ASEAN Journal of Psychiatry Vol. 22(6), August 2021: 1-8

RESEARCH ARTICLE

FACTORS ASSOCIATED WITH STRESS AND DEPRESSION AMONG FAMILY MEDICINE RESIDENTS IN AL MADINAH, SAUDI ARABIA

***Sami Abdo Radman Al-Dubai*[*], *Abdullah Musleh Aljohani*[*], *Abdulwahab Ghormalah Alghamdi*[*], *Duoaa Seddiq Abdoh*[*], *Mariam A. Alhabi*[**], *Mohammad Abdulhameed Alharbi*[**], *Abdulmohsen H. Al-Zalabani*[***]**

[*]Joint Program of Family Medicine Post Graduate Studies, Al-Madinah, Saudi Arabia
[**]Faculty of Medicine, King Abdulaziz University, Jeddah, Saudi Arabia
[***]Family and Community Medicine Department, College of Medicine, Taibah University, Al-Madinah, Saudi Arabia

Abstract

Stress and depression among physicians are recognized as important problems because of the potential risks they impose on individual health and medical care. This study aims to assess level of stress and depression and associated factors among family medicine residents in Al-Madinah, Saudi Arabia. Methods: This cross-sectional study was conducted among 75 residents in the family medicine residency programs in Al-Madinah. Stress and depression were assessed by using the stress and depression subscales of the validated Depression, Anxiety and Stress Scale-21 item (DASS-21). Sources of stress were assessed by 22 items. Results: Most participants had stress (57.3%) and depression (53.3%). Stress was associated with work overload (P=0.032), work demands affect personal/home life (P<0.001), inability to participate in decision making (P=0.026) and inability to make full use of skills and abilities (P=0.019). Depression was associated with 'work demands affect personal/home life' (P<0.001). Conclusion: The prevalence of stress and depression among family resident doctors was high. Establishing a residency counseling office is suggested to deal with the resident's problems in a way that supports their needs and leads to the best working environment. *ASEAN Journal of Psychiatry Vol. 22(6), August 2021: 1-8.*

Keywords: Depression, Family Medicine, Physicians, Residents, Stress

Introduction

Studies have suggested that resident physicians experienced high rates of stress and depression [1]. This is so because of increased expectations and responsibilities and the fact that residents are expected to be proficient clinicians, educators, researchers and administrators at the end of their training. Beyond the effects of depression on individual's health, resident depression has been linked to poor-quality patient care and increased medical errors [2]. Estimates of the prevalence of depression was reported to be up to 60% [3]. Stress had been linked with musculoskeletal disorders, high blood pressure, disturbed metabolism, cardiovascular problems, mental health problems and premature mortality [4]. Physicians are exposed to many stressors, such as the burden imposed by expectations of a high degree of professionalism, responsibility for patient well-being and maintenance of relationships with patients and health workers, as well as concerns about medical errors and malpractice litigation [5]. Such occupational stressors had been reported to be associated with depression and stress among residents [6]. This study aims to assess level of stress and depression and associated factors among family medicine residents in Al-Madinah, Saudi Arabia.

Materials and Methods

This cross-sectional study is a part of bigger study [7]. All residents in the family medicine residency programs in Al-Madinah were asked to participate in this study (n=105). Participants were approached

two months before exam to avoid the stressful examination period.

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 stress and depression by using the stress and depression subscales of the validated Depression, Anxiety and Stress Scale-21 item (DASS-21). Stress subscale contains seven items and assesses difficulty relaxing, nervous arousal, and being easily upset/agitated, irritable/over-reactive and impatient [8]. Depression subscale contains seven items and measures hopelessness, low self-esteem and low positive affect. Each item is scored on a four-point Likert scale ranging from zero (Did not apply to me at all over the last week) to three (Applied to me very much, or most of the time over the past week). Total score of stress and depression were obtained by summing up the relevant questions of each subscale. Sources of stress were assessed by 22 items which were obtained from the literature. These items were headed by the following question: "to which extent dose the following conditions cause stress to you". Each item was scored from zero (Causing no stress) to 4 (Causing severe stress).

Analysis was performed using Statistical Package for the Social Sciences (SPSS®) (version 22.0, IBM, Armonk, NY). Total score of stress and depression were multiplied by 2. Test of normality was performed for the total stress scale and depression scale. To check for the factorial structure validity of the Stress and Depression Scale, an exploratory factor analysis was performed using principal component method with varimax rotation. The analysis yielded two-factor structure. Cronbach's alpha of stress scale and depression scale were 86% and 88%, respectively, which indicate satisfactory internal consistency. Total score of stress and depression were categorized to 'normal', 'moderate', 'severe' and 'extremely severe' according to the recommended cut-off scores [9]. To assess the association between the continuous and the categorical variables, we used t-test and ANOVA test. Correlation analysis was used to assess the association between the continuous variables. To obtain the significant factors associated with stress and depression, multiple linear regression analysis was employed by using "Backward" technique. Multi-collinearity was checked between the independent variables by using the VIF (Variation Inflation Factor). The accepted level of significance was set below 0.05 ($p<0.05$).

Ethical considerations

Ethical approval was obtained from the ethical committee of the Directorate of Health in Al-Madinah. Objectives and benefits of the study were explained to the participants. Participant's confidentiality and anonymity were assured. Signed consent was obtained from the participants.

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.

Most respondents were female *(*45.3%), aged 28-30 years (84.0%) and singles (50.7%). Working in shift was reported by 28.0% of respondents. Most of the respondents were in their first year in study (33.3%) and had 1 to 2 years of experience since graduation (62.7%). Academic performance was reported as poor by 9.3%, good by 48.0%, very good by 36.0% and excellent by 6.7% of the respondents (Table 1).

Table 1: Sociodemographic and Work Characteristics of the Respondents

	N	%
Gender		
Male	34	45.3
Female	41	54.7
Age		
25-27	10	13.3

28-30	60	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		
1st	25	33.3
2nd	24	32.0
3rd	17	22.7
4th	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

The five most important stressors ranked by residents were tests/examinations, large amount of content to be learnt, fear of making mistakes, work overload, time pressures and deadlines to meet (Table 2).

Table 2: Sources of Stress Ranked by the Mean

Sources of stress	Mean
Tests/examinations	2.8
Large amount of content to be learnt	2.6
Fear of making mistakes	2.6
Work overload	2.4
Time pressures and deadlines to meet	2.3
Unfair assessment from superior	2.3
Work demands affect my personal/home life	2.2
Lack of time to review what have been learnt	2.2
Having to do work outside of my competence	2.1
Working with uncooperative colleagues	2.1
My work is mentally straining	2.0
My life is too centered on my work	2.0
Lack of support from superior	1.9
Having difficulty understanding the content	1.8
Unable to make full use of my skills and ability	1.8

My beliefs contradict with those of my superior	1.7
Lack of authority to carry out my job duties	1.7
Working with incompetence colleagues	1.7
Society does not think highly of my profession	1.6
Cannot participate in decision making	1.5
Difficulty in maintaining relationship with superior	1.5
Competition among colleagues	1.3

The mean (SD) stress score was 16.6 (9.4) and stress score ranged from zero to 42. About 46.7% of the residents had no stress, 16.0% had mild stress and 17.3% had moderate stress. Severe and extremely severe stress were reported by 14.7 % and 5.3% respectively. The mean (SD) depression score was 12.9 (9.8) and depression score ranged from zero to 42. About 42.7% of residents had no depression, 20.0% had mild depression, and 14.7% had moderate depression. Severe and extremely severe depression was reported by 10.0% and 12.0% respectively (Table 3).

Table 3: Levels of Stress and Depression

	Stress		**Depression**	
	n	**%**	**n**	**%**
Normal	35	46.7	32	42.7
Mild	12	16.0	15	20.0
Moderate	13	17.3	11	14.7
Severe	11	14.7	8	10.7
Extremely severe	4	5.3	9	12.0

Participants who were working in shift had significantly higher stress compared to those who were not (P=0.013) (Table 4).

Table 4: Association of Stress and Depression with Sociodemographic and Work Characteristics

	Stress			**Depression**		
	Mean	**SD**	**P value**	**Mean**	**SD**	**P value**
Gender						
Male	16.2	10		12.7	9.8	
Female	17	9	0.719	13.1	9.9	0.857
Age						
25-27	19.4	13.6		17.2	12.04	
28-30	16.2	8.6	0.317	12.2	9.39	0.306
Marital status		0				
Single	16.2	9.4		14.42	11.07	
Married	17.2	9.4	0.632	11.40	8.25	0.186
Working in shift						
Yes	20.8	8.6		13.5	8.500	
No	15	9.2	0.013	12.5	10.07	0.489
Academic year						

1st	16	7.8		11.60	7.5	
2nd	17.2	10.8		13.41	11.25	
3rd	15.8	11.2		14.23	12.58	
4th	18	6.8	0.919	12.88	5.7	0.851
Duration of work since graduation						
1-2	16.2	8.8		12.7	9.4	
3-4	19	10.4		15.1	11.7	
5-6	14.2	10.6	0.390	10	7.7	0.414
Academic performance						
Poor	19.2	5.2		25	4.2	
Good	17.4	9.6		13.1	9.9	
Very good	14.8	8.6		11.1	7.9	
Excellent	17.2	16.2	0.656	19.2	17.4	0.130

Stress was correlated positively and significantly with all sources of stress in this study. Correlation coefficient ranged from 0.23 (weak correlation) to 0.65 (moderate correlation) (Table 5). Depression was correlated positively and significantly with 8 out of 22 sources of stress. The highest correlation was with the item 'work demands affect my personal/home life' (r=0.50, *P*<0.001) (Table 5).

Table 5: Association of Stress and Depression with Sources of Stress

	Stress		**Depression**	
Sources of stress	**Correlation coefficient (r)**	**P value**	**Correlation coefficient (r)**	**P value**
Tests/examinations	0.37	0.001	0.040	0.732
Large amount of content to be learnt	0.35	0.002	0.165	0.156
Time pressures and deadlines to meet	0.33	0.004	0.161	0.168
Having to do work outside of my competence	0.45	<0.001	0.333	0.004
Work overload	0.44	<0.001	0.172	0.144
Unfair assessment from superior	0.42	<0.001	0.285	0.013
Fear of making mistakes	0.30	0.010	0.104	0.376
My work is mentally straining	0.52	<0.001	0.339	0.003
Work demands affect my personal/home life	0.66	<0.001	0.500	<0.001
Lack of time to review what have been learnt	0.38	0.001	0.089	0.445
Having difficulty understanding the content	0.28	0.016	0.079	0.502
Working with uncooperative colleagues	0.24	0.040	0.102	0.384
My beliefs contradict with those of my superior	0.28	0.014	0.163	0.162
Cannot participate in decision making	0.37	0.001	0.325	0.004
Unable to make full use of my skills and ability	0.27	0.022	0.234	0.044
My life is too centered on my work	0.41	<0.001	0.278	0.016
Lack of support from superior	0.35	0.002	0.087	0.455
Lack of authority to carry out my job duties	0.35	0.002	0.166	0.155
Working with incompetence colleagues	0.25	0.028	0.141	0.229

Competition among colleagues	0.30	0.010	0.224	0.053
Difficulty in maintaining relationship with superior	0.23	0.047	0.212	0.068
Society does not think highly of my profession	0.28	0.014	0.248	0.032

(Table 6) exhibits the predictors of stress and depression among family medicine residents in multivariate analysis. The significant predictors of stress in the final model were work overload (P=0.032), work demands affect personal/home life (P<0.001), inability to participate in decision making (P=0.026) and inability to make full use of skills and abilities (P=0.019). The total model was significant (P<0.001) and explained 46% of the variance of stress score. There was no multi-collinearity between independent variables, given that the variation inflation factor (VIF) values were less than 10.

Table 6: Factors Associated with Stress and Depression in Multivariate Analysis

	B	SE	Beta	95%CI		p
Factors associated with stress						
Work overload	1.0	0.5	0.23	0.09	1.94	0.032
Work demands affect personal/home life	2.3	0.5	0.57	1.40	3.21	<0.01
Inability to participate in decision making	1.1	0.4	0.26	0.14	2.05	0.026
Inability to make full use of skills and abilities	1.4	0.6	0.30	0.23	2.47	0.019
Factors associated with depression						
Work demands affect personal/home life	3.8	0.9	0.45	2.02	5.53	<0.01

Regarding depression score, the only significant predictor was 'Work demands affect personal/home life' (P<0.001). The total model was significant (P<0.001) and explained 19% of the variance of depression score.

Discussion

In this study, 53.3% residents had stress. A previous study in Saudi Arabia (2015) found that the prevalence of stress among family medicine residents was 63.2%. The prevalence of stress in the previous international studies ranged from 17.7% to 42% [10-13]. The higher prevalence found in the current study could be related to the differences in working environment, cultural difference, sources of stress, and the health system. Also, the difference between different residence programs could affect the level of stress among residents. Our study showed that stress was correlated positively and significantly with all sources of stress (22 sources). In the previous studies, sources of stress were associated significantly with stress and burnout among residents and medical students. The most-reported stressors include work environment, work overload, academic stressors, tests and examinations, lack of family support, financial difficulties, relationships with trainers and colleagues, unclear long-term career future, long working hours, time pressures, excessive assignments and fear of making mistakes [14-19].

In this study, stress was associated significantly with working in shift but not with socio-demographic characteristics. Similarly, working in shift was associated with stress in the previous studies [20, 21]. Depression among residents has been linked to a higher risk of future depressive episodes and greater long-term morbidity and may affect the long-term health of resident doctors. In this study, 57.3%

of the participants exhibited depressive symptoms. The prevalence of depression among residents in the previous studies ranged from 19% to 43.2% [22]. A higher prevalence of depression was found in a previous study in Dubai (63.3%). Depression was correlated positively and significantly with 8 out of 22 sources of stress in this study. Anagnostopoulos F also demonstrated associations between residents' mental health and sources of stress [23].

This study is not without limitations. First, the study sample included residents from one center of family medicine resident program in Saudi Arabia. Second, using a cross-sectional study design precluded the detection of any causal association. Moreover, we cannot exclude the possibility of reporting bias from self-reported data. Finally, the sample size is relatively small although we had a good response rate. The small sample size may have reduced the power of the study to detect differences between groups.

Conclusions

The prevalence of stress and depression among family resident doctors in this study was 57.3% and 53.3% respectively. Sources of stress were significantly associated with stress and depression. Establishing a residency counseling office is suggested to deal with the resident's problems in a way that supports their needs and leads to the best working environment.

References

1. Gu A, Onyeama GM, Bakare MO, Igwe MN. Prevalence of depression among resident doctors in a teaching hospital, South East Nigeria. International Journal of Psychiatry in Clinical Practice. 2015; 3(1):1-5.
2. Mata DA, Ramos MA, Bansal N, Khan R, Guille C, et al. Prevalence of depression and depressive symptoms among resident physicians: A systematic review and meta-analysis. JAMA. 2015; 314(22): 2373-83.
3. Yousuf A, Ishaque S, Qidwai W. Depression and its associated risk factors in medical and surgical post graduate trainees at a teaching hospital: A cross sectional survey from a developing country. Journal of Pakistan Medical Association. 2011; 61(10): 968.
4. Choi SM, Park YS, Yoo JH, Kim GY. Occupational stress and physical symptoms among family medicine residents. Korean Journal of Family Medicine. 2013; 34(1): 49.
5. Tomioka K, Morita N, Saeki K, Okamoto N, Kurumatani N, et al. Working hours, occupational stress and depression among physicians. Occupational medicine. 2011; 61(3): 163-70.
6. Waldman SV, Diez JC, Arazi HC, Linetzky B, Guinjoan S, et al. Burnout, perceived stress, and depression among cardiology residents in Argentina. Academic Psych. 2009; 33(4): 296-301.
7. Al-dubai SA, Aljohani AM, Alghamdi AG, Alghamdi KS, Ganasegeran K, et al. Prevalence and associated factors of burnout among family medicine residents in Al Madina, Saudi Arabia. Journal of Family Medicine Primary Care. 2019; 8(2): 657.
8. Parkitny L, McAuley J. The Depression Anxiety Stress Scale (DASS). Journal of Physiotherapy. 2010; 56(3): 204.
9. Alosaimi FD, Kazim SN, Almufleh AS, Aladwani BS, Alsubaie AS, et al. Prevalence of stress and its determinants among residents in Saudi Arabia. Saudi Medical Journal. 2015; 36(5): 605.
10. Monsef NA, Hajaj KE, Basti AK, Marzouqi EA, Faisal W, et al. Perceived depression, anxiety and stress among dubai health authority residents, Dubai, UAE. American Journal of Psychology and Cognitive Science. 2015; 1(3): 75-82.
11. Pasqualucci PL, Damaso LL, Danila AH, Fatori D, Neto FL, et al. Prevalence and correlates of depression, anxiety, and stress in medical residents of a Brazilian academic health system. BioMed Central medical education. 2019; 19(1):193.
12. Dave S, Parikh M, Vankar G, Valipay SK. Depression, anxiety, and stress among resident doctors of a teaching hospital. Indian Journal of Social Psychiatry. 2018; 34(2):163.
13. Cohen JS, Patten S. Well-being in residency training: a survey examining resident physician

satisfaction both within and outside of residency training and mental health in Alberta. BioMed Central medical education. 2005; 5(1): 21.

14. Al-Dubai SA, Naggar RA, Alshagga MA, Rampal KG. Stress and coping strategies of students in a medical faculty in Malaysia. Malaysian Journal of Medical Sciences. 2011; 18(3): 57.
15. Jiang Y, Guan YJ, Dai DW, Huang W, Huang ZY, et al. Prevalence of stress and its determinants among residents enrolled in China Standardized Training Program for Resident Doctor (C-STRD) program: A cross-sectional study. PloS One. 2019; 14(1): e0207258.
16. Gunasingam N, Burns K, Edwards J, Dinh M, Walton M, et al. Reducing stress and burnout in junior doctors: The impact of debriefing sessions. Postgraduate medical journal. 2015; 91(1074): 182-7.
17. Riley R, Spiers J, Buszewicz M, Taylor AK, Thornton G, et al. What are the sources of stress and distress for general practitioners working in England? A qualitative study. BMJ Open. 2018; 8(1): e017361.
18. Fairbrother K, Warn J. Workplace dimensions, stress and job satisfaction. Journal of managerial psychology. 2003; 18(1): 8-21.
19. Alosaimi FD, Kazim SN, Almufleh AS, Aladwani BS, Alsubaie AS, et al. Prevalence of stress and its determinants among residents in Saudi Arabia. Saudi Medical Journal. 2015; 36(5): 605.
20. Kwiatosz M, Fijałkowska A, Fijałkowska M, Aftyka A, Kowalczyk M, et al. Stress prevalence and stressors among anaesthesiology and intensive care unit workers: a multicentre survey study. Australian College of Critical Care Nurses. 2018; 31(6): 391-5.
21. Gerber M, Hartmann T, Brand S, Holsboer E, Pühse U, et al. The relationship between shift work, perceived stress, sleep and health in Swiss police officers. Journal of Criminal Justice. 2010; 38(6):1167-75.
22. Flaishmakher S, Adjo J, Pina P, Rubin D. Depression among resident physicians and its effect on patient care. Pediatrics. 2018; 142(1): 100.
23. Anagnostopoulos F, Demerouti E, Sykioti P, Niakas D, Zis P, et al. Factors associated with mental health status of medical residents: A model-guided study. Journal of Clinical Psychology in Medical Settings. 2015; 22(1): 90-109.

Corresponding author: Sami Abdo Radman Al-Dubai, Joint Program of Preventive Medicine Post Graduate Studies, Al-Madinah 41311, Saudi Arabia

Email: samidobaie@yahoo.com

Received date: 22 June, 2021 Accepted date: 13 July, 2021