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Association between family functionality and adherence to treatment in geriatric patients with arterial hypertension in a primary care unit

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Abstract
Objective: To determine the association between family functionality and adherence to treatment in geriatric patients with arterial hypertension in a primary care unit.
Methods: A cross-sectional, analytical, and observational study was conducted in 300 patients over 60 years of age at the Family Medicine Unit No. 1 in Orizaba, Veracruz, Mexico. The family APGAR was applied to assess functionality, the Morisky-Green test to measure therapeutic adherence and the MOS questionnaire to assess perceived social support. Sociodemographic variables and family typology were included. The statistical analysis was performed using the GraphPad Prism v.8 program, using descriptive and inferential statistics using X^2 test ($p < 0.05$).
Results: 65% (195) of the participants were women, with a mean age of 68 years. 82.67% (248) had functional families and 77% (231) showed adherence to treatment. A significant association was found between family adherence and functionality ($p = 0.0298$), social support ($p = 0.0224$) and employment status ($p = 0.0326$). No associations were found with sex, education, marital status, or family typology.
Conclusions: Family functionality and perceived social support are positively associated with adherence to antihypertensive treatment in older adults. The employment situation also influences adherence. These findings reinforce the importance of the family and social environment in the clinical management of hypertension from primary care.

Keywords: Therapeutic adherence, family functionality, arterial hypertension, geriatric population, social support, family typology

Introduction

Systemic arterial hypertension (SAH) represents one of the main challenges in public health worldwide, especially in vulnerable populations such as geriatrics. According to the second global report on hypertension published by the World Health Organization (WHO) in 2024, more than 1,400 million people live with hypertension, but only one in five has the disease under control. Despite advances in diagnosis and treatment, therapeutic adherence continues to be a persistent problem in the first level of medical care, where a high rate of treatment abandonment is observed, which increases the risk of serious cardiovascular complications [1, 5].

Among the many factors that influence adherence to treatment, the family environment has become relevant as a determining element in the patient's behavior. Family functionality, understood as the capacity of the family nucleus to provide emotional, instrumental, and affective support, can facilitate or hinder therapeutic compliance, especially in older adults who depend heavily on their support networks for the management of chronic diseases [16].

However, scientific evidence on the relationship between family functionality and therapeutic adherence in hypertensive geriatric patients is limited, which raises the need for research that delves into this association. In this context, the objective of this study is to determine whether there is a significant relationship between family functionality and adherence to antihypertensive treatment in older adults treated in a first-level unit, in order to generate useful information for the design of more effective intervention strategies in the field of family medicine [27].

Methods

An analytical, cross-sectional, prospective, and observational study was conducted between April and June 2024 at the Family Medicine Unit No. 1 of the Mexican Institute of Social Security (IMSS), located in Orizaba, Veracruz, Mexico. The study population consisted of 300 patients over 60 years of age with a confirmed diagnosis of systemic arterial hypertension, treated in the outpatient clinic.

Inclusion and exclusion criteria

Patients with a previous diagnosis of arterial hypertension, with an active clinical record, who agreed to participate through written informed consent were included. Those with severe cognitive impairment, recent hospitalization, or who did not complete the applied instruments were excluded.

Variables and instruments

Sociodemographic variables (age, sex, education, marital status, occupation), as well as family characteristics, were collected. To assess family functionality, the family APGAR instrument, validated in the Mexican population, was used. Therapeutic adherence was measured using the Morisky-Green test, and perceived social support was assessed with the MOS (Medical Outcomes Study Social Support Survey) questionnaire. The family typology was

classified according to the kinship structure model according to the Mexican Council of Family Medicine.

Procedure

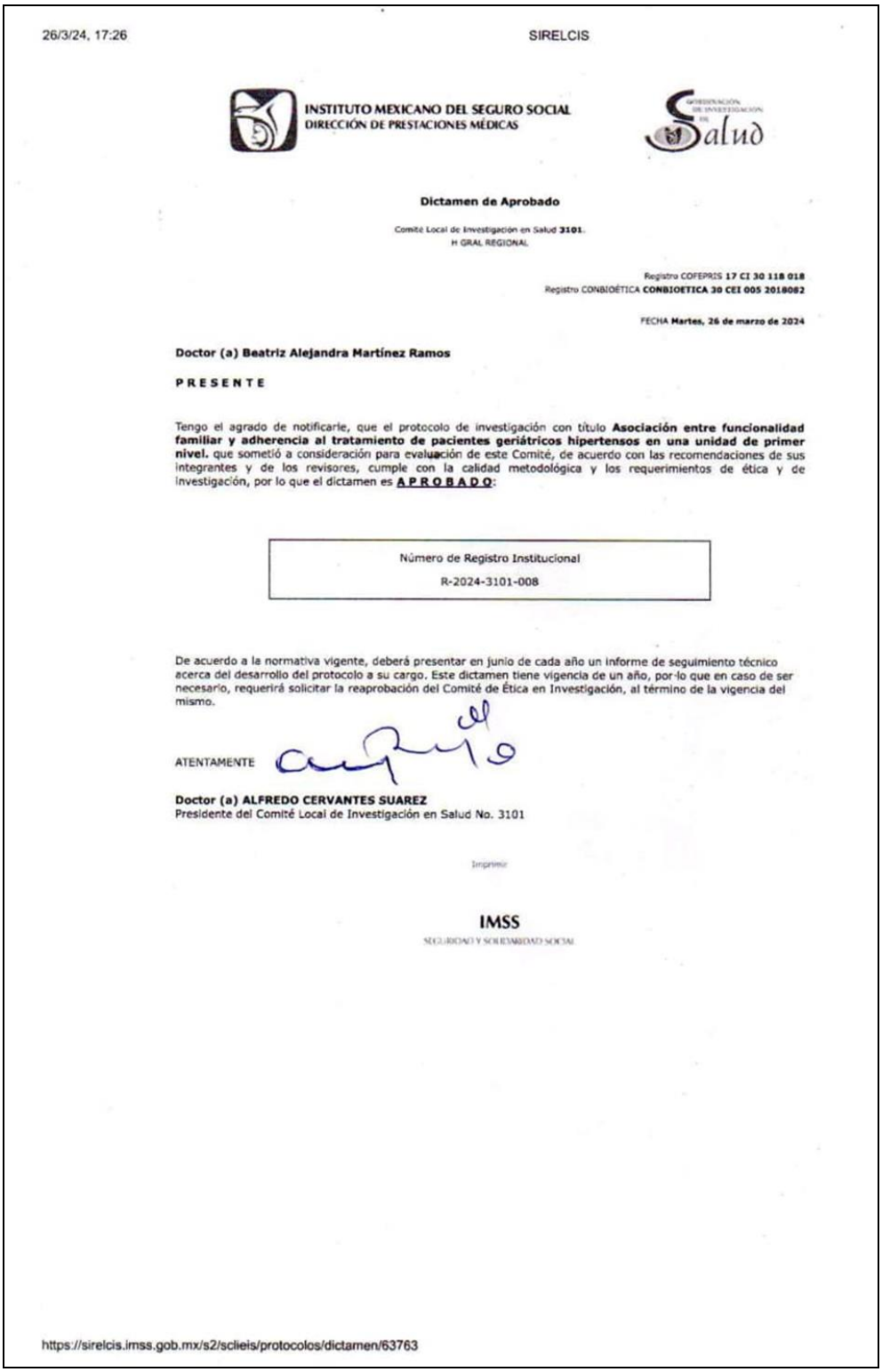
The instruments were applied in person, in private spaces within the medical unit, guaranteeing confidentiality and understanding of the reagents. The information was recorded in a database designed for the study.

Statistical analysis

The data were analyzed with the GraphPad Prism v.8 program. Descriptive statistics (frequencies, percentages, measures of central tendency and dispersion) were applied to characterize the sample. To evaluate the association between family functionality, social support and therapeutic adherence, the X^2 test was used, considering a value of $p < 0.05$ as statistically significant.

Ethical considerations

The protocol was approved by the Local Research and Bioethics Committee No. 3101 of the IMSS. The study was conducted in accordance with the principles of the Declaration of Helsinki (2004) and current national regulations. All participants signed an informed consent, guaranteeing their autonomy, confidentiality and the exclusive use of the data for academic purposes



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Salud

Dictamen de Aprobado

Comité Local de Investigación en Salud **3101**.
H GRAL REGIONAL

Registro COFEPRIS **17 CI 30 118 018**
Registro CONBIOÉTICA **CONBIOETICA 30 CEI 005 2018082**

FECHA **Martes, 26 de marzo de 2024**

Doctor (a) Beatriz Alejandra Martínez Ramos

P R E S E N T E

Tengo el agrado de notificarle, que el protocolo de investigación con título **Asociación entre funcionalidad familiar y adherencia al tratamiento de pacientes geriátricos hipertensos en una unidad de primer nivel.** que sometió a consideración para evaluación de este Comité, de acuerdo con las recomendaciones de sus integrantes y de los revisores, cumple con la calidad metodológica y los requerimientos de ética y de investigación, por lo que el dictamen es **A P R O B A D O**:

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De acuerdo a la normativa vigente, deberá presentar en junio de cada año un informe de seguimiento técnico acerca del desarrollo del protocolo a su cargo. Este dictamen tiene vigencia de un año, por lo que en caso de ser necesario, requerirá solicitar la reaprobación del Comité de Ética en Investigación, al término de la vigencia del mismo.

ATENTAMENTE

Doctor (a) ALFREDO CERVANTES SUAREZ
Presidente del Comité Local de Investigación en Salud No. 3101

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Results

A sample of 300 geriatric patients with hypertension was analyzed at the IMSS FMU No. 1 in Orizaba, Veracruz, Mexico. 195 (65%) women predominated, the age range was 20 years (60 to 80 years) with a mean of 68 years. 123 (41%) patients had secondary education and 212 (70.66%) were married. Functional families were identified in 248 patients (82.67%) and some degree of dysfunction in 52 (17.33%) Figure 1.

An association was made between the variables of importance according to the literature and antihypertensive therapeutic adherence, the sex of the participants was taken, within the group that presented therapeutic adherence,153 (78.46%) female participants and 84 (80%) male. Within the group without therapeutic adherence, 42 (21.54%) were female and 21 were male (20%). The X2 test revealed a value of p= <0.7550, so no significant association was found.

In relation to the educational level, within the group that had therapeutic adherence, 76 (74.5%) had primary education, 92 (74.8%) had secondary education, 50 (84.75%) had a high school diploma, 6 (75%) had a bachelor's degree and 5 (62.5%) had no schooling. Within the group of individuals who did not present therapeutic adherence, 26 (25.49%) primary, 31 (25.2%) secondary, 9 (15.25%) baccalaureate, 2 (25%) bachelor's degree and 3 (37.5%) without schooling. %). The X2 test indicates that no statistically significant association was identified, with a value of p = 0.4756.

On the other hand, the marital status of the individuals under study and their association with therapeutic adherence were taken into account, within the group that presented therapeutic adherence, 8 (61.54%) single, 163 (76.89%) married, 35 (74.47%) in a common-law union, 5 (55.56%) divorced and 12 (63.16%) widowed. Within the group that did not present therapeutic adherence, 5 (38.46%) were single, 49 (23.11%) married, 12 (25.53%) in a common-law union, 4 (44.44%) divorced and 7 (36.84%) widowed. the X2 test revealed a value of p= <0.3142, so no significant association was found.

Within the assessment of work status and its association with therapeutic adherence, within the group that presented therapeutic adherence, 50 (87.72%) were employees and 181 (74.49%) were retired. Of the group that did not present therapeutic adherence, 7 (12.28%) were employees and 62 (25.51%) were retired. Their association was made through the X2 test, which revealed a value of p= < 0.0326, confirming a significant association.

Within the categorization of the family typology, 9 (69.23%) individuals with a nuclear family, 192 (82.76%) simple nuclear, 12 (70.59%) numerous nuclear, 23 (74.19%) descending extended, 4 (57.14%) ascending extensive were found within the group with therapeutic adherence. Within the group without therapeutic adherence, 4 (30.77%) individuals were found with a nuclear family, 40 (17.24%) simple nuclear, 5 (29.41%) numerous nuclear, 8 (25.81%) extensive descending, 3 (42.86%) extensive ascending. The association yielded a value of p= <0.3623, which indicates that there was no significant association between the variables analyzed (see Table 1)

An association was made between therapeutic adherence and perceived social support, within the group that presented therapeutic adherence, 20 (66.67%) minimal support, 63 (82.89%) medium support and 168 (86.6%) maximum support. Within the group that did not present therapeutic adherence, 10 (33.33%) with minimum support, 13 (17.11%) with medium support and 26 (13.4%) with maximum support. The X2 test revealed a value of p= < 0.0224, demonstrating a statistically significant link between the elements analyzed.

Finally, the statistical analysis to assess the proposed hypothesis was developed from the following values, with 198 (79.84%) individuals with normal family functioning, 15 (75%) with mild dysfunction, 10 (55.56%) with moderate dysfunction and 8 (57.14%) with severe dysfunction, with adherence to medical treatment. In the group of patients who did not adhere to medical treatment, 50 individuals (20.16%) were identified with familial functionality, 5 (25%) with mild dysfunction, 8 (44.44%) with moderate dysfunction, and 6 (42.86%) with severe dysfunction. The analysis using the X^2 test yielded a p-< value of 0.0298, which shows a statistically significant association between family functionality and therapeutic adherence (see Table 2).

Discussion

The present research provides relevant evidence on the role played by family functionality in adherence to antihypertensive treatment in geriatric patients (p= <0.0298). In a context where high blood pressure represents one of the main causes of morbidity and mortality in older adults, understanding the factors that influence therapeutic compliance becomes essential to improve clinical outcomes and quality of life in this population.

These findings coincide with what was reported by Hernández-Yépez *et al*. (2023) [33] "Relationship between therapeutic adherence and family functionality in patients with type II diabetes mellitus" at Hospital II Rioja, Peru with a sample of 180 patients, who found that patients with functional families were up to 2.78 times more likely to adhere to treatment compared to those living in dysfunctional environments (p= 0.028). Similarly, García Pantoja *et al*. (2023) [34] "Relationship between therapeutic adherence and family functionality in patients with type II diabetes mellitus" Irapuato, Guanajuato with a sample of 370 patients (p <0.002) and Priego Pérez *et al*. (2025) [35] "Association of Family Functionality and Adherence to Treatment in Patients with Type 2 Diabetes Mellitus in a First Level Unit" Coatzacoalcos, Veracruz, with a sample of 282 patients (p<0.0001), highlighted that family functionality acts as a protective factor against therapeutic abandonment, especially in chronic diseases such as type II diabetes mellitus, whose monitoring and control mechanisms are comparable to those of arterial hypertension.

The results of the present study show a statistically significant association between family functionality and adherence to antihypertensive treatment in older adults, which allows us to affirm that the family environment directly influences the therapeutic behavior of the geriatric patient (p=0.0298). The evidence obtained in this study aligns with Zhang (2018) [18] "Family Functioning in the Context of an Adult Family Member with Disease: A Concept Analysis" University of Wisconsin-Madison, confirming that family functionality is a key determinant in the management of chronic diseases in older adults.

In addition, the data obtained allow us to establish a significant relationship between the social support reported by patients and their adherence to antihypertensive

treatment (p=0.0224). These findings are in line with the evidence presented by Martínez-Arellano (2024) [36], "Support network and therapeutic adherence in hypertensive older adults in a medical unit", who, with a sample of 250 elderly patients diagnosed with systemic arterial hypertension from the Family Medicine Unit No. 161, Mexico City, highlights that emotional support, instrumental and affective improves the perception of well-being and facilitates therapeutic compliance in hypertensive older adults (p < 0.024).

On the other hand, employment status was the only sociodemographic variable that showed a statistically significant association with adherence to antihypertensive treatment, and it was observed that employed patients had higher levels of therapeutic compliance compared to retired patients (p=0.0326). This evidence is in line with what was reported by Uchmanowicz *et al*. (2018) [16], who, in their study carried out in Poland with a sample of 150 hypertensive geriatric patients (p < 0.05), highlight that older adults who are active in the workplace tend to maintain more structured habits, greater contact with institutional health environments and a more proactive attitude towards their treatment; All these areas are closely related to adequate therapeutic adherence.

In contrast, variables such as sex, educational level, marital status, and family typology did not show significant associations with therapeutic adherence. Although some studies such as those by Álvarez-Ochoa *et al*. (2021) "Risk factors for high blood pressure in adults. A Critical Review" retrospective study (p=0.004) and Santander *et al*. (2021) "Prevalence, risk factors and clinical associated with arterial hypertension in older adults in Latin America" an extensive review of the literature in databases such as: Scopus, Springer, Web of Science, Scielo, Redalyc and Latindex, have suggested that these variables may influence the management of hypertension, however, the results indicate that their impact is limited when analyzed in conjunction with deeper psychosocial variables such as family functionality and social support.

In this sense, and as a continuation of the biopsychosocial approach previously addressed, this comprehensive approach, typical of family medicine, allows us to understand that therapeutic compliance does not depend exclusively on individual characteristics, but on the interaction between the patient and his or her environment. In line with this perspective, Delfín-Ruiz *et al*. (2020) [17], in their study "Family functionality as a social assistance policy in Mexico", carried out in Guadalajara, under a cross-sectional, correlational-causal design, with a random sample of 43 users in the area of psychology (p= <0.05), highlight that family functionality should be considered as a social assistance policy, since its influence transcends the clinical field and extends to prevention, accompaniment and rehabilitation.

Finally, it is pertinent to emphasize that the results obtained in this research show a relevant association between family functioning and compliance with antihypertensive treatment in older adults treated at the first level of care (p=0.0298). This association supports the hypothesis that a functional family environment can act as a protective factor against therapeutic abandonment, which coincides with Jiménez-Hernández *et al* (2022) [25] "Relationship between perceived social support and depression in older adults with assistance in a gerontological center" Hidalgo, Mexico with a sample of 71 geriatric patients (p= < 0.01), who highlight the role of the family as an emotional and practical support network in the management of chronic diseases.

Among the main limitations of the study is the cross-sectional design, which prevents establishing causal relationships between the variables analyzed. In addition, the use of self-administered instruments may be subject to social desirability biases, especially in a geriatric population. The sample, although representative of the medical unit under study, does not allow the results to be generalized to other regions of the country with different sociodemographic characteristics.

Despite these limitations, it is evident that family functionality not only influences medical decision-making, but also the patient's motivation to follow therapeutic indications. The findings of the study provide valuable evidence to reinforce the need to implement health care strategies that integrate the assessment of family functioning, psychosocial support, and preventive health promotion as part of the clinical approach in family medicine.

Table 1: Table of sociodemographic variables and their association with antihypertensive therapeutic adherence

Sex	Therapeutic adherence	Therapeutic non-adherence	Total	p
	f (%)	f (%)		
Female	153 (51)	42 (14)	195	
Male	84 (28)	21 (7)	105	<0.7550
Total	237	63	300	
Schooling				
Primary	76 (25.34)	26 (8.66)	102	
Secondary	92 (30.66)	31(10.34)	123	
High School	50 (16.67)	9 (3)	59	
Bachelor's degree	6 (2)	2 (0.67)	8	<0.4756
Postgraduate	----	----	----	
No schooling	5 (1.66)	3 (1)	8	
Total	229	71	300	
Marital status				
Singles	8 (2.67)	5 (1.66)	13	
Married	163 (54.33)	49 (16.34)	212	
Free union	35 (11.67)	12 (4)	47	<0.3142
Divorced	5 (1.66)	4 (1.34)	9	
Widowers	12 (4)	7 (2.33)	19	
Total	223	77	300	
Occupation				
Employee	50 (16.67)	7 (2.33)	57	
Retired	181 (60.34)	62 (20.66)	243	< 0.0326
Total	231	69	300	
Family typology				
Nuclear	9 (3)	4 (1.34)	13	
Simple nuclear	192 (64)	40 (13.34)	232	
Nuclear Numerous	12 (4)	5 (1.66)	17	<0.3623
Extensive descent	23 (7.66)	8 (2.66)	31	
Extensive ascent	4 (1.34)	3 (1)	7	
Rebuilt	----	-----	-----	
Total	240	60	300	

Among the sociodemographic variables studied, a statistically significant association was found between occupation and adherence to treatment with a p value equal to < 0.0326, n=300.

Table 2: Table of family functionality, social support and its association with therapeutic adherence

Familiar functionality	Therapeutic adherence	Therapeutic non-adherence	Total	p
	f (%)	f (%)		
Functionality	198 (66)	50 (16.67)	248	
Mild dysfunction	15 (5)	5 (1.66)	20	< 0.0298
Moderate dysfunction	10 (3.34)	8 (2.67)	18	
Severe dysfunction	8 (2.66)	6 (2)	14	
Total	231	69	300	
Social support				
Minimum	20 (6.66)	10 (3.34)	30	
Medium	63 (21)	13 (4.34)	76	< 0.0224
Maximum	168 (56)	26 (8.66)	194	
Total	251	49	300	

The association between family functionality and perceived social support and adherence to treatment was statistically significant, with a p value equal to < 0.0298 for family functionality and p equal to <0.0224 for perceived social support, n=300.

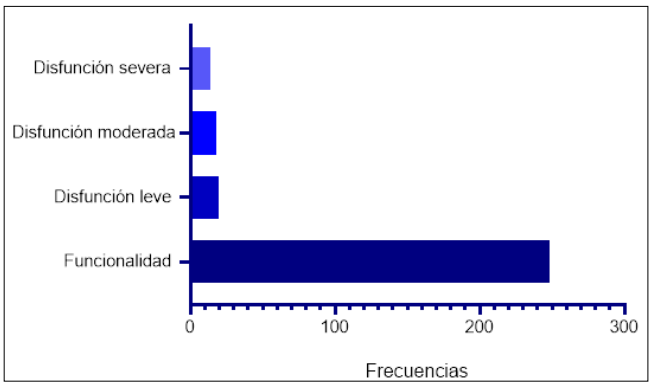

Fig 1: Family functionality

Family functionality was predominant in the study population with 248 (82.67%) people, n=300.

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