Estimation of antihypertensive therapeutic adherence in patients over 75 years of age, Alfredo Noboa Montenegro hospital, 2022-2023

Estimación de la adherencia terapéutica antihipertensiva en pacientes mayores de 75 años, hospital Alfredo Noboa Montenegro, 2022-2023

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Resumen

Elderly adults face several physiological changes that predispose them to several disorders, including hypertension; and effective management of this entity remains a key clinical task in this population. Challenges with treatment adherence often complicate this situation, and lower treatment adherence is related to increased morbimortality. Among the factors that influence therapeutic adherence are cognitive deterioration, the degree of dependence to carry out activities of daily living, and whether or not they are at social risk. **Objective:** To estimate the level of antihypertensive treatment adherence in patients over 75 years of age at the Alfredo Noboa Montenegro Hospital, from May 2022 to April 2023. **Methodology:** An observational, cross-sectional study was performed on 100 adults over 75 years of age. The Morisky-Green test was used to measure therapeutic adherence; the Mini Mental Test was used to assess cognition; the degree of independence was evaluated with the Barthel index; and sociofamilial risk was assessed with the Gijón Social-Familial Evaluation Scale. **Results:** Of the sample, 45% was adherent whereas 55% was poorly adherent. The risk factors linked to poor adherence were cognitive impairment, social support, and family functionality. **Conclusions:** Only 45% of older adult patients who attended the outpatient clinic of the Alfredo Noboa Montenegro Hospital in the city of Guaranda were adherent to treatment. The lower the cognition, social support, and independence, the higher the risk of non-adherence.

Keywords: Elderly, hypertension, therapeutic adherence, cognition, independence.

Resumen

El adulto mayor se enfrenta a varios cambios fisiológicos que lo hacen predisponente a sufrir enfermedades como la Hipertensión arterial, esto sumado a los factores de riesgo a los que haya estado expuesto en la juventud, por ende el manejo integral del adulto mayor hipertenso o con cualquier patología crónica constituye un reto sobre todo en la terapéutica ya que de no ser adherente al tratamiento tiene mayor riesgo de sufrir enfermedades cardiovasculares y aumentar la morbimortalidad , entre los factores que influyen en la adherencia terapéutica están el deterioro cognitivo, el grado de dependencia para realizar actividades en la vida diaria y si tiene o no riesgo social. **Objetivo:** Estimar el nivel de adherencia terapéutica antihipertensiva en pacientes mayores de 75 años del Hospital Alfredo Noboa Montenegro, 2022-2023. **Metodología:** El estudio fue observacional, de corte transversal, y analítico. La muestra estuvo compuesta por 100 adultos mayores de 75 años, para la medición de adherencia terapéutica se utilizó el test: Morisky Green y se valoró también el nivel de cognición con el Mini Mental Test, el grado de independencia con el índice de Gijón y si existe algún riesgo sociofamiliar con la Escala de Barthel. **Resultados:** La edad promedio estuvo entre 75 a 96 años, predominó el género masculino, el nivel de adherencia fue de 45% y de mala adherencia fue de 55% de acuerdo con el método de medición; se estimó que los factores de riesgo estrechamente ligados a la mala adherencia son: deterioro cognitivo, apoyo social y funcionalidad familiar. **Conclusiones:** Solo el 45% de los pacientes adultos mayores, quienes asisten a consulta externa del Hospital Alfredo Noboa Montenegro en la Ciudad de Guaranda, son adherentes al tratamiento, y a menor cognición, apoyo social e independencia hay mayor riesgo de ser no adherentes.

Palabras clave: Adulto mayor, hipertensión, adherencia terapéutica, estado cognitivo, independencia.

Introduction

Hypertension in elderly adults represents a critical public health challenge, with severe epidemiological and economic consequences. Globally, the rising life expectancy—74.5 years for men and 80.1 for women in Ecuador—has increased the prevalence of age-related conditions. Among these is hypertension, which affects 43.7% of Ecuador's elderly population[1,2]. The World Health Organization (WHO) has reported that hypertension-related cardiovascular diseases are directly linked to 1.6 million annual deaths in the Americas, underscoring the grave impact of this condition[3]. Healthcare costs driven by frequent consultations, polypharmacy, and hospitalizations, among other factors, often exceeds the elderly patients' financial capacity, with an estimated 70% of this population lacking insurance coverage[1,4]. This economic strain, compounded by limited medication access and transportation barriers, exacerbates poor outcomes, particularly in rural areas, where half of this population resides[1,5].

Elderly hypertensive patients face unique clinical challenges, including polypharmacy (averaging ≥4 medications), cognitive decline, and functional dependence[6]. Within this population, therapeutic adherence is, ostensibly one of the most important steps towards proper management. The WHO defines therapeutic adherence as "the degree to which a person's behavior, including taking medications, following dietary recommendations, and making lifestyle changes, aligns with the agreed-upon recommendations from a healthcare provider"[3]. However, a myriad of aging-related vulnerabilities, such as impaired memory, sensory deficits, polypharmacy, and socioeconomic constraints, can severely affect this compliance[6,7]. Furthermore, age-related vascular changes (e.g., endothelial dysfunction) significantly hinders blood pressure control, with over 60% of patients failing to meet therapeutic targets[8,9]. In consequence, poor adherence translates into hospitalizations, increased morbidity and mortality; emphasizing the need for personalized interventions[10].

Indeed, therapeutic adherence is pivotal for mitigating cardiovascular risk in this population. In Ecuador, hypertension accounts for 22.09% of mortality[2], with non-adherence being tightly linked to preventable complications like stroke and myocardial infarction[11]. This study aims to estimate antihypertensive adherence levels in adults aged >75 years who attended the Alfredo Noboa Montenegro Hospital (2022–2023), and to identify associated sociodemographic and clinical risk factors.

Materials and methods

An observational, cross-sectional study was conducted to evaluate antihypertensive treatment adherence in patients aged ≥75 years at the Alfredo Noboa Montenegro Hospital (Guaranda, Ecuador) from May 2022 to April 2023. A sample of 100 hypertensive patients was selected from the geriatrics and cardiology outpatient clinics. This sample size was calculated based on an estimation of 50% for the prevalence of hypertension. The inclusion criteria were: age >75 years, confirmed hypertension diagnosis, active pharmacological treatment, complete medical records, and informed consent. The exclusion criteria were patients with pre-established cognitive decline or difficulties for communication (e.g., dementia, hearing impairment), untreated hypertension, and refusal to participate.

Adherence was assessed using the Morisky-Green test (score <6 = non-adherent), with secondary metrics including cognition (Mini Mental Test), family support (Gijón Social-Familial Evaluation Scale), and functional independence status (Barthel Index). Data were analyzed in SPSS v29.0 using descriptive statistics expressed as frequencies and percentages for demographic and clinical variables. The Chi-square test was used for assessment of categorical associations (e.g., adherence × socioeconomic factors) and Fisher's exact test was used for for small-sample comparisons. The study complied with the Helsinki Declaration, with protocols approved by the hospital and the University of Guayaquil.

Results

The sample was constituted by 91% subjects aged between 75-90 years, and 9% aged 90 years and older; 56% males, and 27% of rural origin. Moreover, 47% of the sample reported being married; primary school was the predominating level of instruction at 85%, and mixed-race was the most frequent ethnicity, comprising 88% of the sample (**Table 1**).

Table 1. Sociodemographic characterization of adults aged 75 years and older who attended the Alfredo Noboa Montenegro Hospital from May 2022 to April 2023.

Sociodemographic characteristics		n	%
AGE (years), m (SD)	**Elder (75-90 years)**	**75(5,81)**	**91%**
	Great elders (>90 years)	**96(2,07)**	**9%**
GENDER	**Female**	**44**	**44%**
	Male	**56**	**56%**
ORIGIN	**Urban**	**73**	**73%**
	Rural	**27**	**27%**
MARITAL STATUS	**Single**	**23**	**23%**
	Married	**47**	**47%**
	Widowed	**17**	**17%**
	Free union	**6**	**6%**
	De facto Partnership	**7**	**7%**
EDUCATIONAL LEVEL	**Primary**	**85**	**85%**
	Secondary	**5**	**5%**
	High school	**4**	**4%**
	Tertiary	**6**	**6%**
ETHNICITY	**Mixed-race**	**88**	**88%**
	Indigenous	**12**	**12 %**

Abbreviations: m, mean; SD, standard deviation

Normal blood pressure levels were found in only 23% of the sample, whereas the rest displayed some degree of hypertension. Good therapeutic adherence was found in only 45% of the sample. **Table 2** shows the relationships between therapeutic adherence and several key variables in elderly adults. A significant association was found with cognitive level as assessed through the Mini Mental test (P = 0,021); cognitive impairment was found in 30% of subjects with bad adherence group and only in 12% of those with good adherence. Likewise, socio-familial risk as estimated by the Gijón Social-Familial Evaluation Scale was also significantly associated with treatment adherence (P = 0,047), and 19% of subjects had bad adherence with moderate risk in comparison with only 10% with moderate risk and good adherence; neither group displayed high risk. Lastly, independence as measured by the Barthel index was also significantly associated with treatment adherence (P = 0,041), with 30% of individuals with bad adherence and mild dependency vs 22% with good adherence and mild dependency.

Table 2. Variables associated with good or bad therapeutic adherence according to the Morisky-Green test in adults aged 75 years and older who attended the Alfredo Noboa Montenegro Hospital from May 2022 to April 2023.

N=100		BAD ADHERENCE		GOOD ADHERENCE		STATISTIC ANALYSIS
		n	%	n	%	P VALUE
MINI MENTAL TEST	Normal	12	12%	17	17%	0,021
	Suspected Pathology	13	13%	16	16%	
	Cognitive Impairment	30	30%	12	12%	
	Dementia	0	0%	0	0%	
GIJÓN SOCIAL-FAMILIAL EVALUATION SCALE	Normal or Low Risk	36	36%	35	35%	0,047
	Moderate Risk	19	19%	10	10%	
	High Risk	0	0%	0	0%	
BARTHEL INDEX	Totally independent	23	23%	23	23%	0,041
	Mild Dependency	30	30%	22	22%	
	Moderate dependency	2	2%	0	0%	
	Severe dependency	0	0%	0	0%	
	Total dependency	0	0%	0	0%	

Discussion

This study on 100 hypertensive elderly patients revealed a 55% non-adherence rate, aligning with global trends[12–15]. Cognitive impairment significantly predicted non-adherence ($p < 0.05$), with only 12% of cognitively impaired patients adhering to treatment versus 30% non-adherence. Similarly, low social support and functional dependency correlated with poor adherence ($p < 0.05$), and 52% of patients here had mild dependency, contrasting with higher adherence rates in Spanish cohorts[16]. Urban residency (73%) and mixed-race ethnicity (88%) dominated the sample, but demographics like age and sex showed no significant influence, highlighting that cognitive and sociofunctional factors are primary adherence barriers in this population.

Notably, we found the prevalence of normal blood pressure levels was lower than expected for adults >65 years[17], possibly due to the this cohort being older. Discrepancies with other studies may stem from methodological differences, but cognitive decline and social isolation have been well-established as deleterious factors for treatment adherence. Indeed, in this sample, 29% of patients had intermediate-to-high socio-familial risk, and those with limited family support showed 9% lower adherence. The Barthel index further highlighted that even mild dependency (52% of patients) correlated with higher non-adherence.

Another critical factor influencing adherence in this study was patient's education level, considering a large majority of the sample reported having attained primary school education only. Limited health literacy and mismanagement of medications may have been essential factors contributing to non-adherence in our sample. This aligns with the findings by Pagès-Puigdemont et al.[18], who emphasize that patients with poor disease knowledge are significantly more likely to be non-adherent. While the Morisky-Green test captures behavioral adherence, it does not assess comprehension of hypertension-related risks—a gap that future tools should address. Notoriously, even the 6% of patients with tertiary education exhibited adherence challenges, suggesting that cognitive decline and functional barriers may outweigh the protective influence of formal education in elderly populations. Thus, universal, low-literacy adherence tools—such as pictographic instructions or interactive family-led education—are necessary to bridge gaps across all education levels. Furthermore, the predominance of urban participants (73%) may underrepresent obstacles for access to adequate healthcare in rural settings (e.g., medication availability, transportation), warranting targeted studies in those contexts.

Lastly, all these findings accentuate the need for multidimensional adherence strategies. Simplified regimens, caregiver-supported reminders, and tools tailored to low-literacy elderly could mitigate cognitive and functional barriers. The high non-adherence rates across different studies also illustrate the need for systemic interventions, including family education and social support programs, to address socio-familial gaps. Future research should also standardize adherence metrics, for example, by combining the Morisky-Green and Batalla Tests. Finally, exploring cross-cultural variations in regards to functional dependency is also essential in order to effectively apply any interventions in these populations, as well as to facilitate reproducibility for future research.

Conclusions

Therapeutic adherence in elderly hypertensive patients represents a relevant challenge associated with direct consequences on cardiovascular outcomes and quality of life. This study, in line with prior evidence, confirms that cognitive decline, functional dependency, and limited social support—rather than demographic factors—are the primary drivers of non-adherence. Given the high prevalence of poor compliance and its proven link to increased morbidity, systematic adherence assessment should be a cornerstone of geriatric HTA management. Simplified treatment regimens, tailored patient education, and caregiver-supported strategies must be prioritized to mitigate risks. Ultimately, proactive adherence monitoring is not just beneficial but essential in order to prevent avoidable complications and to improve long-term health in this vulnerable population.

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