

Prevalence and associated factors of burnout among family medicine residents in Al Madina, Saudi Arabia

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ABSTRACT

Background and Aim: Burnout is a common problem for interns and residents. It has been associated with physical and mental health of health care providers as well as low job satisfaction and medical errors. Few studies have investigated this problem among residents. This study aimed to determine the prevalence of burnout and its associated factors among family residents in Al Madina city, Saudi Arabia. **Materials and Methods:** This cross-sectional study was conducted among 75 residents in the family medicine residency programs in Al Madina, Saudi Arabia. A self-administered questionnaire was used that includes questions on sociodemographic characteristics and sources of stress and burnout. *T* test, analysis of variance (ANOVA) test, and multiple linear regression analysis were employed. **Results:** Majority were female (54.7%) and aged 26 to 30 years (84.0%). The significant predictors of burnout in the final model were “tests/examinations” ($P = 0.014$), “large amount of content to be learnt” ($P = 0.016$), “unfair assessment from superiors” ($P = 0.001$), “work demands affect personal/home life” ($P = 0.001$), and “lack of support from superiors” ($P = 0.006$). **Conclusion:** Burnout is present among family medicine residents at a relatively high percentage. This situation is strongly triggered by work-related stressors, organizational attributes, and system-related attributes, but not socio-demographics of the respondents. Systemic changes to relieve the workload of family medicine residents are recommended to promote effective management of burnout.

Keywords: Burnout, emotional exhaustion, family medicine, residents, Saudi Arabia

Introduction

Burnout is a prevalent psychological syndrome among residents and practicing physicians due to exposure to chronic and high level of work-related stress.^[1] It is characterized by the loss of emotional, mental, and physical energy due to high and prolonged level of occupational stress. It is defined as a combination of three elements:^[1] emotional exhaustion, the depletion of emotional energy by continued work-related

demands;^[2] depersonalization, a sense of emotional distance from one’s patients or job; and^[3] low personal accomplishment, which is a decreased sense of self-worth or efficacy related to work.^[2] The Emotional Exhaustion (EE) of the Maslach Burnout Inventory (MBI) is the most important dimension. A high score in emotional exhaustion or depersonalization is considered indicative of clinically significant burnout.^[3] Burnout can affect both mental and physical health as well as job performance. Burnout has been associated with absenteeism, high turnover at the workplace, early retirement, decreased job satisfaction, suboptimal patient care, and medical errors.^[4] It is also correlated

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with sleep disturbances, anxiety, depression, alcohol use, and suicidal ideation.^[5,6] Burnout affects medical students, residents, and practicing physicians. In the United States, the prevalence of burnout ranges between 31% and 49.6% in medical students,^[7] 30% in physicians,^[8] and 50% to 76% in residents.^[9] High level of burnout was also reported in some developing countries such as Malaysia, Yemen, Qatar, Saudi Arabia, and Lebanon.^[5,10-14] No studies had been published about burnout among family residents in Saudi Arabia. This study aimed to determine the prevalence of burnout and its associated factors among family residents in Al Madina city, Saudi Arabia.

Methods

Study setting and participants

This cross-sectional study is a part of bigger study. All residents in the family medicine residency programs in Al Madina were asked to participate in this study ($N = 105$).

Study instruments

A self-administered questionnaire consisting of three parts was used in this study. The first part included questions on sociodemographic and work characteristics. The second part assessed burnout by using the EE subscale of MBI. EE subscale (the feelings of being emotionally overrun and exhausted by one's work) was used in this study because it is the key component of burnout in the MBI.^[15,16] The nine items of EE were answered in terms of frequency in which the respondent experiences these feelings, reported on a 7-point Likert-type scale ranging from 0 (*never*) to 6 (*every day*). A higher score indicated greater burnout.^[10] This instrument was validated in many previous studies. The Cronbach's alpha coefficient of the EE subscale reported in the literature was satisfying (.88).^[11] Sources of stress were assessed by 22 items which were obtained from the literature.^[12] These items were headed by the following question: "To which extent does the following conditions cause stress to you." Each item was scored from 0 (*causing no stress*) to 4 (*causing severe stress*).^[12]

Ethics statement

Objectives and benefits of the study were explained in verbal and written form attached to the questionnaires. Participants' confidentiality and anonymity were assured. Signed consent was obtained from those who agreed to participate. Participants were approached 2 months before the exam to avoid the stressful examination period. Ethical approval was obtained from the ethical committee of the Institutional Review Board in Al Madina (Reference number: IRB-172).

Data analysis

Analysis was performed using Statistical Package for the Social Sciences (SPSS®) (version 22.0, IBM, Armonk, NY). The nine items of EE were summed to obtain the total score.

Test of normality was performed for total EE. To check for the factorial validity of the EE, an exploratory factor

analysis was performed using principal components method with varimax rotation. The analysis yielded one factor with given value greater than 1 (5.8). The one-factor solution accounted for 64.3% of the variance. Cronbach's alpha of EE scale in this study was 0.93 which indicates satisfactory internal consistency of the scale. The EE total score was categorized into low burnout (≤ 16), moderate burnout,^[17-26] or high burnout (≥ 27).^[11] To assess the association between burnout and sociodemographic and work characteristics, we used *t* test and analysis of variance (ANOVA) test. Correlation analysis was used to assess the association between burnout and sources of stress. Multiple linear regression analysis was employed by using "Backward" technique. Multi-collinearity was checked between the independent variables in the model by using the VIF (variation inflation factor). The accepted level of significance was set below 0.05 ($P < 0.05$).

Results

Out of 105 residents, 75 completed the survey (71% response rate). Respondents and non-respondents were compared on available demographic variables, and no significant differences were found.

Sociodemographic and work characteristics of the respondents

Most respondents were female (54.7%), aged 26 to 30 years (84.0%), and single (50.7%). Working in shift was reported by 28.0% of the respondents. Most of the respondents were in their first year in study (33.3%) and had 1 to 2 years experience since graduation (62.7%). Academic performance was reported poor by 9.3%, good by 48.0%, very good by 36.0%, and excellent by 6.7% of the respondents [Table 1].

Prevalence of burnout

The mean EE of residents was 22.5 ± 12.8 , and the EE score ranged from 4 to 54. Twenty-four residents (32.0%) showed high burnout, 25 (33.3%) showed moderate burnout, and 26 (34.7%) showed low burnout.

Factors associated with burnout in univariate analysis

To determine the factors associated with burnout in univariate analysis, we used the total score of EE as a continuous variable. Working in shift was associated significantly with burnout, in which those who were working in shift reported higher mean of EE (28.6 ± 14.7) compared with those who were not (20.2 ± 11.3) ($P = 0.026$) [Table 2]. Academic year was significantly associated with burnout ($P = 0.039$), but multi-comparison analysis (post hoc) showed no differences in the level of burnout between academic years. Twenty sources of stress, out of 22 in this study, were correlated positively and significantly with burnout, and the correlation coefficient ranged from 0.27 (weak correlation) to 0.68 (moderate correlation) ($P < 0.05$) [Table 3].

Table 1: Sociodemographic and work characteristics of the respondents

	n	%
Gender		
Male	34	45.3
Female	41	54.7
Age		
20-25	10	13.3
26-30	65	86.7
Marital status		
Single	38	50.7
Married	37	49.3
Working in shift		
Yes	21	28.0
No	54	72.0
Academic year		
1 st	25	33.3
2 nd	24	32.0
3 rd	17	22.7
4 th	9	12.0
Duration of work since graduation		
1-2	47	62.7
3-4	18	24.0
5-6	10	13.3
Academic performance		
Poor	7	9.3
Good	36	48.0
Very good	27	36.0
Excellent	5	6.7

Table 2: Association between burnout and sociodemographic and work characteristics

	Mean	SD	P
Gender			
Male	21.4	12.3	
Female	23.5	13.3	0.497
Age			
20-25	22.3	11.3	
26-30	22.6	13.1	0.943
Marital status			
Single	21.0	11.7	
Married	24.1	13.9	
Working in shift			
Yes	28.6	14.7	
No	20.2	11.3	0.026
Academic year			
1 st	17.9	8.8	
2 nd	25.4	14.6	
3 rd	21.1	12.0	
4 th	30.6	14.9	0.039
Duration of work since graduation			
1-2	20.5	11.8	
3-4	28.1	13.9	
5-6	22.2	13.8	0.103
Academic performance			
Poor	25.0	9.9	
Good	24.5	14.2	
Very good	19.7	11.9	
Excellent	20.8	10.3	0.487

Factors associated with burnout in multivariate analysis

All factors associated with burnout in univariate analysis were included in the multiple linear regression analysis. [Table 4] exhibits the predictors of burnout among family medicine residents. The significant predictors of burnout in the final model were tests/examinations ($P = 0.014$), large amount of content to be learnt ($P = 0.016$), unfair assessment from superiors ($P = 0.001$), work demands affect personal/home life ($P = 0.001$), and lack of support from superiors ($P = 0.006$). The total model was significant ($P < 0.001$) and explained 62.0% of the variance in burnout score. There was no multi-collinearity between the independent variables, given that the VIF values were more than 0.04.

Discussion

Decades of research have investigated burnout as a workplace phenomenon. The increased demand of health service utilization in the current digital and industrial era has summoned concerns among stakeholders and researchers globally to explore the burnout syndrome in health care workers. While global scale-up efforts have primarily highlighted the burden of burnout in health care workers, information from Al Madina, Saudi Arabia, was limited. This preliminary investigation was aimed to explore the prevalence of burnout and its associated factors in a sample of family medicine residents in Al Madina, Saudi Arabia. This

study found that 32% of the residents had high level of burnout during family medicine residency training. Prevalence rates in Western countries were ranged between 27% and 74%.^[17-19] In similar specialty, it was noted that burnout level of family medicine physicians was as low as 12.6% in Qatar^[5] and as high as 43% in European countries.^[20] A plausible explanation of such inconsistencies could be explained by the variations in patient culture across different populations and the role of family medicine specialty to provide first line care in any health systems worldwide. While family medicine physicians provide a broader scope of coverage within the health care system, they are tasked to provide affordable and effective outpatient health services to reduce the odds of hospitalizations. With such escalated responsibilities as front liners, family medicine residents undergo a stressful and overwhelming period to apprehend the wider scope of clinical knowledge exponentially. Concurrently, variations in the prevalence rates of burnout could be attributable to the utilization of different measurement techniques or study tools across different studies used in different populations or settings, alarming possible threats to validity and overestimates when these instruments are adapted cross-culturally to measure burnout.^[5] While previous studies reported negative correlations between socio-demographic variables and emotional burnout among residents,^[10,17,21] this study found that residents in their fourth academic year perceived greater level of burnout as compared with junior residents. As residents occupy a unique niche of training, they take on increased loads of responsibilities

Table 3: Association between burnout and sources of stress

Sources of stress	Correlation coefficient (r)	P
Tests/examinations	0.446	<0.001
Large amount of content to be learnt	0.309	0.007
Time pressures and deadlines to meet	0.272	0.018
Having to do work outside of my competence	0.410	<0.001
Work overload	0.482	<0.001
Unfair assessment from superior	0.637	<0.001
Fear of making mistakes	0.432	<0.001
My work is mentally straining	0.574	<0.001
Work demands affect my personal/home life	0.684	<0.001
Lack of time to review what have been learnt	0.490	<0.001
Having difficulty understanding the content	0.388	0.001
Working with uncooperative colleagues	0.282	0.014
My beliefs contradict with those of my superior	0.302	0.008
Cannot participate in decision making	0.391	0.001
Unable to make full use of my skills and ability	0.378	0.001
My life is too centered on my work	0.560	<0.001
Lack of support from superior	0.580	<0.001
Lack of authority to carry out my job duties	0.512	<0.001
Working with incompetence colleagues	0.288	0.012
Competition among colleagues	0.212	0.068
Difficulty in maintaining relationship with superior	0.350	0.002
Society does not think highly of my profession	0.144	0.218

Table 4: Factors associated with burnout in multivariate analysis

Variable	B	Beta	P	95% CI	VIF
Tests/examinations	3.2	0.246	0.014	0.67-5.74	1.834
Large amount of content to be learnt	3.1	0.255	0.016	0.59-5.67	2.059
Unfair assessment from superiors	3.5	0.337	0.001	1.51-5.45	1.759
Work demands affect personal/home life	4.2	0.385	0.001	1.85-6.59	2.260
Lack of support from superiors	2.8	0.279	0.006	0.82-4.83	1.892

of patient care over time, thus navigating the health care system from learners to providers, in which these transitions have contributed to a high degree of burnout.^[22] A previous study that contradicted the above findings,^[17] found that first-year residents had greater level of burnout, claiming that junior residents were at greater vulnerability due to the transitioning process from an academically qualified graduate student to a medical practitioner. Consistent with these postulations, this study found that family medicine residents exhibited significant association between burnout and the requirement to learn a large amount of content in the specialty curriculum. Family medicine residents who were required to be exposed to a broad spectrum of clinical approach, skills, and management undergo multiple tests or assessments, and this attribute was significantly correlated to the burnout phenomena in this study. Work hours were considered as stressor in residency training.^[22,23] This study found that residents working on shift duties experienced greater level of burnout. While similar consistencies were observed across residents in Australasian,^[24] Swiss,^[25] Slovenian,^[18] Malaysian,^[10] and Turkish^[26] cohorts, studies conducted in the

United States^[27,28] elicited that greater level of burnout among residents were prevalent in shorter work weeks. In addition, multiple work-related stressors were significantly associated with burnout among family medicine residents in this study. Consistent with previous burnout literature across different specialties,^[5,10,11,29,30] residents who perceived various stressors like work overload or having to do work outside one's competencies and those who perceived work nature as mentally straining showed positive relationships with burnout in this study. Literature highlighted that burnout catalyzes serious personal repercussions like substance abuse,^[31] family conflicts,^[32] and suicidal ideation,^[33] and much catastrophically compromising the efficacy of health care delivery system through increased medical errors.^[4] This study found that residents who perceived work demands as affecting personal or home life were significantly associated with burnout. Previous studies found similar findings.^[10,34] Appropriate mentorship, sufficient motivation, and fair assessments during residency training are tantamount to prevent emotional burnout among residents.^[10] This study found a significant association between resident-supervisor relationship and burnout. In our final multivariate model, family medicine residents who perceived unfair assessments and lack of support from supervisors were significantly associated with emotional burnout. Mental repercussions may be evoked when residents believe that they are being treated differently or unfairly as compared with their peers in the same program, catalyzing frustrations in their residency practice. In such situations, it is plausible to note that perceived unfairness or injustice can promote negative emotions and behaviors which can increase burnout substantially.^[35] As residents undergo deeper insights of continuous medical education and training, previous studies have highlighted significant associations between other organization-related stressors with burnout.^[11] This study found that performance pressures that impose time limitations were significantly associated with family medicine residents' burnout. Concurrently, organizational attributes that demand unrealistic goals and having incompetent or disrespectful interactions with colleagues were significantly associated with burnout. These findings were consistent with previous studies of other specialties.^[10,11,29,36] The strength of our study is the selection of a homogeneous sample of family medicine residents which may assist in reorganizing the residency programs and work processes accordingly. Despite its strength, this study has certain limitations. The cross-sectional nature of the investigation could not establish temporality. The data are self-reported, thus may be subjected to social desirability or recall bias. The relatively small sample size may be subjected to selection bias and limits the generalizability of the study findings.

In conclusion, our findings indicate that burnout is present among family medicine residents at a relatively high percentage. This situation is strongly triggered by work-related stressors, organizational attributes, and system-related attributes but not socio-demographics of the respondents. Core factors associated with burnout were work demands affecting personal life, unfair assessments and support from superiors, large amount of content

to be learned, and undergoing multiple tests or examinations. Systemic changes to relieve the workload of family medicine residents are recommended to promote effective management of burnout.

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Conflicts of interests

There are no conflicts of interest.

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