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Evaluation of Factors Influencing Pharmacological Adherence in Hypertensive Older Adults

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ABSTRACT

Introduction: arterial hypertension is one of the nosological conditions with the greatest negative impact on the geriatric population, requiring adequate pharmacological adherence for proper management.

Objective: to determine the behavior of pharmacological treatment adherence in hypertensive older adults from Medical Office 45 of the "Dr. Modesto Gómez Rubio" Polyclinic in San Juan y Martínez during 2022.

Methods: an observational, analytical, cross-sectional study was conducted in a sample of 70 hypertensive older adults. Data were obtained through the application of instruments and the review of family and individual medical records. Univariate and bivariate analyses were performed. Medical ethics principles were respected.

Results: total adherence to pharmacological treatment was observed in 35,7 %, while 30,0 % showed non-adherence. The 60–69 and 70–79 age groups predominated (41,4 %), as did females (54,3 %). Most participants had secondary or pre-university education, and 34,4 % had been diagnosed for five – nine years, exhibited functional independence, and presented osteoarticular disorders and diabetes mellitus as comorbidities. Functional status was the only clinical or demographic variable associated with adherence ($p = 0,045$), while the level of knowledge also showed correlation ($p = 0,0418$).

Conclusions: low adherence and compromised functionality in older adults are influenced by sociodemographic factors, highlighting the need for educational interventions and clinical support to improve therapeutic management and self-care.

Keywords: Aged; Medication Adherence; Treatment Adherence and Compliance; Hypertension.

INTRODUCTION

Contemporary society is undergoing a demographic aging process with significant socioeconomic repercussions—widely regarded as one of the greatest challenges of the third millennium. By 2050, it is projected that one in five people worldwide will be aged 60 years or older.⁽¹⁾ Cuba is no exception and already exhibits one of the oldest populations in Latin America and the Caribbean, with over 19 % of its population aged 60 or more. Projections estimate that by 2030, approximately 3,4 million Cubans (nearly 30 % of the total population) will belong to this age group, making Cuba the country with the highest proportion of older adults in the region.^(2,3)

Concurrently, the last three to four decades have witnessed a rise in non-communicable chronic diseases, which now represent a major public health burden—particularly among older adults. These conditions impose substantial economic and social costs on health systems, especially in countries like Cuba, where universal and free public healthcare is provided.⁽⁴⁾

This demographic shift is accompanied by increasing morbidity and mortality linked to arterial hypertension, which accounts for approximately 17 million deaths annually—nearly one-third of all global deaths—with a higher prevalence among individuals over 60 years of age.⁽⁵⁾

Effective hypertension management rests on two pillars: one the adoption of healthy lifestyles (non-pharmacological treatment) to control modifiable risk factors and prevent complications, and two the implementation of an accurate pharmacological regimen.⁽⁶⁾ However, prescribing medications to older adults is complex, often requiring frequent regimen adjustments. This complexity is compounded by the high prevalence of polypharmacy, inappropriate prescribing, and poor treatment adherence—all of which contribute to disease progression, adverse effects, increased morbidity and mortality, and greater healthcare resource utilization.^(7,8,9)

In this context, pharmacological adherence is a critical determinant of successful hypertension control, especially among older adults who face multiple barriers to treatment compliance. This study was therefore conducted to assess the level of pharmacological adherence and identify associated factors among hypertensive older adults attending Medical Office 45 of the “Dr. Modesto Gómez Rubio” Polyclinic in San Juan y Martínez during 2022.

METHODS

An observational, analytical, cross-sectional study was carried out among hypertensive older adults registered at Medical Office 45 of the “Dr. Modesto Gómez Rubio” Polyclinic in San Juan y Martínez, Cuba, during 2022.

The target population consisted of 127 older adults diagnosed and registered as hypertensive in their individual clinical records (ICR) and family health histories (FHH). A non-probabilistic, purposive sample of 70 individuals was selected based on the following inclusion criteria: age ≥ 59 years, registered as hypertensive, and providing written informed consent. Exclusion criteria included dementia or cognitive impairment and terminal illness.

Data were collected through review of clinical and family health records and administration of standardized instruments to assess the following variables: age, sex, education level, functional geriatric status, pharmacological adherence, time since hypertension diagnosis, comorbidities, and knowledge about hypertension.

- Functional status was evaluated using the Barthel Index, which assesses independence in 10 basic activities of daily living (ADLs). Scores range from 0 (total dependence) to 100 (complete independence). Categories: total dependence (0–20), severe (21–60), moderate (61–90), mild (91–99), and independence (100).⁽¹⁰⁾
- Pharmacological adherence was measured using the Martín-Bayarre-Grau,⁽¹¹⁾ questionnaire, which classifies adherence as: total (38–48 points), partial (18–37), and non-adherence (0–17).
- Hypertension knowledge was assessed with a validated 20-item multiple-choice instrument by García Mireylle and Pinto,⁽¹²⁾ focusing on four domains: general knowledge, risk factors, control measures, and treatment. Correct answers received two points (except item 17, which is non-scored). Total scores (0–38) were categorized as: high (25–38), medium (13–24), and low (0–12).

Statistical analysis was performed using SPSS v.26 for Windows. Descriptive statistics (frequencies, percentages) were used for univariate analysis. Bivariate analysis employed Student's *t*-test and Spearman's correlation coefficient. A *p*-value $< 0,05$ was considered statistically significant. Results were presented in tables and graphs.

Ethical considerations: The study was approved by the institutional Ethics Committee. Confidentiality was ensured, participants were fully informed of the study's purpose, and written informed consent was obtained from all.

RESULTS

Among the hypertensive older adults studied, 35,7 % demonstrated total adherence to pharmacological treatment, while 30,0 % showed no adherence (Figure 1).

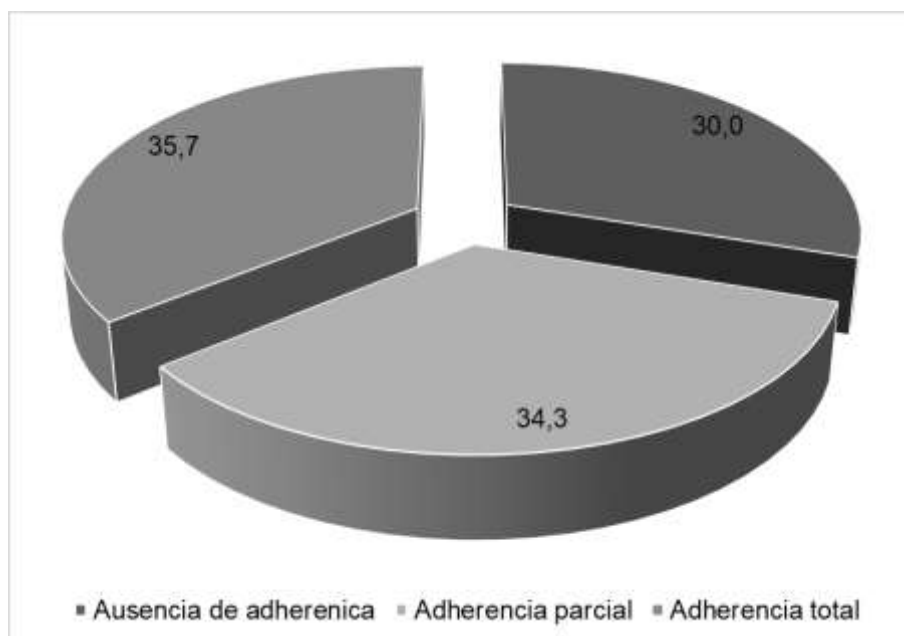


Fig. 1 Distribution of the sample according to pharmacological adherence.

The sample was predominantly composed of individuals in the 65–69 and 70–74 age groups (21,4 % each), with females representing the majority (54,3 %). The highest proportions of participants had completed pre-university (32,9 %) or secondary education (28,6 %).

Regarding clinical characteristics, 34,3 % of participants had been diagnosed with hypertension for five–nine years, and 37,1 % were functionally independent. The most prevalent comorbidities were osteoarticular disorders (47,1 %) and type 2 diabetes mellitus (30,0 %).

As shown in Table 1, no statistically significant associations were found between pharmacological adherence and age, sex, or educational level ($p > 0,05$). However, higher percentages of non-adherence were observed among individuals aged 70–79 years (48,3 %), females (34,2 %), and those with no formal schooling (100 % non-adherence). The only statistically significant association was with functional status ($p = 0,045$). Contrary to common assumptions, adherence increased with greater functional dependence, reaching its highest level among older adults with severe dependence, of whom 70 % showed total adherence.

Table 1. Association between pharmacological treatment adherence and sociodemographic and clinical profile.

Variable		Pharmacological Adherence treatment						Total	
		non adherence		Partial adherence		Total adherence			
		No.	%	No.	%	No.	%	No.	%
Age*	60-69	6	20,7	12	41,4	11	37,9	29	41,4
	70-79	14	48,3	7	24,1	8	27,6	29	41,4
	≥ 80	1	8,3	5	41,7	6	50,0	12	17,1
Sex**	Masculino	8	25,0	8	25,0	16	50,0	32	45,7
	Femenino	13	34,2	16	42,1	9	23,7	38	54,3
Level of Education***	Uneducates	2	100	0	0	0	0	2	2,9
	Primary	5	71,4	1	14,3	1	14,3	7	10,0
	Secondary	2	10,0	10	50,0	8	40,0	20	28,6
	Pre university	6	26,1	7	30,4	10	43,5	23	32,9
	University	6	33,3	6	33,3	6	33,3	18	25,7
Functional status****	Independent	16	61,5	5	19,2	5	19,2	26	37,1
	Dependencia escasa	2	16,7	8	66,7	2	16,7	12	17,1
	Moderate dependence	3	17,6	6	35,3	8	47,1	17	24,3
	Mild dependence	0	0	3	30,0	7	70,0	10	14,3
	Total Dependence	0	0	2	40,0	3	60,0	5	7,1

Notes: * Spearman correlation: 15.47 ($p = 0.069$) ** Student's t -test: 11.43 ($p = 0.069$) *** Student's t -test: 9.61 ($p = 0.054$) **** Spearman correlation: 11.79 ($p = 0.045$)

Table 2 shows a direct relationship between the level of knowledge about arterial hypertension and adherence to pharmacological treatment. Among participants with low knowledge, non-adherence predominates (38,9 %). Those with moderate knowledge display a more balanced distribution across non-adherence, partial adherence, and total adherence. The most significant shift is observed in the group with high knowledge, where 70 % achieve total adherence and only 10 % show non-adherence, clearly indicating that greater understanding of the disease promotes therapeutic compliance.

Overall, the results reveal a progressive increase in adherence as knowledge levels rise—a pattern statistically confirmed by Spearman's correlation coefficient, which demonstrated a significant positive association between knowledge level and pharmacological adherence ($p = 0,0418$).

Table 2. Pharmacological treatment adherence according to level of knowledge about arterial hypertension.

Adherencia farmacológica	Level of knowledge						Total	
	Low		Moderate		High			
	No.	%	No.	%	No.	%	No.	%
Non adherence	14	38,9	6	25,0	1	10,0	21	30,0
Partial adherence	12	33,3	10	41,7	2	20,0	24	34,3
Total adherence	10	27,8	8	33,3	7	70,0	25	35,7
Total	36	51,4	24	34,3	10	14,3	70	100

Note: Spearman correlation coefficient = 37,41 ($p = 0,0418$)

DISCUSSION

Previous studies conducted in Pinar del Río province^(13,14) report findings consistent with those of the present investigation, particularly regarding the predominance of females among the studied older adult population. This alignment suggests a sustained local demographic trend wherein older women constitute a significant proportion of those accessing health services and participating in therapeutic adherence research.

The age distribution observed—especially the high representation of individuals aged 60–69 years—is corroborated by prior literature, which indicates greater treatment participation and adherence in the early stages of old age, when functional autonomy and cognitive capacity are relatively preserved. Notably, total adherence to pharmacological regimens in this study was most consistently observed among those over 60 years of age.⁽¹⁵⁾

The relationship between advanced age and pharmacological adherence remains complex and sometimes seemingly contradictory in the literature. Some authors argue that older adults are less likely to forget medication doses, particularly when managing multiple chronic conditions and persistent symptoms that serve as constant reminders of the need for ongoing treatment.^(16,17) This perceived vulnerability, coupled with visible clinical manifestations, may act as a motivational driver for treatment continuity—potentially explaining the relatively high adherence levels seen in certain age groups, including those over 60.

Systematic scientific reporting on the role of educational attainment in aging populations remains limited, hindering a comprehensive understanding of adherence determinants—especially among vulnerable groups. Nevertheless, consensus exists that lower educational levels correlate with higher prevalence of chronic diseases, largely due to poor awareness of health risks linked to unhealthy lifestyles and limited comprehension of medical instructions.⁽¹⁸⁾

A considerable proportion of participants in this study maintained functional independence, consistent with broader evidence indicating that even in at-risk elderly cohorts, most retain the ability to perform basic activities of daily living. According to the WHO, functional capacity results from the interplay between health status, personal factors, and environmental context—all of which may support independence. The high rate of functional autonomy observed here may reflect strong self-care practices, family support, or access to preventive healthcare.⁽¹⁹⁾

Regarding disease duration, the majority of participants had lived with hypertension for fewer than five years—a finding that diverges from existing literature.⁽²⁰⁾ Typically, longer disease duration correlates with heightened awareness of associated risks, triggering emotional engagement and prioritization of health management. Over time, personal resources become increasingly oriented toward illness control, fostering patient-driven symptom recognition and self-regulation. The shorter duration in this sample may partially explain suboptimal adherence. Across Latin America, lack of knowledge about antihypertensive treatment has been repeatedly identified as a key barrier to therapeutic adherence. Martínez de Murga García et al.,⁽²¹⁾ emphasize that insufficient understanding of prescribed medications—particularly among older adults with low literacy—undermines regimen compliance. This is reinforced by Gwadry-Sridhar et al,⁽²²⁾ systematic review, which concludes that educational interventions significantly improve both adherence and blood pressure control in patients with essential hypertension.

In the Cuban context, Monterrey Hernández et al,⁽²³⁾ demonstrate that pharmacological adherence is closely tied to perceived quality of life, with disease knowledge serving as a cornerstone of self-care. Internationally, Saqlain et al,⁽²⁴⁾ confirm that health literacy and performance in daily activities directly influence adherence among hypertensive older adults, underscoring the need for tailored educational strategies.

Falcones Reyes and Guerrero Guerrero,⁽²⁵⁾ further link treatment abandonment in older adults to unclear or insufficient information about hypertension and its consequences, which fosters disinterest and distrust in medication. This knowledge-adherence nexus is echoed in Aid Kunert's study,⁽²⁶⁾ where patients receiving educational sessions and medical counseling showed significantly greater willingness to follow prescribed regimens.

The low rate of total adherence (35,7 %) in this study may be partly attributed to limited hypertension-related knowledge among participants. Aguado-Fabián et al,⁽²⁷⁾ established a direct association between disease knowledge and self-care practices, which in turn affects treatment continuity. Similarly, Herrera-Añazco et al,⁽²⁸⁾ assert that understanding hypertension and its risks is essential for sustaining therapeutic behaviors.

Finally, Pérez Pupo and Rodríguez Lazo,⁽²⁹⁾ conclude that patients with greater knowledge about arterial hypertension consistently demonstrate higher adherence—reaffirming the critical need to strengthen health education programs in primary care. Collectively, these findings support the hypothesis that patient understanding of their condition and treatment is a fundamental pillar for achieving effective adherence and preventing severe complications such as myocardial infarction and stroke.

CONCLUSIONS

The analyzed variables indicate that older adults in this study generally exhibit limited pharmacological adherence and functional status ranging from moderate to compromised. This suggests the presence of barriers in daily treatment management and highlights the urgent need to enhance health education and clinical support. The sociodemographic profile—characterized by basic educational attainment and advanced age—may impair therapeutic comprehension and the ability to sustain self-care practices. Taken together, these results underscore the importance of implementing comprehensive strategies that promote appropriate medication use, reinforce functional autonomy, and mitigate risks associated with multimorbidity and polypharmacy, ultimately improving the quality of life for this vulnerable population.

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