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Research Article

Depression, Anxiety and Burnout Syndrome in Medical Residents of Family Medicine in Tijuana, Mexico

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Abstract

Background: Medical residents face constant processes of adaptation and learning; whose personal, educational and social implications can lead to serious mental disorders. Research reports prevalence of Burnout syndrome between (BOS) 41 and 76%, depression 47.5% and anxiety 39%, higher than in the general population.

Aim: The purpose of this study is to determinate prevalence of depression, anxiety, burnout syndrome and associated factors in residents of family medicine in Tijuana, Mexico.

Design and Setting: Comparative cross-sectional study.

Methods: Goldberg anxiety and depression scales were applied; Maslach Burnout Inventory for burnout syndrome, the study was conducted in July 2017 to medical residents of Family Medicine in Tijuana, Mexico. Surveys were conducted to obtain medical information; it was used 95% interval confidence; association was established by calculating odds ratios, chi-squared test for statistical significance ($p<0.05$). Data were processed with statistical software SPSS-20.

Results: The universe of study was 62 medical residents; 60% female and 40% male, mean age was 30 years. BOS was the most frequent disorder with 51%, Anxiety 44% and Depression 34%. The female gender being under 30 years and residents in first grade were the most affected. First grade was a risk factor for anxiety ($p=0.02$) and BOS ($p<0.001$).

Conclusion: Anxiety, Depression and Burnout Syndrome have high prevalence in medical residents of Family Medicine. It is important to periodically evaluate them in order to detect them in a timely manner.

Keywords: Depression; Anxiety; Burnout Syndrome; Medical residents

Introduction

Medical residents (MRs) are professionals who are in a health unit for a full-time medical residency [1]. Medical residences are an educational system that helps complete the training of physicians in some specialty by performing professional activities, which are carried out under the supervision of tutors in health institutions with an approved educational program [2]. Burnout Syndrome (BOS) or work-consuming syndrome is a growing public health problem that affects the health of medical residents and the quality of care with patients, deteriorating the doctor-patient relationship and assuming a high cost, both social and economic [3]. BOS is defined as exhaustion due to excessive physical and emotional effort triggered by the work area and favoring depersonalization or instability towards the patient, with behaviors of indifference and negative attitudes toward work and patients [4]. BOS shares psychosomatic, behavioral and emotional symptoms with anxiety and depression; depression is considered the most frequent alteration of mood characterized by mood, cognitive, psychomotor and vegetative alterations [5]. Anxiety is a response that is triggered by a situation of physical or psychic threat, characterized by agitation and unpleasant restlessness whose purpose is to equip the energy body to cancel or counteract the danger, predominating psychic symptoms and the sensation of catastrophe or imminent danger [6].

Currently, mental disorders have a strong impact on life, family and society. Stress, mainly labor type, is the most frequent type of chronic stress that causes BOS and depression [7]. Stress is necessary to have adequate responses to threatening experiences, but prolonged exposure to high levels is the most recognized cause of Anxiety and Depression [8]. It has been argued that severe or prolonged stress causes an increase in the biogenic amines of the brain causing excessive use that exceeds synthesis and causes a fall in reserves to critical levels resulting in the development of depressive symptomatology [9]. Spiegel et al., found that the stress of physicians in training are exposed is perceived to be inversely proportional to their academic performance [10]. Depression is diagnosed by the presence of one or more depressive episodes with a minimum duration of two weeks. The emotional state is characterized by: depressive mood, loss of interest or pleasure in almost all activities, accompanied by at least four symptoms of a list that includes: changes in appetite or weight, sleep disorders, lack of energy, feelings of guilt, difficulty thinking, concentrating or making decisions and recurrent thoughts of death or suicidal ideation [11]. Anxiety is diagnosed by the presence of

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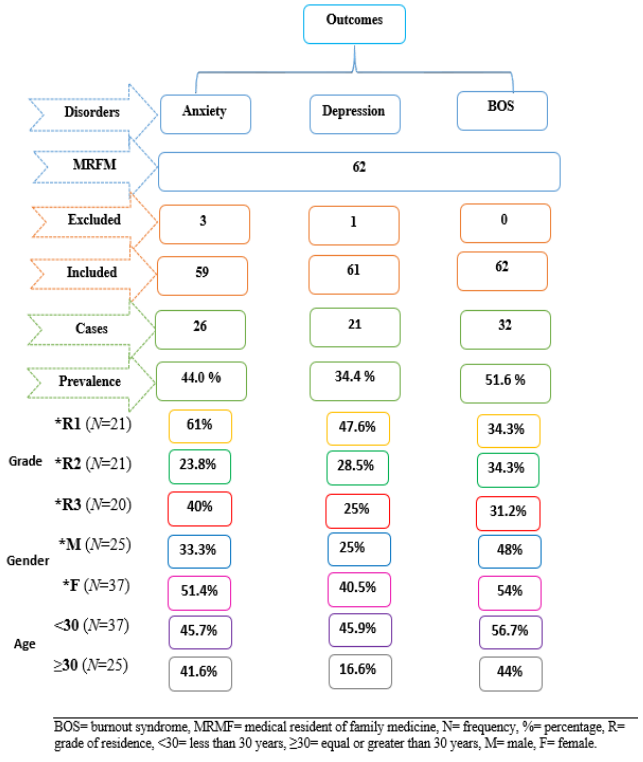

Figure 1: Outcomes.

characteristic symptoms and continued concern about health, family, work and economic status [12].

There is currently no laboratory or radiological tests for diagnosis of BOS, depression and anxiety, but there are clinical instruments or scales that complement the clinical assessment and are used as screening for case detection, follow-up and research [13]. The most frequently test for BOS is the Maslach Burnout Inventory (MBI), which is validated, it has a high internal consistency and measures the main symptoms through 3 dimensions: emotional exhaustion, depersonalization and personal fulfillment, classifying the patient according to the score obtained in the following categories: with presence of BOS, predisposed to have it and absence of BOS [14].

The Goldberg Anxiety and Depression Scale is a screening tool for the initial diagnosis of depression and anxiety disorders. It is validated and has a sensitivity of 83.1%, a specificity of 81.8% and a predictive value of 95.3% [15]. Depression is classified into several types of disorders; the most common are severe depressive disorder and dysthymic disorder [16]. The consequences of depression are a danger to life. Ostrowsky et al., Found that 10-15% of people with severe depression commit suicide or attempt suicide [17]. Anxiety disorders are classified as generalized anxiety disorder and agoraphobia, panic attacks, social phobia, specific phobia, obsessive compulsive disorder and posttraumatic stress disorder. Social phobia is the most common in the general population [18].

Depression and BOS have high prevalence among MRs worldwide, it has been estimated that the prevalence of Depression is higher among MRs (17-40%) than in the general population (10%). Mascarúa-Lara et al., found a prevalence of mild anxiety of 28.5%, moderate of 10.7%, severe of 1.9% and depression of 19.7% in MRs of Family Medicine [20]. Another study conducted in Canada among Family Medicine MRs described a lower prevalence of depression and anxiety (20 and 12%, respectively), although this represented 3 to 4 times more than the general population of that country [21]. In MRs from Peru, BOS was found in 35%, depression in 46% of them, while 100% of MRs who had depression had BOS. The frequency of BOS in Mexico is similar to Argentina (35.5%), in contrast to North American literature describing frequencies between 18 and 84% [22].

The national and international prevalence of Anxiety is 16% and 8.1%, respectively. The reports in High Specialty Medical Units (UMAE) of the Mexican Social Security Institute (IMSS) range from 39% to 69.9% [23]. Tzischinsky et al. studied the impact of working hours with stress and psychological status among MRs during the first two years of residence found that sleep duration and workload explain the negative mood during afterguard [24]. As a result of fatigue, a significant number of MRs acknowledges that they have made serious mistakes during their care work [25]. Depression, anxiety and its relationship with medical errors were evaluated in the United States of America (USA), and results are consistent with other studies where depression is associated with poor work performance, poor academic performance and medical errors [26]. The health of physicians should be a priority; if MRs are depleted, the quality of care will decrease. The family nucleus of MRs should be concerned about their well-being, since professional experiences and attitudes can affect the family function. Residency programs must be concerned because the health of our society depends in part on health and effectiveness of MRs [27].

Materials and Methods

A comparative cross-sectional study was carried out, in the Family Medicine Unit #27 (FMU-27), of the Mexican Institute of Social Security (IMSS), located in Tijuana, Baja California, Mexico, in medical residents of Family Medicine in July 2017, which were selected by a consecutive sampling techniques that met the following inclusion criteria: medical residents of Family Medicine in FMU-27, any age, that accepted and signed the informed consent, MRs with psychiatric illness in treatment were not included and eliminated those who did not complete the survey. The following data were obtained directly from the patients or medical records: age, gender and grade of residence. Patients were assigned into two groups based on presence of BOS, depression and anxiety; there was no need to calculate the sample by including the entire universe of residents.

The Maslach Burnout Inventory was used to diagnose BOS; MBI is a validated scale, with a high internal consistency, consisting of 22 items in an affirmative dichotomous scale, this scale asks about the feelings and attitudes of the professional in their work and towards the patients, the function of this scale is to measure professional burnout. MBI evaluates 3 dimensions: emotional exhaustion (EE): Items 1, 2, 3, 6, 8, 13, 14, 16 and 20; depersonalization (DP): items 5, 10, 11, 15 and 22 and personal fulfillment (PF): items 4, 7, 9, 12, 17, 18, 19, 21. The presence of BOS was determined according to the criteria proposed by Grunfeld where a single dimension severely affected is needed for diagnosis. It is defined severely affected when EE and DP are in the upper tercile (more than 27 and 11 points respectively) and PF in the lower tercile (less than 35 points) [22]. Finally, the Goldberg

Table 1: Descriptive statistics of patients.

Grade	N	%
R1	21	33.9
R2	21	33.9
R3	20	32.3
Age		
<30 years	37	59.7
≥30 years	25	40.3
Gender		
Male	25	40.3
Female	37	59.7

N= frequency, %= percentage, R= grade of residence.
<= less than, ≥= equal or greater than.

Table 2: Anxiety and associated factors.

Anxiety		Yes	%	No	%	Total
Grade	R1	13	65%	7	35%	20
	R2	5	24%	16	76 %	21
	R3	8	44%	10	55%	18
Gender	Male	8	33%	16	67%	24
	Female	18	51.5%	17	48.5%	35
Age	<30 years	16	45.7%	19	54.3%	35
	≥30 years	10	41.6%	14	58.4%	24

N= frequency, %= percentage, R= grade of residence, <= less than, ≥= equal or greater than

Table 3: Depression and associated factors.

Depression		Yes	%	No	%	Total
Grade	R1	10	47.6%	11	52.4%	21
	R2	6	30%	14	70%	20
	R3	5	25%	15	75%	20
Gender	Male	6	25%	18	75%	24
	Female	15	40.5%	22	59.5%	37
Age	<30 years	17	45.9%	20	54.1%	37
	≥30 years	4	16.5%	20	83,5%	24

N= frequency, %= percentage, R= grade of residence, <= less than, ≥= equal or greater than

Depression-Anxiety Scale, in its Spanish version; this screening test consists of two subscales for detection of symptoms of anxiety and depression, consisting of nine questions with a dichotomous (yes/no) response. Each of the subscales is structured into 4 initial items to determine whether or not a mental disorder is present and a second group of 5 items that are performed only if positive responses are obtained to the initial questions (2 or more in the subscale Anxiety, 1 or more in the subscale Depression) [15].

The data obtained was integrated into data collection sheets and analyzed using the SPSS program version 20 in Spanish, where we applied descriptive statistics; for qualitative variables frequencies and percentages were used and for quantitative variables mean and standard deviation were used. It was considered statistically significant a $p < 0.05$, with a 95% confidence interval, all variables were dichotomized to apply odds ratio and chi square. The Protocol was authorized by the Local Committee of Research and Ethics in Health Research from the Regional General Hospital #20 and applied in FMU-27 where the study took place.

Table 4: BOS and associated factors.

BOS		Yes		No		Total
Grade	R1	11	52%	10	48%	21
	R2	11	55%	10	45%	20
	R3	10	50%	10	50%	20
Gender	Male	12	48%	13	52%	25
	Female	20	54%	17	46%	37
Age	<30 years	21	56.7%	16	43.3%	37
	≥30 years	11	44%	14	56%	25

BOS= burnout syndrome, N= frequency, %= percentage, R= grade of residence, <= less than, ≥= equal or greater than

Results

All MRs met the inclusion criteria for BOS, 98.3% for Depression and 95.1% for Anxiety (Figure 1). The mean age found was 30±4.06 years, range minimum 24 and range maximum 43 years. We found 21 MRs of first grade (R1=33.9%), 21 of second grade (R2=33.9%) and 20 of third grade (R3=32.3%). 37 MRs were younger than 30 years (59.6%) and 25 were equal or older than 30 years (40.3%). In gender, 59.7% were female and 40.3% male (Table 1). In R1 and R3 we found a higher prevalence of female gender, 76.1% and 60% respectively, male gender was more frequent in R2 (57.1%). We found prevalence of Anxiety 44%, Depression 34.4% and BOS 51.6%.

Anxiety (Table 2) had a higher prevalence in R1 (61%), female (51.4%) and in those under 30 years of age (45.7%). Depression (Table 3) was more frequent in R1 (47.6%), female gender (40.5%) and those under 30 years of age (45.9%). BOS (Table 4) was found in 32 MRs (51.6%), with alterations in personal performance (32.3%) and depersonalization (29%). In BOS, 54% were women and 48% men; 34.3% R1-R2 and 31.2% R3; 56.7% under 30 years and 44% equal or greater than 30 years; 9.6% of them presented severe alterations in more than one dimension of the Maslach Burnout Inventory (MBI), emotional exhaustion 40.3%, depersonalization 51.6%, and lack of personal fulfillment 74.2%.

Emotional exhaustion was found in R1 (66%), R2 (38%) and R3 (15%); depersonalization in R1 (47.6%), R2 (52%) and R3 (55%); lack of personal fulfillment in R1 (71.4%), R2 71.4% and R3 (80%). In male gender we found: emotional exhaustion 36%, depersonalization 52% and lack of personal fulfillment 76%. In female gender, emotional exhaustion 43.2%, depersonalization 51% and lack of personal fulfillment 72%. Age was dichotomized in below 30 and over 30 years of age, it was found that in MRs under 30 years there was emotional exhaustion 51%, depersonalization 59% and lack of personal fulfillment 68.9%. In 30 years or older, emotional exhaustion was observed in 24%, depersonalization 40% and lack of personal fulfillment 84% (Table 5).

The following results were obtained for the association between BOS, depression and anxiety with clinical variables: we found that in anxiety, being in the first grade of residence (R1) is a risk factor (OR=3.7, p=0.02), being in the second grade (R2) is a protective factor (OR=0.25, p=0.02) and being in the third grade (R3) was not

Table 5: BOS dimensions and associated factors.

BOS dimensions		Emotional exhaustion	Depersonalization	Lack of personal fulfillment
Grade	**R1**	66%	47.6%	71.4%
	R2	38%	52%	71.4%
	R3	15%	55%	80%
Gender	**Male**	36%	52%	76%
	Female	43.2%	51%	72%
Age	**<30 years**	51%	59%	68.9%
	≥30 years	24%	40%	84%

BOS= burnout syndrome, %= percentage, R= grade of residence, <= less than, ≥= equal or greater than

Table 6: Association between mental disorders and associated factors.

Mental disorder	Variable	Subtype	X^2	OR	95% CI	P
Anxiety	**Grade**	R1	5.379	3.714	1.19 - 11.5	0.020*
		R2	5.429	0.253	0.07 – 0.83	0.029*
		R3	0.001	1.022	0.33 – 3.11	0.969
	Age	<30 years	0.95	1.179	0.41 – 3.36	0.758
		≥30 years	0.95	0.848	0.29 – 2.42	0.758
	Gender	Male	1.318	0.533	0.18 – 1.56	0.251
		Female	1.891	2.118	0.72 – 6.21	0.169
Depression	**Grade**	R1	2.469	2.397	0.79 - 7.21	0.116
		R2	0.258	0.743	0.23 – 2.34	0.611
		R3	1.171	0.521	0.15 – 1.71	0.279
	Age	<30 years	5.528	4.250	1.21 – 14.8	0.27
		≥30 years	5.528	0.235	0.67 – 0.82	0.27
	Gender	Male	1.137	0.541	0.17 - 1.68	0.286
		Female	1.557	2.045	0.65 – 6.35	0.212
Emotional exhaustion	**Grade**	R1	11.344	6.818	2.11 - 22.01	0.001*
		R2	0.192	0.786	0.26 – 2.30	0.661
		R3	8.797	0.146	0.37 – 0.57	0.005*
	Age	<30 years	5.534	3.725	1.21 – 11.4	0.019*
		≥30 years	5.534	0.268	0.87 – 0.82	0.019*
	Gender	Male	0.316	0.741	0.26 – 2.10	0.574
		Female	0.604	1.143	0.40 – 3.20	0.800
Depersonalization	**Grade**	R1	0.203	0.785	0.27 – 2.25	0.652
		R2	0.008	1.048	0.36 – 3.00	1.000
		R3	0.136	1.222	0.42 – 3.55	0.713
	Age	<30 years	2.262	2.200	0.78 – 6.19	0.133
		≥30 years	2.262	0.455	0.16 – 1.27	0.133
	Gender	Male	1.858	2.059	0.72 – 5.85	0.173
		Female	0.323	0.744	0.26 – 2.06	0.570
Lack of personal fulfillment	**Grade**	R1	0.127	0.806	0.24 – 2.63	0.722
		R2	0.127	0.806	0.24 – 2.63	0.722
		R3	0.520	1.600	0.44 – 5.77	0.549
	Age	<30 years	2.104	0.397	0.11 – 1.41	0.237
		≥30 years	2.104	2.520	0.70 – 8.98	0.237
	Gender	Male	0.506	1.548	0.46 – 5.18	0.561
		Female	0.71	0.853	0.26 – 2.74	0.789

X^2= Ji square, OR= Odds Ratio, CI= confidence interval, R= grade of residence, <= less than, ≥= equal or greater than, p= Ji square, *=significant statistical differences

statistically significant association. When associating depression with variables, there were no significant differences. In BOS dimensions, being in first grade is a risk factor (OR=6.8, p<0.001) and being in third grade is a protective factor (OR=0.14, p=0.003) for emotional exhaustion. For age, it was found that being under 30 years old is a risk factor (OR=3.7, p<0.01) and being equal or greater than 30 years is a protective factor (OR=0.26, p<0.01). No statistically significant association was found with the other BOS dimensions studied (depersonalization and lack of personal fulfillment).

Discussion

Mascarúa-Lara et al., report anxiety prevalence 41.1% and depression 19.7% in MRs of Family Medicine (MRFM) [20] similar to those found in our study. Research on MRFM in Canada describes prevalence of depression 20% and anxiety 12% [21], higher than those reported in general population of that country, but low compared to those found in our study. The world literature reports up to 50% prevalence in MRs of different specialties that are similar with our study where we found prevalence of 51.6%. There is variability of prevalence found in different investigations, probably because of the difference of criteria to define BOS among the authors. Regarding the factors studied, they have been identified as a risk factor for anxiety and depression: being a woman, single and some factors related to work stress (night guards and being in the first year of residence) [9,22]. Riveros et al., found that depression and anxiety are more intense in women than men [7]. Plata-Guarneros et al., report that prevalence of anxiety and depressive disorder is higher in younger residents who are in the first grade of medical residency [19]. Gopal et al., identified as the main factor to develop BOS, the number of guards per month and the number of weekly working hours [14].

Our results agree with previous research, it was found that these disorders are more frequent in first grade residents, women and younger age. A higher prevalence of these disorders in the first grade of residence could be related to the general syndrome of adaptation to stress, since during this year there are changes in lifestyle, decrease of recreational activity and hobbies, decrease of physical activity, sleep deprivation and work stress [9].

Conclusion

Anxiety, Depression and Burnout Syndrome have high prevalence in MRFM compared to general population. BOS was the most prevalent disorder, followed by anxiety and depression. The most affected by the three disorders were women, under 30 years and R1. There is coexistence of the three disorders in some residents, probably because of the psychosomatic, behavioral and emotional symptoms that share the pathologies. MRFM in training are under a special educational system whose difficult academic and work conditions can affect their mental health and there are no real preventive actions that guarantee the possibilities of detection, diagnosis and possible treatment. The detection will allow identifying, following up, sending to psychiatry to confirm diagnosis and evaluate treatment.

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