

Association between Patients with Hypertension and Depression

Gray Olvera Kevin Daniel¹, Gilberto Cruz Arteaga^{2*}, Olivia Guadalupe Villanueva Martinez², Cristian Mercado Esquivel², Janet Fabiola Perez Medina², Infante Miranda Miriam Idalith², Daniela Leticia Castañón Sánchez², Hilda Sara Camarena Velázquez², Alejandra Rojo Coca², Carlos Juárez Valdés², Mirna Edith Jimenez Nuñez², Katya Barrera Espinoza², Claudia Moreno Garcia², Erandy Alejandra Lopez Toledo², Gutierrez Cruz Raul², Mario Alberto Huerta Manzano², María Cristina Rodríguez Espinosa², Wendy Yoloxochitl Castro Espinosa², Pineda Gutierrez Monica Adriana², Jorge Alberto Cruz Vázquez Molina López José Mauricio², Arturo Andrade Sanchez³, Ismael Hernandez Javier² and Gaspar Nava Ramirez²

¹Resident physician specializing in Family Medicine, México

²Medical specialist in Family Medicine, México

³Specialist in Emergency Medicine, México

⁴General Practitioner, México

***Corresponding author:** Gilberto Cruz Arteaga, Resident physician specializing in Family Medicine, Family Medicine Unit No. 20, Calzada Vallejo 675, Col. Nueva Vallejo, CP 07750, Gustavo A Madero Delegation, Mexico

ARTICLE INFO

Received: 📅 June 24, 2024

Published: 📅 July 03, 2024

Citation: Gray Olvera Kevin Daniel, Gilberto Cruz Arteaga, Olivia Guadalupe Villanueva Martinez, Cristian Mercado Esquivel, Janet Fabiola Perez Medina, Infante Miranda Miriam Idalith, Daniela Leticia Castañón Sánchez, Hilda Sara Camarena Velázquez, Alejandra Rojo Coca, Carlos Juárez Valdés, Mirna Edith Jimenez Nuñez, Katya Barrera Espinoza, Claudia Moreno Garcia, Erandy Alejandra Lopez Toledo, Gutierrez Cruz Raul, Mario Alberto Huerta Manzano, María Cristina Rodríguez Espinosa, Wendy Yoloxochitl Castro Espinosa, Pineda Gutierrez Monica Adriana, Jorge Alberto Cruz Vázquez Molina López José Mauricio, Arturo Andrade Sanchez, Ismael Hernandez Javier and Gaspar Nava Ramirez. Association between Patients with Hypertension and Depression. Biomed J Sci & Tech Res 57(3)-2024. BJSTR. MS.ID.008991.

ABSTRACT

Essential systemic arterial hypertension (SAH) is a chronic-degenerative pathology with high worldwide prevalence, just as depression is one of the most frequent and disabling mood disorders. The pathophysiological mechanisms that establish a relationship between the two are not fully understood at present, which is why hypotheses have been developed, including factors such as stress and hyperactivity of the sympathetic nervous system, referring to the coexistence of both diseases simultaneously in the same patient, altering each other's control. The objective was to associate the level of depression and the degree of essential systemic arterial hypertension in patients assigned to the Family Medicine Unit No. 20 "Vallejo". Material and methods: An observational, analytical, prolective, cross-sectional study was carried out in 1108 beneficiaries with a diagnosis of essential SAH, blood pressure, weight and height were taken, personal data were questioned, applying Beck's depression instrument, performing bivariate and multivariate analysis between SAH and depression and demographic factors, with bivariate analysis, chi-square statistics and multivariate analysis were used, using SPSS version 26.0. Results: There was an association of grade 1 systemic arterial hypertension (BP 140-159/90-99 mmHg) in 92.2% (n=678) with minimal depression and 79.6% (n=168) with mild depression, p = 0.000, CI 95 % 0.000-0.003; In multivariate analysis, grade 1 SAH presented 6.2% risk p=0.001, women 1.7 times risk p=0.002; grade I obesity 44% risk, p=0.04; singles 68.9% risk and moderate physical activity level 70.1% risk, both with p=0.05.

Keywords: Systemic Arterial Hypertension; Depression

Introduction

Systemic arterial hypertension (SAH) is a disease diagnosed with a blood pressure (BP) >140/90 mmHg, as recommended by the European Society of Hypertension (ESH) [1], classified as grade 1 (140-159/90-99 mmHg), grade 2 (160-179/100-109 mmHg) and grade 3 (180/110 mmHg) [2], performing an average of 2 to 3 measurements on more than one occasion to classify a patient as “hypertensive” [3]. It is estimated that the global prevalence of SAH is about 1.4 billion people, approximately 31.1% of the population [4]. In Mexico, by 2022, 30 million people will have SAH, a quarter of the national population [5]. Hypertension is classified as primary and secondary. Primary or essential SAH is of multifactorial origin, caused by both predisposing and triggering factors, classified as biological and psychological [6]. Within the psychological category is the disorder of depression, which is a pathological alteration of mood with a decrease in mood in which affective, cognitive, volitional and somatic symptoms predominate [7]. For its diagnosis, the presence for 2 consecutive weeks of 5 of 9 criteria is required, part of the mentioned symptoms, according to the Diagnostic and Statistical Manual of Mental Disorders 5th edition (DSM-5) [8].

There are shared pathophysiological mechanisms between SAH and depression, such as hyperactivity of the Sympathetic Nervous System (SNS) and reduction in the activity of the Parasympathetic Nervous System (PNS) (Lechin, et. al. [9]) Another mechanism is chronic stress, which has a psychological component, which produces the release of cortisol, generating an increase in heart rate and BP [9] Finally, in 2009, García-Fabela et. to the study in the Mexican population the phenomenon of vascular depression, where microvascular lesions are generated with structural damage and cognitive effects [10] There have been various studies that in one way or another have studied the relationship between both pathologies, such as the study by García Batista, et al. [11] in the Dominican population, the presence of affective comorbidity in hypertensive patients was studied, confirming the association and predominance of somatic symptoms [11,12] did a similar study in patients in a Pakistani hospital, 39% of patients who presented hypertension also had depression, 8% were classified as mild, 14% moderate and 17% severe [12,13] described the risk factors that associated both diseases were low educational level, history of smoking, widowhood and older age [13]; while Ashock, [14] refers to additional factors such as being a woman, low socioeconomic status, family history, uncontrolled BP, not having pharmacological treatment, and presence of comorbidities [14] Finally, Wang L, [15] described the presence of uncontrolled SAH in 1,653 patients (89.1%), with a prevalence of depression of 14.5% in uncontrolled patients and 7.4% in controlled SAH [15].

For the diagnosis of depression, there are various instruments for its evaluation, such as the Hamilton Depression Scale (HDS or HAM-D), with a Cronbach's α of 0.789, Cohen's κ coefficient 0.81. [16,17]; the Patient Health Questionnaire (PHQ-9) with a sensitivity

of 90.4% and specificity of 81.7%, as well as a Cronbach's α of 0.89 [18,19]; the Composite International Diagnostic Interview (CIDI), a self-administered interview designed by the World Health Organization (WHO), with a Cohen's κ coefficient 0.7-0.8 [20,21]; and the Beck Depression Inventory (BDI), classifying depression with scores obtained as minimal, mild, moderate and severe, with a Cronbach's α of 0.89, Cohen's κ coefficient 0.31-0.61, variance of 1.58-5.00 [22] and total explained variance of 8,03-30,06% [23] and with a version translated into Spanish tested in the Mexican population, it has been shown to have an adequate internal consistency value (α s=0.87-0.92), currently being a useful tool to evaluate depression with optimal psychometric characteristics in the Mexican population [24] Therefore, the general objective is to associate the level of depression and the degree of essential systemic arterial hypertension in patients assigned to the Family Medicine Unit No. 20 “Vallejo”.

Materials and Methods

The present study is a non-experimental, transversal, observational, analytical, ambispective, prolective, and homodemic design, which had a total sample of 1,108 people. The study was carried out in the Family Medicine Unit (UMF) No. 20 “Vallejo” of the Mexican Social Security Institute (IMSS), which is a first-level medical unit providing care to the beneficiaries of the Institute. The UMF belongs to the Northwest 1 Delegation of Mexico City of the IMSS, in the period between August and December 2023.

Method

With the acceptance of the patient's informed consent to participate in the study and considered according to the following inclusion criteria: patients assigned to the UMF 20 “Vallejo”, patients of both sexes (man and woman), be between 18 and 65 years of age, have a history of diagnosis of essential systemic arterial hypertension; with exclusion criteria: Patients already diagnosed with a mood disorder other than depression (anxiety disorder and its variants, and bipolar disorder), patients being treated with antidepressant drugs, and pregnant patients; with elimination criteria: patients who did not completely fill out the informed consent letter, patients who did not completely respond to all the research instruments, and patients who decided to be withdrawn from the study.

Variables

The variables studied in the research are sociodemographic characteristics; age, defined as the time elapsed for a person from their date of birth to a specific point in time, obtained as years completed on an interval scale in age groups such as 18-29 years, 30-39 years, 40-49 years, or 50-65 years; sex, defined as the biological characteristics based on which people are classified as males or females of the human species at birth, obtained on a dichotomous nominal scale such as female or male; civil (marital) status, defined as the condition of a person in relation to their marriage, which is recorded in the Civil Registry, obtained on a dichotomous nominal scale such as single or

married; ethylism/alcohol consumption, defined as the syndrome of dependence or addiction to ethyl alcohol, obtained with alcohol consumption obtained on a dichotomous nominal scale such as yes or no; occupation, defined as work, employment or trade, obtained on a dichotomous nominal scale as Manual if this type of activity predominates (workers, farmers, cleaning jobs, cooks, carpenters, mechanics, etc.) or as Intellectual if reasoning predominates (doctor, architect, chemist, teacher, office job, etc.); level of schooling, defined as the highest degree of study approved by the population at any of the levels of the National Educational System (SEN), obtained on an ordinal scale and indicated as None, Basic (preschool, primary or secondary), Preparatory Baccalaureate, Bachelor's degree or engineering, or Postgraduate studies (specialty, master's or doctorate); comorbidities, defined as the presence of two or more disorders in the same individual, obtained on a dichotomous nominal scale as yes or no; physical activity, defined as any body movement produced by skeletal muscles and resulting in energy expenditure, obtained by scoring and classification through the application of the international physical activity questionnaire in its short version (IPAQ-s) and obtained on an ordinal scale such as high physical activity level, moderate physical activity level, or low physical activity level; Body Mass Index (BMI), defined as the ratio between weight (kg) and height (m), measured with a standardized technique, being a diagnostic criterion for overweight and obesity, it is obtained by dividing the weight in kilograms by the height in meters, squared, obtained on an ordinal scale and classified as Underweight (<18.5), Normal (18.5-24.9), Overweight (25-29.9), Obesity grade I (30-34.9), Obesity grade II (35-39.9) or Grade III obesity (>40); Systemic arterial hypertension, obtained by measuring BP using an aneroid baumanometer and stethoscope with a standardized technique, obtained on an ordinal scale and classified as Grade 1 (BP 140-159/90-99 mmHg), Grade 2 (BP 160-179/100-109 mmHg), or Grade 3 (BP >180/110 mmHg), as defined by the ESH1 [2]; Antihypertensive pharmacological treatment, defined as drugs that reduce blood pressure, such as ACEIs, ARBs, calcium antagonists, alpha-blockers, beta-blockers, and diuretics (furosemide, spironolactone), obtained on a nominal scale as 1 drug (single therapy), 2 medications (double therapy), 3 or more medications (triple or greater therapy), or no drug treatment; the dependent variable was depression, defined according to the DSM-58, whose classification was obtained according to the instrument applied to the Beck Depression Inventory (BDI-II) patient, obtained on an ordinal scale.

The main research instrument used was the Spanish-translated version of the BDI-II, whose original version was published in 1996 by Aaron T. Beck, it is one of the most used self-assessments of depressive symptoms, based on the diagnostic criteria of the DSM-IV, which recognizes the wide range of depressive symptoms, classifying them as somatic, affective and cognitive, corresponds to a printed instrument answered with a pen, consisting of 21 questions in the form of statements that were answered according to the patient's feelings in the last two weeks, being answered through a Likert system, which

ranges from a score of 0 to 3, adding the points and classifying them as minimal (0 to 13 points), mild (14 to 19), moderate (20 to 28) and severe (29 or more points).

Ethical and Legal

The study was included in a registry approved by the health research and ethics committee.

Statistics

To calculate the sample, the finite sample formula was used ($n = \frac{N \cdot Z\alpha^2 \cdot p \cdot q}{e^2 \cdot (N-1) + Z\alpha^2 \cdot p \cdot q}$), where N is equal to 7,258 (hypertensive patients assigned to the UMF 20 with date of 01/25/2023 reported by the Medical Information and Medical Archive Area (ARIMAC)), $Z\alpha^2$ of 2.17 (having a Confidence Level of 97%), with an estimated error of 3%, p of 50%, and q of 50%; Obtaining after the calculation an n value of 1108.42, closed to a study sample of 1108 research subjects. (book reference). The type of sampling used was probabilistic by conglomerates or clusters. To perform the descriptive univariate analysis, percentages were performed for qualitative variables (depression, essential SAH, antihypertensive pharmacological treatment, age, sex, physical activity, marital status, alcoholism, smoking, occupation, level of education, comorbidities and BMI). For the bivariate analysis, a value of $p < 0.05$ was used as statistical significance, with a 95% confidence interval (95% CI). The IBM SPSS V.26 program was used to establish the association between variables, using Pearson's Chi-square (χ^2) for qualitative variables (depression, essential SAH, antihypertensive pharmacological treatment, age, sex, physical activity, marital status, alcoholism, smoking, occupation, educational level, comorbidities and BMI). For the multivariate analysis, a main effects multimodal logistic regression model was used, taking depression and essential SAH with the significant variables obtained in the bivariate analysis for the significance model. The graphical representation of the results was carried out through data tables and bar graphs.

Results

In the present study, 1,108 patients with a diagnosis of arterial hypertension from Family Medicine Unit Number 20 were analyzed, demographic characteristics with a significant association with depression, sex ($p = 0.041$) was found in women with minimal depression in 54.6% ($n = 401$), with mild depression in 64.9% ($n = 137$); married patients ($p = 0.022$) have more depression vs. single, with 65.3% in minimal depression ($n = 480$), and 74.4% mild ($n = 157$); antihypertensive pharmacological treatment ($p = 0.029$) was 40.4% ($n = 297$) in patients with minimal depression and 34.1% ($n = 72$) mild depression, patients without any treatment were the most affected by this disease; 53.1% ($n = 390$) of the sample with minimal depression and 60.2% ($n = 127$) with mild depression, there were patients with a low level of physical activity ($p = 0.007$); overweight patients ($p = 0.004$) were the most affected BMI group, with 40.7% ($n = 299$) with minimal depression and 43.1% ($n = 91$) with mild depression. (Table 1) The association of the

degree of systemic arterial hypertension with the degree of depression, a greater number of depressed patients was obtained in those with grade 1 hypertension (BP 140-159/90-99 mmHg) in 92.2% (n=678) with minimal depression and 79.6 % (n=168) mild degree, presenting a p value of 0.000 with a 95% confidence interval 0.000-0.003 (Table 2).

Table 1: Demographic Characteristics Associated with the Degree of Depression of Patients with Systemic Arterial Hypertension at UMF No. 20 "Vallejo".

Demographic characteristic	Degree of depression								
	Minimum		Mild		Moderate		Severe		P value*
	n=735	%	n=211	%	n=119	%	n=119	%	
Age groups									
18-29 years	64	8.7	13	6.2	16	13.4	3	7	
30-39 years	135	18	35	16.6	13	10.9	7	16.3	0.148
40-49 years	193	26	72	34.1	30	25.2	11	25.6	
50- 65 years	343	47	91	43.1	60	50.4	22	51.2	
Sex									
Female	401	55	137	64.9	64	53.8	27	62.8	0.041
Male	334	45	74	35.1	55	46.2	16	37.2	
Civil Status									
Single	255	35	54	25.6	34	28.6	19	44.2	0.022
Married	480	65	157	74.4	85	71.4	24	55.8	
Education level									
None	9	1.2	3	1.4	2	1.7	0	0	
Basic	161	22	46	21.8	28	23.5	12	27.9	
Preparatory	311	42	87	41.2	43	36.1	19	44.2	0.96
Degree	219	30	64	30.3	38	31.9	9	20.9	
Postgraduate	35	4.8	11	5.2	8	6.7	3	7	
Occupation									
HandBook	368	50	95	45	61	51.3	24	55.8	0.454
Intellectual	367	50	116	55	58	48.7	19	44.2	
Ethylism									
Yes	129	18	30	14.2	25	21	3	7	0.124
No	606	82	181	85.8	94	79	40	93	
Smoking									
Yes	150	20	40	19	30	25.2	10	23.2	0.058
No	585	80	171	81	89	74.8	33	76.7	
Comorbidities									
Yes	563	77	176	83.4	98	82.4	36	83.7	0.096
No	172	23	35	16.6	21	17.6	7	16.3	
Antihypertensive Treatment									
1 Medicine	199	27	44	20.9	23	19.3	12	27.9	0.029
2 Medications	190	26	70	33.2	44	37	11	25.6	
3 or more Medications	49	6.7	25	11.8	9	7.6	4	9.3	
No Medications	297	40	72	34.1	43	36.1	16	37.2	0.007
Physical Activity Level									
High	59	8	15	17.1	4	3.4	2	4.7	
Medium	286	39	69	32.7	34	28.6	9	20.9	

Low	390	53	127	60.2	81	68.1	32	74.4	
Body mass index									0.004
Low weight	9	1.2	1	0.5	0	0	1	2.3	
Normal	185	25	41	19.4	17	14.3	6	14	
Overweight	299	41	91	43.1	50	42	17	39.5	
Obesity I	168	23	43	20.4	40	33.6	12	27.9	
Obesity II	47	6.4	18	8.5	8	8	7	16.3	
Obesity III	27	3.7	17	8.1	4	3.4	0	0	

Note: * p < 0.05 Pearson’s Chi-square test.

Table 2: Association of Systemic Arterial Hypertension with Depression in patients of the UMF No. 20 “Vallejo”.

HAS* Grade	Degree of Depression								P value**	95% confidence interval
	Minimum		Mild		Moderate		Severe			
	n=735	%	n=211	%	n=119	%	n=43	%		
Grade 1 (BP 140-159/90-99 mmHg)	678	92.2	168	80	103	87	36	84		
Grade 2 (BP 160-179/100-109 mmHg)	55	7.5	35	17	14	12	6	14	0.000	0.000-0.003
Grade 3 (BP >180/110 mmHg)	2	0.3	8	3.8	2	2	1	2.3		

Note: * Systemic Arterial Hypertension, • p <005 Pearson’s Chi-square Test.

Significant associations of demographic characteristics with systemic arterial hypertension and depression were reported in the age group 50-65 years (p=0.005), with a predominance in grade 1, 94.2% (n=323) of patients with minimal depression and 80.2% (n=73) mild depression; in the sex characteristic, men predominated (p=0.002) with grade 1 hypertension vs. women 91% (n=304) with minimal depression and 73% (n=54) with mild; marital status, married (p=0.002) predominance in SAH grade 1, 91.9% (n=414) with minimal depression and 79.6% (n=125) with mild; patients without antihypertensive pharmacological treatment (p=0.04) with grade 1 SAH, 94.8% (n=282) of the sample with minimal depression and 93.1% (n=67) with mild; physical activity, patients with SAH grade 1 (p=0.002) with 93.3% (n=364) with minimal depression and 78.87% (n=100) with mild; In patients with BMI grade II obesity (p=0.016), 91.5% (n=43) had grade 1 SAH with the presence of minimal depression and 50%

(n=9) mild depression (Table 3, Figures 1 & 2). In the multivariate analysis with a multimodal logistic regression model with parameter estimation of the association of the degree of mild depression with the degree of systemic arterial hypertension and demographic characteristics; grade 1 SAH presented a statistically significant level (p=0.001), with a 6.2% risk (B = -2.785); the age group 40-49 years did not present a statistically significant difference (p=0.077); women presented a statistically significant difference (p=0.002) with a risk 1.7 times (B = 0.533); single patients with p=0.05 and 68.9% risk (B = -0.373); antihypertensive treatment did not present a statistically significant difference (p=0.098); the moderate level of physical activity presented p=0.05, with a 70.1% risk (B = -0.356); the BMI of patients with grade I obesity presented a statistically significant difference (p=0.04) with a 44% risk (B = -0.776) (Table 4).

Table 3: Association of Demographic Characteristics with Systemetic Arterial Hypertension and Depression in Patients of the UMF No.20 “Vallejo”.

Demographic characteristic	HAS* Grade	Degree of Depression								P value**
		Minimum		Mild		Moderate		Severe		
		n=735	%	n=211	%	n=119	%	n=43	%	
Age groups										
	Grade 1 (BP 140-159/90-99 mmHg)	126	93.3	28	80	11	85	6	86	
30-39 years	Grade 2 (BP 160-179/100-109mmHg)	8	5.9	6	17.1	2	15	0	0	0.049
	Grade 3 (BP>180/110 mmHg)	1	0.7	1	29	0	0	1	14	
	Grade 1 140-159/90-99 mmHg)	323	94.2	73	80.2	51	85	18	82	
50-65 years	Grade 2 P160-179/100-109mmHg)	20	5.8	15	16.5	8	13	4	18	0.005
	Grade 3 (BP>180/110 mmHg)	0	0	3	3.3	1	2	0	0	
Sex	Grade 1 (BP 140-159/90-99	374	93.3	114	83.2	58	91	24	89	
Female	Grade 2 (BP160-179/100-109mmHg)	25	6.2	18	13.1	6	9	3	11	0.019
	Grade 3 (BP>180/110 mmHg)	2	0.5	5	3.6	0	0	0	0	
Male	Grade 1 (BP 140-159/90-99	304	91	54	73	45	82	12	75	
	Grade 2 (BP160-179/100-109mmHg)	30	9	17	23	8	15	3	19	0.002
	Grade 3 (BP>180/110 mmHg)	0	0	3	4.1	2	4	1	6.3	
Civil status	Grade 1 P140-159/90-99mmHg)	441	91.9	125	79.6	72	85	21	88	
Married	Grade 2 3P160-179/100-109mmHg)	39	8.1	26	16.6	11	13	3	13	0.002
	Grade 3 (BP>180/110 mmHg)	0	0	6	3.8	2	2	0	0	
Antihypertensive treatment										
2 medications	Grade 1 (BP 140-159/90-99 mmHg)	173	91.1	53	75.7	33	75	10	91	
	Grade 2 (BP160-179/100-109mmHg)	17	8.9	16	22.9	10	23	1	9.1	0.055
	Grade 3 (BP>180/110 mmHg)	0	0	1	1.4	1	2	0	0	
No medication	Grade 1 (BP 140-159/90-99 mmHg)	282	94.8	67	93.1	42	98	14	88	
	Grade 2 P160-179/100-109mmHg)	15	5.1	3	42	1	2	1	6.3	0.04
	Grade 3 (BP>180/110 mmHg)	0	0	2	28	0	0	1	6.3	
Physical activity level										
Low	Grade 1 (BP 140-159/90-99 mmHg)	364	93.3	100	78.7	71	88	26	81	
	Grade 2 (BP160-179/100-109mmHg)	24	6.2	23	18.1	8	10	5	16	0.002
	Grade 3 (BP>180/110 mmHg)	2	0.5	4	3.1	2	3	1	3.1	
Body massindex										
Obesity II	Grade 1 (BP 140-159/90-99 mmHg)	43	91.5	9	50	7	88	5	71	
	Grade 2 (BP 160-179/100-109mmHg)	4	8.5	7	38.9	1	13	1	14	0.016
	Grade 3 (BP>180/110 mmHg)	0	0	2	11.1	0	0	1	14	

Note: Systemetic Arterial Hypetension;** p<0.05 Pearson’s Chi-square Test.

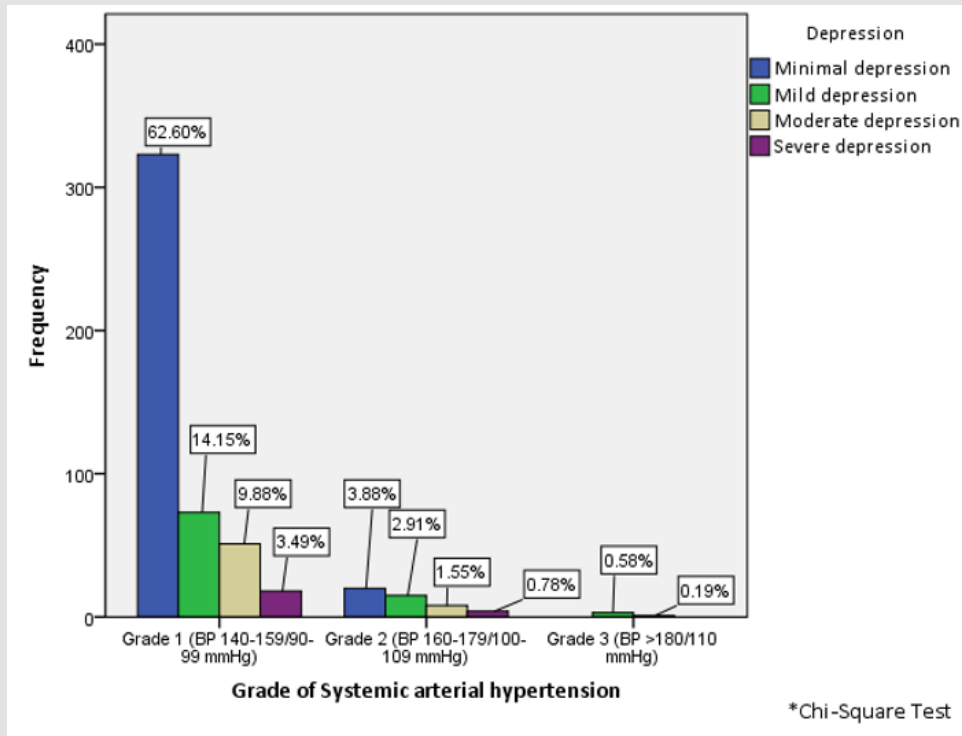


Figure 1: Association of Grade of Depression and Systemetic Arterial Hypertension And Depression In Patients of the UMF No.20 "vallejo".

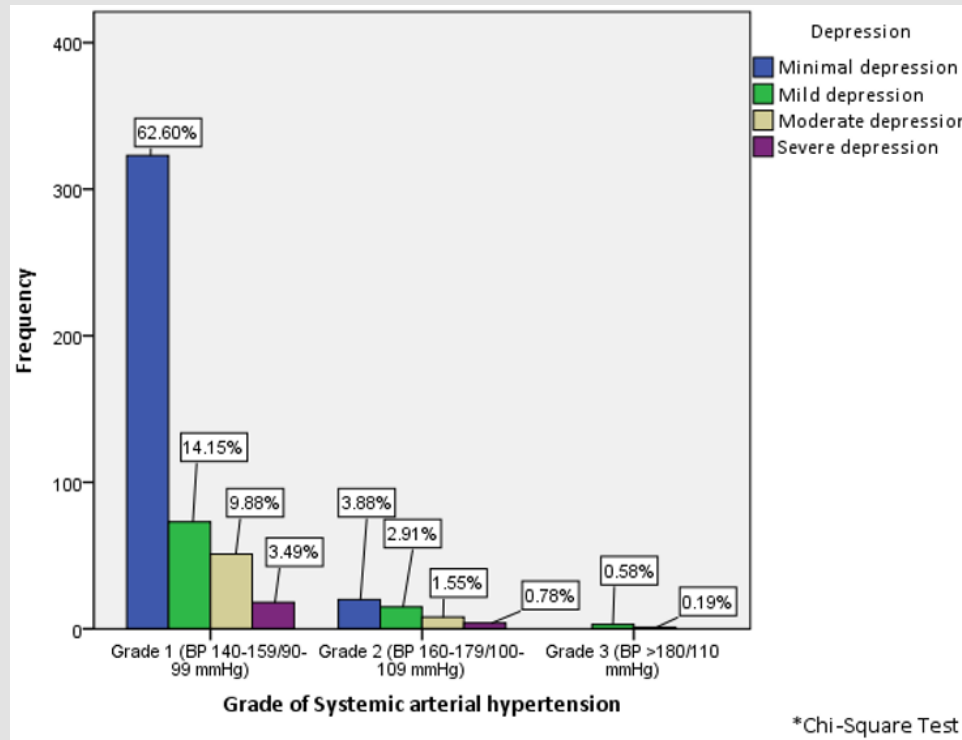


Figure 2: Association of Grade of Depression and Systemetic Arterial Hypertension And Depression In Men Beneficiaries of the UMF 20.

Table 4: Multimodal Logistic Regression Model with Parameter Estimation of the degree of Association of Depression with the Degree of Systemic Arterial Hypertension and Sociodemographic Characteristics in Patients from the UMF 20.

Mild Depression	Characteristic	B	Typical Error	Wald	gl	Sig.	Exp(B)	95% Confidence Interval for Exp(B)		
								Lower Limit	Upper Limit	
	Intetsecãon	1.g51	1.001	3.417	1	0.065				
	Systemic Arterial Hypertension	Grade 1 (BP 140-159/90-99 mmHg)	-2.785	0.815	11.69	1	0.001*	0.062	0.013	0.305
		Grade 2 (BP 160-179/100-109 mmHg)	-1816	o.ggg	4.696	1	0.003*	0.163	0.031	o.g41
	Sex	Women	0.533	0.172	9.62g	1	0.002*	1.704	1.217	2.386
	Age groups	40-49 Yeats	0.352	0.2	3.12	1	0.077	1.422	0.962	2.103
	Civial status	Single	-0.373	0.19	3.g57	1	0.050	0.6g9	0.474	0.999
	Physical Activity	Medium	-0.356	0.1g2	3.g27	1	0.050	0.701	0.491	1.001
	Level									
	Body mass index	Obesity I	-0.776	0.377	4.23g	1	0.04*	0.46	0.22	0.963

Note: *p < 0.05

In the present study of 1,108 patients from UMF No. 20 with a diagnosis of SAH, a total of 629 were women (56.8%) and 479 were men (43.2%); 96 patients (8.7%) were 18 to 29 years old at the time of the study, 190 (17.1%), 30 to 39 years old, 306 (27.6%) between 40 to 49 years old and 516 (46.6%) 50 to 65 years old. The prevalence of depression in married subjects compared to those who were single, where more than two thirds of the sample was in a marital union, thus having a greater probability of finding depressed patients in this area. According to Asmare, [25] since, according to various studies and sources of information, there is a lower risk of depression in married people due to the opportunity to share healthy lifestyles with their partner, as well as support each other with different aspects. daily life stressors [25] Ashok, et al. [14], report an age of presentation for depression with medium degree as the most frequent, an OR of 2.06 95% CI (1.114 -3.821) greater risk in women than in men, in our study an association of 1.7 times higher risk 95% CI (1.217-2.386 Medium depression has a significant association with grade 1 systemic arterial hypertension in 6% 95% CI (0.013-0.305) in our study; highlighting the significant demographic factors of our study, it is presented as reported by Deng X, et al. [26] to mean depression in cerebrovascular diseases with an OR of 1.43 95% CI (1-08-1.90). Odame, et al. [27] reports in multivariable logistic regression models the inclusion of depression, hypertension and demographic factors, referring to similarities in risk in relation to age over 40 years, obesity, contrasting in marital status, where it refers to married people with 73% IC risk at 95% (0.69, 0.79) and in our study in singles with 68% risk CI at 95% (0.49, 0.99) [27].

Conclusion

In this research, the main objective was met, consisting of associating the level of depression with the level of essential systemic arterial hypertension in the beneficiaries of the UMF 20 "Vallejo", where a significant inverse association was observed between both pathologies, given that most of the patients with depression and the highest degree of severity were those with a lower degree of SAH. The results of this study can contribute to improving the identification and comprehensive management of patients diagnosed with SAH and depression, considered diseases of high global prevalence, which affect different groups with different demographic characteristics. Early detection of depression in hypertensive patients is suggested, from the level of low BP numbers, considering the associated demographic factors, with subsequent follow-up by mental health services for those cases that are diagnosed with a depressive disorder.

Gratefulness

To the management staff of the OOAD DF Norte, director of the UMF 20, to the medical staff who contributed to making this article a reality for the benefit of the users of the I.M.S.S.

Conflict of Interests

The researchers of this article declare that there is no financial interest or conflict of interest.

References

1. Promoción, Prevención, Diagnóstico y Tratamiento de la Hipertensión Arterial en Primer Nivel de Atención. Guía de Práctica Clínica: Evidencias y Recomendaciones. México, CENETEC; 2021. Disponible
2. De la Sierra Iserte A, Fernández Llama P (2020) Hipertensión arterial. En: Rozman C, Cardellach F. Farreras Rozman Medicina Interna. 19ª ed. España: Elsevier, pp. 516-528.
3. Rabi DM, McBrien KA, Sapir Pichhadze R, Nakhla M, Ahmed SB, et al. (2020) Hypertension Canada's 2020 Comprehensive Guidelines for the Prevention, Diagnosis, Risk Assessment, and Treatment of Hypertension in Adults and Children. *Canadian Journal of Cardiology* 36(1): 596-624.
4. Williams B, Manica G, Spiering W, Agabiti Rosei E, Azizi M, et al. (2018) ESC/ESH Guidelines for the management of arterial hypertension. *European Heart Journal* 39(1): 3021-3104.
5. Secretaría de Salud. En México, más de 30 millones de personas padecen hipertensión arterial: Secretaría de Salud [Internet]. México: Gobierno; Publicado 7 diciembre 2022 [Consultado 15 marzo 2023]. Disponible.
6. Jaén Águila F, Mediavilla García JD, Navarrete Navarrete N, Ramos Cortés JL, Fernández Torres C, et al. (2014) Ansiedad, depresión y su implicación en la hipertensión arterial resistente. *Hipertens Riesgo Vasc* 31(1): 7-13.
7. Diagnóstico y Tratamiento del Trastorno depresivo en el adulto. México: Secretaría de Salud; 2 de diciembre de 2015.
8. MacLean RL (2023) Depression, Major. En: Ferri FF. *Ferri's Clinical Advisor*. 1a ed. US; Elsevier, 484-486.e1.
9. Scalco AZ, Scalco MZ, Serro Azul JB, Lotufo Neto F (2005) Hypertension and depression. *Clinics* 60(3): 241-250.
10. García Fabela L, Melano Carranza E, Aguilar Navarro S, García Lara JMA, Gutiérrez-Robledo LM, et al. (2009) Hypertension as a risk factor for developing depressive symptoms among community-dwelling elders. *Rev Invest Clin* 61(4): 274-280.
11. García Batista ZE, Guerra Peña K, Cano Vindel A, Herrera Martínez SX, Flores Kanter PE, et al. (2020) Affective comorbidity in patients with hypertension: a case-control study on adults in the Dominican Republic. *Acta Colombiana de Psicología* 23(1): 193-204.
12. Arooj F (2018) Identifying the severity depression among patients diagnosed with Hypertension. Do we need emotional support groups? *Journal of the American College of Cardiology* 72(16): C189.
13. Collazos Perdomo D, Ramírez Ramos CF, Torres de Galvis MY, Correas Orozco L, RamírezMendez D, et al. (2020) Asociación entre depresión mayor e hipertensión arterial en una población colombiana. *Hiperts Riesgo Vasc* 37(4): 162-168.
14. Ashok VG, Ghosh SS (2019) Prevalence of Depression among Hypertensive Patients Attending a Rural Health Centre in Kanyakumari. *Natl J Community Med* 10(3): 172-175.
15. Wang L, Li N, Heizhati M, Li M, Yang Z, et al. (2021) Association of Depression with Uncontrolled Hypertension in Primary Care Setting: A Cross-Sectional Study in Less-Developed Northwest China. *International Journal of Hypertension* (1): 1-9.
16. Parker G, Hadzi Pavlovic D (2020) Do Hamilton depression scale items have the capacity to differentiate melancholic and non-melancholic depressive sub-types? *Journal of Affective Disorders* 274 (2020): 1022-1027.
17. Trajković G, Starčević V, Latas M, Leštarević M, Ille T, et al. (2011) Reliability of the Hamilton Rating Scale for Depression: A meta-analysis over a period of 49 years. *Psychiatric Research* 189(2011): 1-9.
18. Campo Arias A, John Carlos Pedrozo Pupo, Zuleima Cogollo Milanés (2021) PHQ-9 en el cribado de episodio depresivo mayor en sobrevivientes a la COVID-19. *Rev Colomb Psiquiat* 52(3): 173-175.
19. Kroenke K, Spizer RL, Williams JBW (2001) The PHQ-9. Validity of a Brief Depression Severity Measure. *JGIM* 16(1): 606-613.
20. Wu Y, Levis B, Sun Y, Krishnan A, He C, et al. (2020) Probability of major depression diagnostic classification based on the SCID, CIDI and MINI diagnostic interviews controlling for Hospital Anxiety and Depression Scale – Depression subscale scores: An individual participant data meta-analysis of 73 primary studies. *Journal of Psychosomatic Research* 129: 109892.
21. Haro JM, Arbabzadeh Bouchez S, Brugha TS, De Girolamo G, Guyer M, et al. (2006) Concordance of the Composite International Diagnostic Interview Version 3.0 (CIDI 3.0) with standardized clinical assessments in the WHO World Mental Health Surveys. *Int J Methods Psychiatr Res* 15(4): 167-180.
22. Almeida S, Camacho M, Barahona Correa JB, Oliveira J, Lemos R, et al. (2023) Criterion and construct validity of the Beck Depression Inventory (BDI-II) to measure depression in patients with cancer: The contribution of somatic items. *International Journal of Clinical and Health Psychology* 23(2): 100350.
23. Carranza Esteban R F (2013) Propiedades psicométricas del Inventario de Depresión de Beck en universitarios de Lima. *Rev Psicol Trujillo (Perú)* 15(2): 170-182.
24. Andrés González D, Reséndiz Rodríguez A, Reyes Lagunes I (2015) Adaptation of the BDI-II in Mexico. *Salud Mental* 38(4): 237-244.
25. Asmare Y, Ali A, Belachew A (2022) Magnitude and associated factors of depression among people with hypertension in Addis Ababa, Ethiopia: a hospital based cross-sectional study. *BMC Psychiatry* 22(327).
26. Odame EA, Atandoh PH, Mamudu L, Adzrago D, Tagoe I, et al. (2023) Associations of depression with hypertension and citizenship among U.S. adults: A cross-sectional study of the interactions of hypertension and citizenship. *Prev Med Rep* 36: 102523.
27. Deng X, Liu D, Li M, He J, Fu Y (2023) Association between depression and stroke and the role of sociodemographic factors: A study among hypertensive populations. *J Stroke Cerebrovasc Dis* 32(12): 107457.

ISSN: 2574-1241

DOI: 10.26717/BJSTR.2024.57.008991

Gilberto Cruz Arteaga. Biomed J Sci & Tech Res



This work is licensed under Creative Commons Attribution 4.0 License

Submission Link: <https://biomedres.us/submit-manuscript.php>



Assets of Publishing with us

- Global archiving of articles
- Immediate, unrestricted online access
- Rigorous Peer Review Process
- Authors Retain Copyrights
- Unique DOI for all articles

<https://biomedres.us/>