

Prevalence of depression, anxiety and stress in medical residents from a Venezuelan hospital

Prevalencia de depresión, ansiedad y estrés en médicos residentes de un hospital venezolano

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SUMMARY

Objectives: To determine the prevalence and severity of depression, anxiety, and stress in medical residents from the University Hospital of Maracaibo, Venezuela. **Materials and methods:** We conducted an observational, descriptive, and cross-sectional study among medical residents from the University Hospital in Maracaibo, Venezuela from March 2018 until June 2018. We randomly selected a sample comprising of 30 residents from each of the following specialties: internal medicine, surgery, pediatrics, and obstetrics/gynecology, obtaining a final sample of 120 residents. We used the Depression Anxiety Stress Scale (DASS-21) to determine the level of depression, anxiety, and stress. **Results:** The mean age of the population was 28.7±3.1 years and 76 (63.3 %) were women. The prevalence of depression was 11.7 % (N = 14) with the mild stage being the most common

(10 %). The prevalence of anxiety was 39.2 % (N = 47) with the moderate grade being the most common (15 %). The prevalence of stress was 22.5 % (N = 27) with the predominance of the mild category (11.7 %). Marital status was associated with the presence of mild depression ($\chi^2=17.7$; $P=0.02$) and moderate stress ($\chi^2=34.1$; $P<0.01$). In addition, the type of postgraduate training was associated with the presence of stress, with pediatrics showing the highest degree of stress severity ($\chi^2=18.6$; $P=0.03$). **Conclusions:** Resident physicians of the largest tertiary hospital in the city of Maracaibo show a high prevalence of anxiety, where the majority of symptoms were mild to moderate in severity. The prevalence of depression and stress were similar to that of previous reports and were associated with marital status and type of postgraduate training.

Key words: Medical residents, depression, anxiety, stress, prevalence, postgraduate.

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RESUMEN

Objetivos: Determinar la prevalencia y severidad de depresión, ansiedad y estrés en médicos residentes del Hospital Universitario de Maracaibo, Venezuela. **Materiales y métodos:** Se realizó un estudio observacional, descriptivo y transversal en médicos residentes del mencionado hospital durante el período marzo 2018 a junio 2018. La selección de la muestra se realizó mediante un muestreo no probabilístico intencional, evaluando 30 residentes de los posgrados de medicina interna, cirugía, pediatría y gineco-obstetricia obteniéndose una muestra final 120 residentes. Para determinar el nivel de depresión, ansiedad y estrés se empleó la *Depression Anxiety Stress Scales (DASS-21)*. **Resultados:** La edad media de la población fue $28,7 \pm 3,1$ años, y 63,3 % pertenecían al sexo femenino. La prevalencia de depresión fue 11,7 % ($n=14$) siendo el estadio leve el más frecuente (10 %), la prevalencia de ansiedad fue 39,2 % ($n=47$) siendo el grado moderado el más común (15 %) y la prevalencia de estrés fue 22,5 % ($n=27$) con predominio de la categoría leve (11,7 %). El estado civil se asoció con la presencia de depresión leve ($\chi^2=17,7$; $p=0,02$) y estrés moderado ($\chi^2=34,1$; $P<0,01$). Asimismo, el tipo de posgrado se asoció con la presencia de estrés, siendo los residentes de pediatría los que mostraron una mayor severidad ($\chi^2=18,6$; $p=0,03$). **Conclusiones:** Los médicos residentes del mayor hospital terciario de la ciudad de Maracaibo, muestran una alta prevalencia de ansiedad, con una severidad predominantemente leve a moderada, mientras que la prevalencia de depresión y estrés fue similar a la de reportes previos, estos dos últimos asociándose al estado civil y el tipo de posgrado.

Palabras clave: Médicos residentes, depresión, ansiedad, estrés, prevalencia, posgrado.

INTRODUCTION

Medical residency programs are part of the educational system that aims at training specialist doctors in many regions of the world, representing one of the most critical academic periods of medical education. A WHO study in 14 out of 20 Latin American countries showed that specialists and resident physicians account for much of the health system's human resource, making resident physicians a key link in inpatient care in different health systems globally (1). However, the working and environmental conditions in which resident physicians develop their learning

are not homogeneous between countries. In some countries learning conditions are not adequate and the infrastructure does not have the basic requirements for grooming, study, research, and training. To our knowledge, there have been a few studies carried out in Venezuela to systematically assess the conditions of medical residencies and their impact on the health of resident physicians.

Due to the strong care responsibilities of patient care, in addition to the high demand conditions for services and few resources available, resident physicians face a heavy burden of stress. In addition to this, the academic responsibilities, cultural and socioeconomic difficulties create ideal conditions for the onset of mental health disorders that can result in decreased quality of life (2,3). The deterioration in the psychological well-being of medical residents can affect their personal and professional life, leading to numerous consequences such as the use of illicit substances, increase in suicide attempts, family problems, poor work performance, difficulties in establishing an effective patient medical relationship, Burnout syndrome and quality of life impairment. This indirectly also affects the quality of care provided to patients (4,5).

Considering such context, identifying the presence and severity of mental health disorders in health personnel, can be considered the initial strategy in the approach and control of these disorders. In Venezuela, despite the present-day significant socioeconomic and public health problems (6), there are few reports about the mental health of those who represent the first line of care in our health system. Therefore, this study aimed to determine the prevalence and severity of depression, anxiety, and stress in medical residents from the University Hospital of Maracaibo, Venezuela.

MATERIALS AND METHODS

Study design and sample selection

We performed an observational cross-sectional study among medical residents from the University Hospital of Maracaibo from March 2018 to June 2018. An intentional, non-probabilistic sample of 120 individuals was

selected. Our sample included 30 residents from each of the following residencies: internal medicine, surgery, pediatrics, and gynecology/obstetrics. We excluded individuals with acute episodes of anxiety, mania, depression, and psychosis in the past 6 months. All individuals included in the study signed informed consent. The study was approved by the Institutional Review Board/Independent Ethics Committee of the University of Zulia.

Anxiety Scales

All participants were given a structured psychiatric interview for diagnostic purposes, where we collected data such as age, marital status, nationality, and type of postgraduate training, year of residence, salary, and hours of sleep per day.

We used the Depression Anxiety Stress Scales (DASS-21), to assess the level of stress, depression, and anxiety and evaluate the severity of symptoms. The DASS-21 scale consists of 21 questions in total. The scale includes three 7-item self-report subscales that are designed to measure the severity and frequency of experiencing symptoms of depression, anxiety, and stress. Items are scored on a 4-point Likert scale, ranging from 0 (did not apply to me at all) to 3 (applied to me very much). The total sum for DASS-21 is derived by summing the total scores of all individual items (Table 1); the DASS-21 has demonstrated high consistency and validity (7).

Table 1

DASS-21 scores according to the severity of depression, anxiety and stress

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 o +	20 o +	34 o +

Statistical analysis

Descriptive data are presented as mean standard deviation (\pm), and frequency and percentage (%). We estimated the overall prevalence of depression, anxiety, and stress and then calculated the prevalence according to the severity of symptoms. The chi-square test was used to compare the socio-demographic characteristics of individuals with different severity of symptoms. We used the Kolmogorov-Smirnov test for normality. Statistical analyses were completed with SPSS 20.0 software (SPSS, Chicago, IL, USA). Two-tailed $P < 0.05$ denoted statistical significance.

RESULTS

General characteristics of the population

From the total of residents, the mean age was 28.7 ± 3.1 and 63.3 % ($n=76$) belonged to the female sex. 75 % ($n=90$) were single, 75.8 % ($n=91$) were Venezuelans, 40.8 % ($n=49$) were in their first year of residency, and 56.7 % ($n=68$) received a salary. The mean hours of daily sleep were 6.2 ± 1.2 . Table 2 shows the general characteristics of the sample according to sex.

Prevalence of depression, anxiety, and stress

Table 3 depicts the prevalence of depression, anxiety, and stress according to the severity of symptoms. The percentages are related to the total number of subjects who completed all DASS-21 items ($n=120$). According to the DASS-21 results, the prevalence of depression was 11.7 % ($n=14$) with the mild stage being the most common (10 %). The prevalence of anxiety was 39.2 % ($n=47$) with the moderate grade being the most common (15 %) and the rate of stress was 22.5 % ($n=27$) with a predominance of the mild category (11.7 %). Figure 1 shows the distribution of residents in each mental disorder and its combinations; only 6 residents (5 %) showed the 3 disorders simultaneously.

Table 2
General characteristics of the population University Hospital of Maracaibo

	Female		Male		Total	
	n	%	n	%	n	%
Marital status						
Single	55	72.4	35	79.5	90	75.0
Married	15	19.7	7	15.9	22	18.3
Free union	3	3.9	1	2.3	4	3.3
Divorced	2	2.6	1	2.3	3	2.5
Widow	1	1.3	0	0.0	1	0.8
Nacionality						
Venezuelan	62	81.6	29	65.9	91	75.8
Foreing	14	18.4	15	34.1	29	24.2
Residencies						
Surgery	11	14.5	19	43.2	30	25.0
Gynecology/obstetrics	21	27.6	9	20.5	30	25.0
Pediatrics	22	28.9	8	18.2	30	25.0
Internal medicine	22	28.9	8	18.2	30	25.0
Year of residency						
1st	30	39.5	19	43.2	49	40.8
2nd	19	25.0	12	27.3	31	25.8
3rd	21	27.6	10	22.7	31	25.8
4th	6	7.9	3	6.8	9	7.5
Received a salary						
No	22	28.9	30	68.2	52	43.3
Yes	54	71.1	14	31.8	68	56.7
Age (years) Mean±SD		28.6±2.9		28.8±3.6		28.7±3.1
Hours of daily sleep Mean±SD		6.3±1.2		6.2±1.1		6.2±1.2
Total	76	63.3	44	36.7	120	100

SD: standard deviation;

Table 3
Prevalence of mental disorders in medical residents. University Hospital of Maracaibo

	Normal		Mild		Moderate		Severe		Extremely severe	
	n	%	n	%	n	%	n	%	n	%
Depression	106	88.3	12	10	2	1.7				
Anxiety	73	60.8	16	13.3	18	15	9	7.5	4	3.3
Stress	93	77.5	14	11.7	9	7.5	4	3.3		

Factors associated with depression, anxiety, and stress

Marital status was associated with the presence of depression, specifically in married and divorced residents ($\chi^2=17.7$; $P=0.02$). Similarly, the marital status was associated with the presence of stress, with greater severity in married individuals

(moderate stress) than those with domestic partners ($\chi^2=34.1$; $P<0.01$). In addition, the type of postgraduate degree was associated with the presence of stress, with the residents of pediatrics showing the highest severity of stress among all medical residents ($\chi^2=18.6$; $P=0.03$).

PREVALENCE OF DEPRESSION, ANXIETY AND STRESS

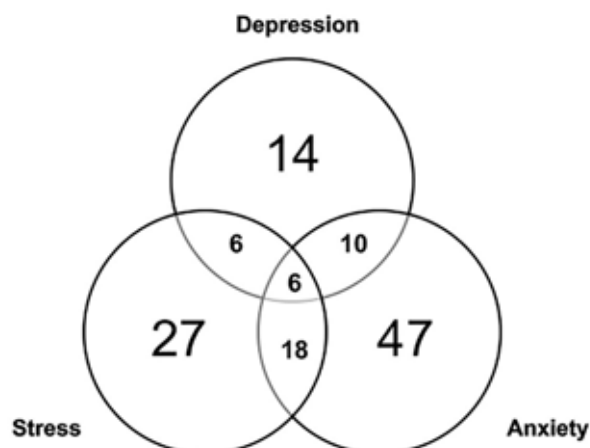


Figure 1. Absolute frequency of isolated and combined mental disorders in medical residents. University Hospital of Maracaibo.

Table 4
Factors associated with mental disorders in medical residents. University Hospital of Maracaibo

	Depression										χ^2 (P)
	Normal		Mild		Moderate		Severe		Extremely severe		
	n	%	n	%	n	%	n	%	n	%	
Marital status											17.7 (0.02)
Single	83	78.3	5	41.7	2	100	-	-	-	-	
Married	17	16.0	5	41.7	0	0	-	-	-	-	
Free union	4	3.8	0	0	0	0	-	-	-	-	
Divorced	1	0.9	2	16.6	0	0	-	-	-	-	
Widow	1	0.9	0	0	0	0	-	-	-	-	
	Stress										χ^2 (P)
	Normal		Mild		Moderate		Severe		Extremely severe		
	n	%	n	%	n	%	n	%	n	%	
Marital status											34.1 (<0.01)
Single	74	79.6	9	64.3	4	44.4	3	75	-	-	
Married	15	16.1	2	14.3	5	55.6	-	-	-	-	
Free union	1	1.1	3	21.4	0	0	-	-	-	-	
Divorced	2	2.2	0	0	0	0	1	25	-	-	
Widow	1	1.1	0	0	0	0	-	-	-	-	
Residencies											18.6 (0.03)
Surgery	24	25.8	5	35.7	1	11.1	0	0	-	-	
Gynecology/obstetrics	23	24.7	6	42.9	0	0	1	25	-	-	
Pediatrics	19	20.4	3	21.4	6	66.7	2	50	-	-	
Internal medicine	27	29.0	0	0	2	22.2	1	25	-	-	

DISCUSSION

Early identification of mental disorders in medical staff and students is an essential step to optimize care in health services (8,9). This study reported the prevalence and correlates of depression, anxiety, and stress among medical residents in the second largest city of Venezuela. Our study included a sample from the four main medical specialties and in different training years. To our knowledge, this is the first study reporting the prevalence of mental health symptoms among medical residents from Maracaibo, Venezuela.

Our study showed low-to-moderate rates of depression (11.7 %), and high rates of anxiety (39.2 %) and stress (22.5 %) symptoms when compared to other studies across Latin America. For instance, reports from the largest Brazilian academic medical residence service (n=606) reported that depression symptoms were present in 19 % of medical residents, while anxiety and stress rates were about 19 % and 17 %, respectively (10). However, a study among 144 medical residents in Veracruz, Mexico reported a much higher prevalence of depression (30.8 %), with the majority of cases in the mild category (11). Even though this study used a scale with known high validity and reliability to diagnose depression (Montgomery-Asberg), they did not differentiate depressive symptoms from anxiety symptoms, even though these are disorders that usually co-occur in about 20-40.% of patients (4). Thus, this high estimate of depression rates could be associated with high rates of anxiety-related symptoms. Another study among 56 family medicine residents from Puebla, Mexico reported a prevalence of 41 % of mild anxiety and 19.7 % of mild depression; however, they did not include medical residents from other specialties (3).

Lastly, reports on the prevalence of mental health disorders in Venezuela are very scarce; however, a study from Caracas demonstrated a high prevalence of Burnout syndrome among emergency medicine residents (12), a disorder that has been positively correlated with depression, anxiety, and stress symptoms. In addition, a study among 60 medical residents from Carabobo, Venezuela showed that 31.7 % of residents presented mild anxiety and 10 % presented mild

depression (13). The current study found similar prevalence rates to those observed in Brazil (10), Puebla (3), and Carabobo (13). In the same way, mild depressive and anxiety symptoms were the most common category observed among the aforementioned studies; however, in our study, our results showed a higher prevalence of moderate symptoms of anxiety. Future studies should explore specific risk factors that may explain the difference in symptom severity.

Among the factors associated with the presence of symptoms of depression, anxiety, and stress highlight marital status. Our results suggest that those residents who lived with their partners had a higher frequency of depression and stress. This is consistent with the findings of Marzouk et al (4), where they observed that married individuals presented higher rates of depression and anxiety. However, Yahaya et al. (14), despite showing a prevalence of depression (10.7 %) anxiety (28.6 %) stress (7.9 %) similar to ours, they did not show an association between marital status and any mental disorder. The relationship between these variables demonstrates the personal difficulties that may arise during the medical residency, in which professional and family demands together can affect the psychological well-being of the resident physician.

Finally, the type of postgraduate training was also observed as a factor associated with stress symptoms, specifically among residents enrolled in the pediatrics residency. Although this relationship has been previously reported (15), it is more common to observe higher levels of stress in residents from surgical specialties (4). This requires specific analysis of this graduate program to assess potential triggers associated with the increased stress frequency. The present study has several limitations. First, its cross-sectional design precluded the causal interpretation of our results. Second, our study showed the prevalence of mental health disorders in one health center from Maracaibo city, thus, future studies should expand the sample to include medical residents from other medical institutions. Furthermore, current projects are focused on evaluating the future research should also study the prevalence of these disorders during the COVID-19 pandemic.

CONCLUSIONS

Resident physicians from the University Hospital at Maracaibo, Venezuela show a high prevalence of anxiety, with a predominantly mild to moderate severity, while the prevalence of depression and stress was similar to that of previous reports. The presence of depression and stress symptoms was associated with marital status and medical residency type. Future studies should evaluate whether the observed associations are causal by using incident data.

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