

The Prevalence of Depression, Anxiety, and Stress Among Medical Residents: A Cross-Sectional Study in Iran

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Abstract- Medicine is a stressful job. It is shown in several studies that decreased clinical function, disturbance in decision making, and the doctor-patient relationship, anxiety, depression, alcohol and substance abuse, and suicide are associated with stress. So, it is important to investigate the prevalence of depression, anxiety, and stress among medical staff. This is a cross-sectional study on the Tehran University of Medical Sciences residents, and 152 residents were surveyed by the DASS-21 questionnaire, which measures the depression, anxiety, and stress level. One hundred fifty-two residents (24.5% male, 75.5% female) with a mean age of 29.6 (SD=2.96) were surveyed. According to this study results, 23% of residents had severe to extremely severe depression, 24.9% had severe to extremely severe anxiety, and 33.8% had severe to extremely severe stress. Prevalence of depression, anxiety, and stress among Tehran University of Medical Sciences residents are higher than some other countries and universities, and it could be due to more working pressure in our educational hospitals. However, similar studies in different countries have not similar results, especially about the associated factors; so, more studies should be done, especially with the interventional and socioeconomic considerations, to address these issues.

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Introduction

Any disturbing factor that affects the physiologic, cognitive, or behavioral balance of an individual is called a stressor, and the reaction to these stressors is called stress (1). Anxiety is a fear of happening a probable danger or misfortune that could be accompanied by the feeling of worry and somatic symptoms of tension. These fears could have an internal or external origin (1). Depression is a state of low mood with a feeling of being sad and hopeless, accompanied by anhedonia (1).

Medicine is a stressful job, and there is a slot when students enter university first, but this pressure is increased by starting the clinical rotations and having clinical responsibilities (2). Also, residents have to experience shift work in their studies; shift work experience showed a significant correlation with the depression score (3). This pressure could be accompanied by anxiety and depression and have negative effects on clinical performance and even increase the risk of burnout. An American study on pediatric residents has shown that depressed residents have 6.2 times more

frequent medical errors per month than non-depressed ones. High stress is accompanied by increased interpersonal interactions, low attention and concentration, disturbance in decision making and doctor-patient relationship, anxiety, depression, alcohol and substance abuse, and even suicide (4-12).

The prevalence of depression, anxiety, and stress among the residents have been reported in a wide range. The prevalence of stress is reported by 32.8-56.3% by some studies (13,14). Also, several studies reported that depression and/or anxiety have a 3-35% prevalence among medical residents (12,15,16). A recent study has reported the prevalence of depression, anxiety, and stress 11.5%, 11%, and 10.5%, respectively, among medical residents (17).

Materials and Methods

This is a cross-sectional study among medical residents of internal medicine, general surgery, pediatrics, and obstetrics and gynecology (Obs & Gyn). Our data were collected by Persian form of DASS-21

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questionnaire filled out by 150 medical residents (36.5% internal medicine, 13.5% general surgery, 37.2% pediatrics, and 12.8% Obs & Gyn). There was also a form including demographic variables such as age, gender, marital state, number of children, major of residency, year of residency, and number of night shifts per month. Furthermore, a unique random code was printed on each questionnaire, and a little sheet was appended to it, which contained that unique code and the link of a webpage where participants could see their results by entering their unique random code.

DASS-21 is a short form of the DASS questionnaire developed by professor PF Lovibond and professor SH Lovibond (18), including seven questions in each depression, anxiety, and stress subscale. There is a 4-point Likert scale for the answers, which scores each question from 0 to 3. Finally, the sum of each subscale score is multiplied by two and determines its severity using Table 1.

Persian DASS-21 questionnaire was validated by Sahebi *et al.*, (19), and our data were analyzed by IBM SPSS Statistics 25.

Table 1. Severity of subscales

Severity	Depression	Anxiety	Stress
Normal	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Severe	21-27	15-19	26-33
Extremely severe	+28	+20	+33

Ethical considerations

This study was approved by the ethics committee of Tehran University of Medical Sciences by the code 1397.040. Questionnaires were filled out anonymously, and written consent was added to the main form.

Results

We investigated 150 medical residents (24.5% man and 75.5% woman) with a mean age of 29.6 (SD=2.96) (Table 2).

Table 2. Demographic characteristics

		Count	Percent	Mean	SD
Age	26-30	102	72.3%	29.6	2.96
	31-35	35	24.8%		
	>=36	4	2.8%		
Gender	Male	36	24.5%		
	Female	111	75.5%		
Marriage	Single	75	51.0%		
	Married	72	49.0%		
Child	No	52	75.4%		
	Yes	17	24.6%		
Major	Pediatrics	55	37.2%		
	Surgery	20	13.5%		
	Internal med	54	36.5%		
	Obs&Gyn	19	12.8%		
Residency Year	1	64	43.5%		
	2	58	39.5%		
	3	20	13.6%		
	4	5	3.4%		
	1-5	13	9.0%		
	6-10	79	54.5%		
Night shifts per month	11-15	43	29.7%	10	3.83
	16-20	5	3.4%		
	21-25	5	3.4%		

According to the results of this study, 41.9% of residents were in the normal range of the depression subscale, but 12.2% of them had mild depression, 23% moderate depression, 9.5% severe depression, and 13.5%

of residents had extremely severe depression. Also, 45.6% of medical residents had a normal score in the anxiety subscale, 9.4% of them had mild anxiety, 20.1% moderate anxiety, 12.8% severe anxiety, and 12.1% of

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residents had extremely severe anxiety; but about the stress subscale, 31.8% of residents were in the normal range, 15.5% of them had mild stress, 18.9% moderate

stress, 19.6% severe stress, and 14.2% of residents had extremely severe stress (Table 3).

Table 3. The severity of each subscale

		Count	Percent
Depression Scale	Normal	62	41.9%
	Mild	18	12.2%
	Moderate	34	23.0%
	Severe	14	9.5%
	Extremely severe	20	13.5%
Anxiety Scale	Normal	68	45.6%
	Mild	14	9.4%
	Moderate	30	20.1%
	Severe	19	12.8%
Stress Scale	Extremely severe	18	12.1%
	Normal	47	31.8%
	Mild	23	15.5%
	Moderate	28	18.9%
	Severe	29	19.6%
	Extremely severe	21	14.2%

Discussion

It is shown that depression, anxiety, and stress are common in medical staff, accompanied by lower clinical function, disturbed decision making and the doctor-patient relationship, and increased medical errors (5,8,12). In this study, we found that 23% of residents have severe to extremely severe depression, 24.9% have severe to extremely severe anxiety, and 33.8% of them have severe to extremely severe stress. In a recent study in Bangladesh, these subscales are reported with 6%, 3.5%, and 6.5% of prevalence among residents, respectively (17). Since there are similar questionnaires and sample sizes between these studies, it is recommended to do more studies with socioeconomic variables to distinguish the reason for this difference. A study in Turkey showed there is a 16% depression prevalence among medical residents (16), which is lower than our result, but this difference could be due to different questionnaires used in these studies. Another study performed in three pediatric hospitals in Boston revealed that 20% of pediatric residents have depression (12), despite similar results, some socioeconomic factors such as the financial income of residents should be considered in future studies. A study in Pakistan reported 59.88% as the prevalence of depression among medical residents (15), which is far more than our result. It is also reported that fewer working hours and lack of peer support have a positive effect on depression. Another American study showed 42% of maxillofacial surgery residents have anxiety (20), which is a higher rate than

our study, and the difference could be due to different residency majors and the questionnaire. An Indian study among 960 residents found that 15.1% of them have moderate to severe stress (13), and having a child, year of residency, and residency major are important effective factors. Another study in Pakistan reported that 56.3% of residents have some degrees of stress (14), and there a correlation between working hours and the stress score.

It is obvious that results of studies sometimes have major differences, and it seems these differences could not be explained by the usual independent variables such as age, gender, major of residency, etc. and it must be other factors like cultural differences, the common doctor-patient relationship in that culture, financial system and income of residents, and other environmental factors affecting the prevalence of depression, anxiety, and stress. According to literature, assessment and management of work-related stress are very important (21). It is recommended more studies to be done considering these factors and also an interventional approach about occupational stress.

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