Prevalence of Burnout Syndrome in the Beginning and End of Internship Course in Medical Students of Qazvin University of Medical Sciences

Zohreh Yazdi[1], MD; Mahnaz Abbasi[2], MD; Amir Mohammad Kazemifar[3*], MD; Amir Tabibzadeh[4], MD

[1]Associate professor, Social Determinants of Health Reaserch Center, Qazvin Ujniversity of Medical Sciences, Qazvin, Iran
[2]Associate professor, Metabolic Disease of Research Center, Qazvin University of Medical Sciences, Qazvin, Iran
[3]Associate professor, Metabolic Disease of Research Center, Qazvin University of Medical Sciences, Qazvin, Iran
[4]General Practitoner, Qazvin University of Medical Sciences, Qazvin, Iran

Abstract

Background: Studies have shown that ignoring burnout in medical students lead to worsened disease condition and paying less attention to its progression. We aimed to determine the prevalence of burnout and its relationship with demographic factors in medical students during internship in Qazvin University, during 2014-2015.
Methods: 130 medical students participated in this study. They completed demographic questionnaire and Maslach Burnout Inventory at the beginning and end of their internship course. The relationship between each of the three components of burnout and demographic characteristics were analyzed. Job burnout scores were compared between the beginning and end of the internship course.
Results: in this study, a significant relationship was not observed between the prevalence of burnout and demographic variables (age, sex, marital status, place of residence, and smoking). The prevalence of burnout was significantly more at the end of internship course ($P<0.05$, $X2=24.09$). With respect to the components of burnout, we found that the participants' scores in the three subscales of the burnout questionnaire was significantly higher after the internship course compared to before it (emotional exhaustion $t=-3.25$, $P=0.01$; depersonalization $t=-3.98$, $P<0.05$; personal accomplishment $t=-2.11$, $P=0.036$).
Conclusion: the study showed that the prevalence of burnout syndrome and its components among medical students was high during internship. Due to the high cost of burnout, implementing appropriate strategies for reducing it is essential.
Keywords: MEDICAL STUDENT, BURNOUT, INTERNSHIP

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Introduction

The main task of medical universities is to train doctors who have high clinical competence in patients' management. This goal can be achieved only if medical students to spend heavy training curriculum during their course (1, 2). There are many factors that cause physical fatigue and emotional distress in medical students during this period. Some of the factors causing stress in medical students include heavy curriculum, frequent examination schedule, prolonged period of education in this field, students' relationship with their teachers and other students, and shift work (3, 4).
Prolonged physical fatigue and emotional

***Corresponding author:** Amir Mohammad Kazemifar, MD; Associate professor, Metabolic Disease of Research Center, Qazvin University of Medical Sciences, Qazvin, Iran. **Phone:** +98 (28) 33365386; **Fax:** +98 (28) 33359503
Email: dr.zyazdi@yahoo.com

distress can result in numerous undesirable consequences including job burnout, anxiety and depression, decreased job satisfaction, and increased medical errors. These mental disorders may even be continued after graduation. High psychological pressures in the hospital environment, excessive number of tasks, need for dealing with patients' problems, their responsibilities for human care, and lack of job security are other causes of mental disorders in medical students (5-7). These stressors disrupt education and other activities in medical students and provide the conditions for development of burnout. Job burnout and stress are similar in terms of symptoms with the difference that burnout is attributed in particular to occupational stressors (8).

Burnout is a manifestation of physical and mental fatigue in the workplace. Burnout syndrome defined by high levels of emotional exhaustion, depersonalization disorder, and reduced personal accomplishment. Emotional exhaustion means a state of physical and emotional depletion that associated with stress, anxiety, fatigue, and insomnia. Depersonalization is the development of a negative, cynical, and callous attitude toward patients and other people who receive care. Personal accomplishment is a personal feeling of incompetence to perform personal tasks and a negative assessment of individuals from themselves about their works (9, 10).

The most common occupations exposed to burnout include jobs who care for other people such as health care professionals, social workers, polices, and teachers. Studies have reported that the incidence of this syndrome is relatively high in different groups of health care professional such as physicians, nurses, and dentists (8-11).

The prevalence of burnout has been reported among medical students in United States and Australia to be 49%, and 28-61%, respectively (11). This syndrome can lead to low self-esteem, lack of motivation and performance in the employees (11, 12). In severe cases of burnout, it is likely that employees quit their job. Research shows that mental health of medical students get worse as it increases their years of education at the university. Therefore, burnout syndrome is more common in the advances stage of at the beginning of training (12).

A number of studies examined the relationship between burnout and lifestyle and health behaviors among medical students with a specific focus on interns. The reason is that the internship period has characteristics that are specific compared to other periods of medical education (13, 14).

The cause of burnout is complicated and uncertain. However, it is increasingly apparent that a large number of medical students experience burnout during their educational period. Studies show that in these cases the use of appropriate approaches to prevent further problems is very important (15, 16). Also, recent studies showed that occupational burnout is a common problem in all health systems throughout the world. The prevalence of burnout in different jobs of medical careers estimated from 10 to over 30 percent (15-17). Also, it has been shown that early diagnosis and treatment of occupational burnout in the early stages is easier than advanced cases (17, 18).

This study aimed to determine changes in occupational burnout during the internship period. The main objective of this study was to determine the prevalence of burnout in medical students, especially before and after the internship. Also, we assessed the relationship between burnout and demographic variables in medical students.

Methods

This cross sectional study was done in Qazvin University of Medical Sciences in 2015. Data collection was performed using convenience sampling method. 130 medical students were evaluated during internship period. After explaining the purpose of the study for students, participants' satisfaction was obtained by online survey. The inclusion criteria were passing

pre-internship examination successfully and having a second job. Demographic data for participants including age, sex, place of residence, marital status, and smoking were also recorded.

The Maslach burnout inventory was used to collect data. The questionnaire included 22 items to assess three domains of burnout, namely emotional exhaustion (EE), depersonalization (DP), and low personal accomplishment (PA). Each question has a 7-point scale include 1) never, 2) several times a year or less, 3) once a month or year, 4) several times a month, 5) once a week, 6) several times a week, and 7) every day. According to instruction of questionnaire, a score of 27 or higher on the emotional exhaustion or 10 or higher on the depersonalization was considered as an indicator of suffering from burnout. Subscale of personal accomplishment was considered low if participants' scores were 33 or less (19, 20).

Medical students training in Iran is as follows: Total duration of training for general physicians in Iran is seven years. This period includes basic sciences, semiology and pathophysiology, clinical clerkship, and internship.

1- The "Basic Science" is the first stage of medical education training and its duration is 30 months. At this stage, medical students study general course and basic special courses such as anatomy, physiology, general pathology, etc. Most of the courses offered during this period are theoretical courses, which are presented in lecture.

2- The duration of second phase (semiology and pathophysiology) is 12 months. The purpose of this stage is to provide training that can increase students' awareness from the principles of different pathophysiological conditions in diseases. Also, the necessary information needed to determine the mechanism, risk factors, manifestation, and diagnosis of diseases presented to students. Courses in this stage include diseases of the heart and circulatory disorders, endocrinology and metabolism disorders, blood disorders, rheumatology, and nephrology. All topics in pharmacology, pathology, and semiology of these areas provided during one year for students.

3- Another stage is clinical course for medical education that lasts about 24 months. During this period all clinical departments including internal medicine, surgery, pediatrics, obstetrics and gynecology, ophthalmology, ear, nose, and throat, psychiatry, radiology, and dermatology is spent in university hospitals by medical students. Medical students are called in this period as stager in the clerkship period. Clinical training in this period consists of two parts, including education by hospitalized patients and education in the outpatient's clinics. In this course, students teaching will be done from eight o'clock in the morning until two in the afternoon.

4- The last phase of training is internship period that lasts 18 months. The aim of this step is to develop practical skill, decision-making power, and clinical judgment through direct confrontation of interns with health issues and assign the responsibility by them. All clinical areas is re-spent during this period. Medical students in this period have to spend the 24-hour shift with minimum 10 per month.

Data were presented using frequency and percentage for categorical variables and mean (standard deviation) for continuous variables. Chi-square test was used to compare qualitative variables. Independent t-test and ANOVA were used to compare continuous variables. All statistical analyses were performed using SPSS software, version 19, and $P<0.05$ was considered statistically significant.

Results

In this study, 130 medical students participated in this study. Mean age of the students was 25.69±0.7 years (range= 24-34 years). Table 1 shows the demographic information of the participants. Most participants were single (75.4%), and most of them lived in the dormitory (67.7%). About half of the students were female (50.8%).

At baseline, only 5% of medical students were aware of the existence of their burnout. Table 2 shows the prevalence of burnout syndrome and its components and their relation with demographic data at the beginning of the internship period. As shown, 43.1% of students had high scores of emotional exhaustion at the beginning of internship. Also, 41.5% and 40% reported high scores of depersonalization and personal accomplishment at the beginning of internship, respectively. In total, 15.4% of students suffered from burnout before thee internship period.

As shown in Table 2, there was no significant relationship between the prevalence of burnout and demographic variables including age, sex, marital status, place of residence, and smoking status. However, chi-square test showed that among the three components of burnout, low personal accomplishment were associated with sex (X2=4.02, P=0.045). Also, student t-test showed that depersonalization was related significantly with age (t=-2.02, P=0.045).

As shown in Table 3, the prevalence of burnout was significantly higher after the internship period (X2=24.09, P<0.05). Detailed analysis showed that the scores of the three subscale of burnout were significantly higher after the internship period compared with before internship (emotional exhaustion t=-3.25,

Table 1: Demographic characteristics participants

Variable	n	% of respondents
Sex		
Male	64	49.20%
Female	66	50.80%
Age		
<25	58	44.60%
≥25	72	55.40%
Marital status		
Married	32	24.60%
Unmarried	98	75.40%
Residence		
Dormitory	88	67.70%
With family	22	16.90%
Private house	20	15.40%

Table 2: The prevalence of burnout syndrome and its components and their relationship with demographic characteristics at the start of internship period

Variable	Emotional exhaustion (EE)		Depersonalization (DP)		Personal accomplishment (PA)		Burned out
	Mean±SD	n (%) high	Mean±SD	n (%) high	Mean±SD	n (%) high	
Participants (130)	23.09±8.07	56 (43.1%)	8.61±4.02	54 (41.5%)	28.23±12.79	52 (40)	20 (15.4%)
Gender							
Male (64)	23.93±8.91	30 (23.1%)	9.28±4.39	24 (18.5%)	30.18±12.54	20 (15.4%)	12 (9.2%)
Female (66)	22.27±7.13	26 (20%)	7.96±3.54	30 (23.1%)	26.33±12.83	32 (24.6%)	8 (6.2%)
P value	0.241	0.389	0.063	0.385	0.086	0.045	0.295
Marital status							
Married	23.37±7.21	14 (10.8%)	7.43±3.08	14 (10.8%)	27.37±12.58	14 (10.8%)	4 (3.1%)
Unmarried	23±8.36	42 (32.3%)	9±4.23	40 (30.8%)	28.51±12.90	38 (29.2%)	16 (12.3%)
P value	0.821	0.929	0.056	0.77	0.665	0.618	0.602
Residence							
Dormitory	23.56±8.22	42 (32.3%)	8.56±4.51	40 (30.8%)	28±13.02	32 (24.6%)	14 (10.8%)
With family	22.81±8.92	10 (7.7%)	9.27±3.18	10 (7.7%)	25.90±13.11	12 (9.2%)	4 (3.1%)
Private house	21.30±6.32	4 (3.1%)	8.1±2.17	4 (3.1%)	29.60±11.62	8 (6.2%)	2 (1.5%)
P value	0.521	0.075	0.633	0.105	0.493	0.298	0.742
age							
<25	22.65 (7.21)	24 (18.5%)	7.82 (3.61)	24 (18.5%)	26.44 (13.21)	28 (21.5%)	8 (6.2%)
≥25	23.44 (8.73)	32 (24.6%)	9.25 (4.24)	30 (23.1%)	29.66 (12.34)	24 (18.5%)	12 (9.2%)
P value	0.581	0.726	0.045	0.974	0.155	0.084	0.652
Smoking							
Yes	22.36±6.45	5 (3.8%)	7±2.52	2 (1.5%)	29.54±12.90	4 (3.1%)	0 (0%)
No	23.15±8.22	51 (39.2%)	8.76±4.11	52 (40%)	28.10±12.82	48 (36.9%)	20 (15.4%)
P value	0.756	0.868	0.65	0.1	0.73	0.79	0.139

Table 3: The difference of burnout scores and its components and their relationship between the first and end of internship period

Variable	Emotional exhaustion (EE)		Depersonalization (DP)		Personal accomplishment (PA)		Burned out
	Mean±SD	n (%) high	Mean±SD	n (%) high	Mean±SD	n (%) high	
Period							
Before Internship	23.09±8.07	56 (43.1%)	8.61±4.02	54 (41.5%)	28.23±12.79	52 (40%)	20 (15.4%)
After internship	26.35±8.06	84 (64.6%)	10.63±4.12	83 (63.8)	31.60±13.05	52 (40%)	56 (43.1%)
P value	0.01	0	0	0	0.036	1	0

P=0.01; depersonalization t=-3.98, P<0.05; and personal accomplishment t=-2.11, P=0.036).

Discussion

The present study assessed the prevalence of burnout and its associated factors in medical students at the beginning and end of the internship period. The results showed that the prevalence of burnout was significantly higher after internship. Also, it was found that the situation of the three components of burnout (emotional exhaustion, depersonalization, and personal accomplishment) were worse after the internship period compared with before internship.

These results were consistent with Cecil and his colleagues showing that burnout and its subscales were worse after the internship period in medical students (21). Studies showed that burnout develops during medical education (15-17). Another study conducted on medical students in the United States, also revealed that scores of EE and DP increase during the education years (22). The reasons for this increase in students' burnout include a relatively high work load, lack of time, sleep deprivation due to shift work, and dealing directly with patients (23, 24).

Moreover, the results showed that none of the demographic variables (age, sex, marital status, and place of residence) were associated with burnout. In another study, no significant relationship was found between burnout and age, sex, and place of residence (25). We found a higher level of burnout in the personal accomplishment subscale was associated with students' sex and the depersonalization subscale was associated with age of the participants. This finding was supported by a recent meta-analysis done by Parvanova and his colleagues. In this meta-analysis, women had lower level of personal accomplishment than men (26). Since the studies in this area are somewhat contradictory, further studies are needed to determine the relationship between burnout and sex (27). We found no significant relationship between smoking and burnout that is consistent with another study (28).

An interesting finding in our study was that medical students were unaware of the existence of burnout in themselves. A question was asked of all participants about their complaint about burnout before completing the Maslach Burnout Inventory questionnaire. Only 5% of students responded that they were experiencing burnout. But after data analysis, it was found that the rate of job burnout before and after internship period were 15.4% and 43.1%, respectively. The lack of information about job burnout also needs attention. Because ignorance can lead to more severe symptoms of burnout, that eventually lead to untreatable problems (27, 28).

There are different types of treatment for occupational burnout including psychological or pharmacological treatments. Proper efficacy of cognitive behavioral therapy has proven burnout in recent studies (29). Some pharmacological treatments are suggested for burnout (28, 29). In addition, Krasner and colleagues found that self-awareness exercises among primary care physicians can significantly reduce symptoms of burnout (30).

It is noteworthy that, all these treatments are effective in the early stages of disease.

In this study, we asked questions about job burnout made students more aware of this problem. Knowing Awareness enables students deal with it in an appropriate manner (29, 30). As was observed in the result section, frequency of depersonalization was significantly higher at the end of the internship period compared with the beginning of internship. This can be a warning sign for educational planners. Research shows that depersonalization disorders in physicians cause a drop in the quality of patients' care (31).

Our study had some limitations. This study was cross-sectional and more cohort investigations are needed to determine the causal relationship between variables. In addition, this study only examined the prevalence of burnout in students of Qazvin University of Medical Sciences. Therefore, these findings cannot be generalized to other universities. Further studies should be conducted in a wider range to achieve this goal.

Conclusion

This study showed that the prevalence of burnout in medical students after the internship period was significantly higher than before the internship period. Since the cost of burnout is high in the healthcare environment, implementing strategies for reducing burnout is recommended. Taking advantage of discussion group among students and giving them the opportunity to reflect their ideas about their learning situations could be the first step to solve the problem. Also, the prevalence of burnout before the internship period was high. Therefore, preventive measures should be taken before starting this course. Since there was no significant association between demographic variables and burnout, further research is needed in this area.

Conflict of Interest

The author declares no conflict of interest.

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