnout. 5) The higher prevalence of personal sufficiency disorder was observed in assistants of higher years and it seems that as the years of education pass, the belief that people with a significant decrease in occupational sufficiency will be more and therefore they will face a higher load of job burnout. 6) Naturally, the occurrence of emotional fatigue with higher intensity was expected in assistants who had experienced the previous history of taking psychoactive substances. 7) Also, the increase in working hours per week was associated with an increase in the prevalence and intensity of the components of emotional exhaustion and personality disorder. Therefore, in general, the factors related to the incidence and severity of burnout included male gender, number of working hours per week, previous history of taking psychiatrics medication, and the number of years of employment in a specialized course.

Regarding depression, only 26.1% of people had a normal psychological state, while 14.1% had a mild disorder, 20.7% had a moderate disorder, and 39.1% had a severe disorder, and therefore more than a third of the assistants from They suffer from severe depression. Regarding the factors related to depression disorders, firstly, this disorder was significantly more severe in women than in men, and therefore female gender was considered as one of the effective factors related to the occurrence of such disorders. But other background factors such as age, degree and field of study, marital status and even load and number of working hours were not among the factors related to the occurrence of depression disorder. Therefore, the main programs related to the occurrence of depression should be focused on female assistants.

In Bahmani et al. (26) study, the findings showed that the factors affecting job burnout included shift work and the stress of contracting COVID-19.

In Rahmani et al. (27) study, the prevalence of components of emotional exhaustion, depersonalization and personal inadequacy were 23.2%, 7.4% and 57.5%, respectively, and in this regard, there was a significant relationship between anxiety caused by Corona and job burnout.

In the study of Sadeghzadeh et al. (28), being married and employed were positively related to job burnout. In the study of Christian Wilson R Turalde et al. (29), the lack of reward and encouragement and the number of duty days and work shifts were the factors affecting the emotional exhaustion component of assistants. Also, the number of days the assistants were on duty had an effect on the depersonalization score of the people. In total, the effective factors for overcoming job burnout were mentioned as follows: increase in human resources; self-care; reducing the load of responsibilities; Improvement of work environment and sufficient incentives. In the study of Ruchira W Khasne et al. (30), the prevalence of burnout was stated as 44.6%. Younger people were more associated with job burnout. Also, the prevalence of job burnout was higher among women than men.

In the study by Dante Duarte et al. (31), evaluations showed that burnout attempts among doctors during the Covid-19 era were much higher than before.

In the study of Samer Al-Humadi et al. (32), 6.2% of depression and 19.6% of job burnout were confirmed, which was much less than our study. Also, in his study, the previous history of mood disorders and hours on duty were mentioned as factors related to the occurrence of depression, and job burnout. Women also had more job burnout than men, which was in line with our study. Therefore, it seems that the prevalence of mood disorders and job burnout and the factors related to it are completely different in different societies, and therefore, planning to prevent the occurrence or severity of these disorders in the conditions of pandemics must be completely different in different societies.

The interventional program could help residents in different levels to adapt to or cope with the healthcare system challenges and also prevent burnout and depression. Moreover, empathy development, seniors' appropriate supervision, integrity, formal/informal feedback, cohesion in the healthcare system can motivate the residents to deal with challenges during their life (33, 34). Coping strategies to face with burnout risk factors should be considered via strong theoretical and practical training at the entrance into the new academic system (35, 36).

Conclusion

Firstly, a significant part of our assistants are suffering from burnout as well as depression during the covid-19 pandemic. Job burnout occurred mainly in Agha's assistants, people with high weekly working hours, previous history of taking psychiatric medications, increasing the number of years of employment in a specialized course were the factors related to the occurrence of job burnout. Also, the incidence of depression was much more common among female assistants than male assistants.

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