



# Antihypertensive drug adherence in adults attending the Suscal health center

*Adherencia farmacológica antihipertensiva en adultos que acuden al centro de salud Suscal*

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## Abstract

**A**rterial hypertension is a worldwide health problem because it is the number one risk factor for death. Objective: To determine antihypertensive drug adherence in adults attending the Suscal health center. Methodology: A quantitative, retrospective, cross-sectional study was conducted with a sample of 120 hypertensive patients. Results: 65% were female, 63% resided in rural areas, 54% had no education, 63% worked informally, 51% self-identified as indigenous, 50% spoke Spanish and Kichwa, 67% had a partner. In relation to the variables of antihypertensive treatment and compliance, 73% had HT as a baseline diagnosis, 71% had monotherapy, 54% had less than 5 years of diagnosis and treatment, 75% adhered to antihypertensive pharmacological treatment. Antihypertensive drug adherence according to the time of treatment was associated with the variables female sex, rural residence, indigenous ethnicity, Kichwa language, no schooling, occupation informal activity, marital status has a partner, adverse effects at the neurological level, comorbidities do not have another disease. The association of both clinical and sociodemographic variables corresponds to patients receiving treatment for less than 5 years. Conclusion: Pharmacological nonadherence could eventually accelerate the development of complications related to hypertension.

**Keywords:** Arterial hypertension, pharmacological adherence, associated factors.

## Resumen

**L**a hipertensión arterial es un problema de salud a nivel mundial por ser el factor de riesgo número uno de muerte. Objetivo: Determinar la adherencia farmacológica antihipertensiva en adultos que acuden al centro de salud de Suscal. Metodología: Se realizó un estudio cuantitativo, retrospectivo de corte transversal, con una muestra de 120 hipertensos. Resultados: El 65% fue de sexo femenino, el 63% residen en la zona rural, el 54% no tuvieron estudios, el 63% de ocupación trabajo informal, el 51% se auto-identificaron como indígena, el 50% hablan castellano y kichwa, el 67% tienen pareja. En relación a las variables de tratamiento y cumplimiento antihipertensivo se encontró que el 73% tenía la HTA como diagnóstico de base, el 71% tenían monoterapia, el 54% tenían menos de 5 años el diagnóstico y tratamiento, el 75% si se adhieren al tratamiento farmacológico antihipertensivo. La adherencia farmacológica antihipertensiva según el tiempo de tratamiento se asoció con las variables sexo femenino, residencia rural, etnia indígena, idioma kichwa, sin instrucción escolar, ocupación actividad informal, estado civil tienen pareja, efectos adversos a nivel neurológico, comorbilidades no presentan otra enfermedad. La asociación de las variables tanto clínicas como sociodemográficas corresponden a los pacientes que reciben el tratamiento por menos de 5 años. Conclusión: La no adherencia farmacológica podrían eventualmente acelerar el desarrollo de complicaciones relacionadas con la hipertensión.

**Palabras clave:** Hipertensión arterial, Adherencia farmacológica, factores asociados.

**U**ncontrolled arterial hypertension (AHT) affects target organs and is considered a current public health problem<sup>1</sup>. Therefore, the Clinical Practice Guidelines on Arterial Hypertension of the (MSP)<sup>2</sup>, mentions the factors that prevent its compliance such as: low schooling<sup>2-5</sup>, obesity<sup>2-5</sup>, advanced age<sup>2-5</sup>, ethnicity<sup>2-5</sup>, sex<sup>2-5</sup>, among others.

But the World Health Organization (WHO) shows that 25% of the population adheres to antihypertensive treatment, but the remaining 75% does not comply, resulting in an economic burden for several countries<sup>3</sup>. From a social<sup>6,7</sup>, economic<sup>6,7</sup> and health<sup>6,7</sup> point of view.

Over time, the health network has determined that antihypertensive non-adherence is a major and growing worldwide problem<sup>8</sup>. According to a study, uncontrolled arterial hypertension is responsible for 7.5 million deaths per year, which points to the need to create strategies for effective compliance<sup>9</sup>.

For this reason, the WHO recommends identifying these problems and creating awareness based on strategies to maintain adequate health in patients<sup>10</sup>. In such a way that responsible follow-up and compliance with antihypertensive treatment reduces complications<sup>11</sup>. In spite of the little information on the subject under study in our environment, this research contributes to clarify the situation of hypertensive patients in relation to therapeutic adherence and the factors that define it<sup>12,13</sup>.

For this reason, the following question was posed for this study: Is antihypertensive drug adherence associated with age, sex, marital status, socioeconomic level, ethnicity, and language?

Some studies have shown that lifestyles<sup>14-17</sup>, insufficient information on the disease and treatment<sup>14-17</sup>, economic situation<sup>14-17</sup>, and bad habits<sup>14-17</sup> are factors involved in adherence to antihypertensive treatment. However, different models describe that motivation, behavior and information are important for identifying health risks and optimizing doctor-patient interpersonal relationships that contribute to pharmacological adherence<sup>10</sup>.

Therefore, the general objective of this study was to determine antihypertensive drug adherence in adults attending the Suscal health center.

Based on the general objective, the following specific objectives were proposed: To characterize the sociodemographic and clinical variables of the study population. To analyze whether the sociodemographic and clinical variables are associated with adherence to antihypertensive treatment. y To verify whether there are differences in antihypertensive drug adherence in adults according to age, sex, marital status, and residence.

### Type of research

For the development of this research, a quantitative, retrospective, cross-sectional study was carried out.

### Population

The following study included a population comprised of all hypertensive individuals (N=145), who are treated at the Type A Suscal Health Center in the province of Cañar.

### Sample

The present investigation was carried out on adults with a diagnosis of arterial hypertension who are treated at the Suscal type A health center in the province of Cañar. For the universe, the error (5%) that we made in the estimation of the sample size was calculated using the Sierra Bravo formula of 1988, starting from a confidence level of 99%. The sample consisted of 120 hypertensive patients attending the Suscal health center. The inclusion criteria were: persons diagnosed with arterial hypertension and attending the Suscal Health Center. Hypertensive patients between 36 and 90 years of age. While the exclusion criteria were: persons not receiving antihypertensive treatment at the health unit.

### Instruments

To obtain this information, a data collection matrix will be used as an instrument to collect variables related to pharmacological adherence such as: age (36-90 years), gender (male and female), level of schooling (no education, first level, second level, third level and fourth level), marital status (single, free union, married, divorced and widowed), occupation (housework, agriculture, merchant, carpentry, mason, other), language (Spanish or Kichwa), ethnicity (indigenous, mestizo, white, Afro-American), residence (urban and rural), drug adherence (compliant - noncompliant), drug treatment (losartan, enalapril, amlodipine, atenolol), side effects (cough, headache, gastritis). Through the review of compliance cards, which will be corroborated with the review of family records and clinical histories.

### Procedure

For the development of this research, we proceeded to request approval from the director of the 03D02 district unit, with which we could proceed to store information from the clinical history of each patient with a diagnosis of arterial hypertension that was within the study sample. A table was then used to collect sociodemographic and clinical characteristics such as: age, gender, marital status, educational level, residence, ethnicity, other diagnoses and compliance with pharmacological treatment.

### Statistical analysis

Statistical analysis was performed using absolute and relative frequencies. Subsequently, a bivariate analysis was performed using the Chi-square test (x<sup>2</sup>) between sociodemographic variables, clinical variables, antihypertensive treatment, and treatment time.

### Ethical Considerations

Nowadays, the role of the nurse in programs aimed at intervention and disease prevention for the individual, fam-

ily and community is of significant importance in order to promote self-care for the health and well-being of the population.

In order to carry out this research work, a request was made to the director of District 03D02. The present study aimed to determine compliance with antihypertensive drug treatment in adults attending the Suscal Health Center. By reviewing the clinical history of the patients under study.

The information collected will be kept confidential and will be for the exclusive use of the research, which is based on the ethical principles of Autonomy, Beneficence, Non-maleficence and Justice.

The confidentiality of the information obtained was guaranteed, and the processing and interpretation of the data was handled only by the researcher and the advisor.

Once the study was completed, it was published as a scientific article in a journal of interest. This research was advised from the beginning to the end by a professor of the master's program of the Catholic University of Cuenca with ample knowledge about research.

## Results

From the review of the clinical history of 120 patients with a diagnosis of hypertension, the following characteristics were obtained: 78 (65%) were female, 76 (63%) lived in rural areas, 65 (54%) had no education, 76 (63%) were engaged in informal work, 61 (51%) were of indigenous ethnicity, 60 (50%) spoke Spanish and Kichwa, and 80 (67%) had a partner.

In relation to the variables of antihypertensive treatment and compliance we found: 87 (73%) do not have another disease in addition to their baseline diagnosis, 85 (71%) hypertensives take only one medication every day mainly angiotensin II receptor antagonists and ACE inhibitors commonly known as losartan and enalapril, 64 (54%) patients who are diagnosed and treated for hypertension less than 5 years, 90 (75%) if they adhere to antihypertensive drug treatment and 42 (35%) most frequently present digestive disturbances including gastritis, diarrhea or constipation.

**Table 1. Sociodemographic characteristics, treatment variables and antihypertensive compliance.**

		f	%
Sex	Female	78	65
	Male	42	35
Residence	Rural	76	63
	Urban	44	37
Instruction	With studies	55	46
	Without studies	65	54
Occupation	Formal employment	44	37
	Informal employment	76	63
Ethnicity	Indigenous	61	51
	Mestiza	59	49
Language	Spanish	60	50
	kichwa	60	50
Marital status	With a partner	80	67
	Without a partner	40	33
Comorbidities	Cardiorespiratory diseases	12	10
	Metabolic diseases	21	18
	Without comorbidity	87	73
Antihypertensive treatment	1 drug	85	71
	2 or more drugs	35	29
Time on treatment	0 to 5 years	64	53
	5 to 10 years	48	40
	10 or more years	8	7
Compliance	No	30	25
	Yes	90	75
Adverse effects	Digestive Effects	42	35
	Neurological Effects	44	37
	No Effects	34	28
Total		120	100

Prepared by the authors

**Table 2. Analysis of antihypertensive treatment in relation to sociodemographic variables.**

Antihypertensive treatment		1 drug f(%)	2 or more drugs f(%)	X <sup>2</sup> square	p
Sex	Female	52 (43,3)	26 (21,6)	8,67	0,0032
	Male	33 (27,5)	9 (7,5)	13,71	0,0002
Residence	Rural	57 (47,5)	19 (15,8)	19,00	0,0001
	Urban	28 (23,3)	16 (13,3)	3,27	0,0704
Ethnicity	Indigenous	46 (38,3)	15 (12,5)	15,75	0,0001
	Mestiza	39 (32,5)	20 (16,6)	6,12	0,0134
Language	Spanish	40 (33,3)	20 (16,6)	6,67	0,0098
	Kichwa	45 (37,5)	15 (12,5)	15,00	0,0001
Instruction	With studies	39 (32,5)	15 (12,5)	10,67	0,0011
	Without studies	46 (38,3)	29 (24,1)	10,24	0,0014
Occupation	Formal employment	31 (25,8)	13 (10,8)	7,36	0,0067
	Informal employment	54 (45)	22 (18,3)	13,47	0,0002
Marital status	With a partner	60 (50)	20 (16,6)	20,00	0,0001
	Without a partner	25 (20,8)	15 (12,5)	2,50	0,0138
Adverse effects	Digestive Effects	28 (23,3)	14 (11,6)	4,67	0,0308
	Neurological Effects	32 (26,6)	12 (10)	9,09	0,0026
	No Effects	25 (20,8)	9 (7,5)	7,53	0,0061
Comorbidities	Cardiorespiratory diseases	0 (0)	12 (10)	0,00	0,0000
	Metabolic diseases	0 (0)	21 (17,5)	0,00	0,0000
	Without comorbidity	44 (36,6)	43 (35,8)	79,18	0,0001

Prepared by the authors

Antihypertensive treatment was associated with sex ( $p < .05$ ), the highest percentage was 43.3% ( $n=52$ ) corresponding to the female sex, residence ( $p < .05$ ), the highest percentage was 47.5% ( $n=57$ ) corresponding to people living in the rural area of the canton, ethnicity ( $p < .05$ ), the highest percentage was 38.3% ( $n=46$ ), belonging to users who consider themselves indigenous, language ( $p < .05$ ), the highest percentage was 37.5% ( $n=45$ ) corresponding to people who speak Kichwa, education ( $p < .05$ ), the highest percentage was 38.3% ( $n=46$ ) corresponding to those with no education, occupation ( $p < .05$ ), the highest percentage was 45% ( $n=45$ ) corresponding to people who are engaged in informal activities such as cattle raising, agriculture, among others, marital status ( $p < .05$ ), the highest percentage was 50% ( $n=60$ ) corresponding to those who have a partner, adverse effects ( $p < .05$ ), the highest percentage was 26.6% ( $n=32$ ) corresponding to those who present neurological side effects such as headache and insomnia, and comorbidity ( $p < .05$ ), the highest percentage was 36.6% ( $n=44$ ) corresponding to patients who do not present diseases associated with the current one. Each of these sociodemographic and clinical variables pertained to patients consuming a drug as antihypertensive treatment.

Time on antihypertensive treatment was associated with sex ( $p < .05$ ), the highest percentage was 33.3% ( $n=40$ ), corresponding to the female sex, residence ( $p < .05$ ), the highest percentage was 40.8% ( $n=49$ ) rural, ethnicity ( $p < .05$ ), the highest percentage was 30% ( $n=36$ )

indigenous, language ( $p < .05$ ), the highest percentage was 29.1% ( $n=35$ ), corresponding to those who speak Kichwa, education ( $p < .05$ ), the highest percentage was 29.1% ( $n=35$ ) corresponding to those with no education, occupation ( $p < .05$ ), the highest percentage was 32.5% ( $n=39$ ), corresponding to those who are engaged in informal activities, marital status ( $p < .05$ ), the highest percentage was 41.6% ( $n=50$ ), corresponding to those who have a partner, adverse effects ( $p < .05$ ), the highest percentage was 20% ( $n=24$ ) corresponding to neurological side effects, comorbidities ( $p < .05$ ), the highest percentage was 42.5% ( $n=51$ ), corresponding to those who do not have another disease. The association of both clinical and sociodemographic variables corresponds to patients receiving treatment for less than 5 years.

Therefore, the general objective was to determine antihypertensive drug adherence in adults attending the Suscal health center.

Based on the general objective, the following specific objectives were proposed: To characterize the sociodemographic and clinical variables of the study population. To analyze whether antihypertensive treatment is related to sex, residence, ethnicity, language, education, occupation, marital status, adverse effects, and comorbidity. y to analyze whether the duration of antihypertensive treatment is related to sex, residence, ethnicity, language, education, occupation, marital status, adverse effects, and comorbidity.

**Table 3. Sociodemographic variables in relation to time on antihypertensive treatment.**

Antihypertensive treatment time		0 to 5 years f(%)	5 to 10 years f (%)	10 or more years f(%)	X <sup>2</sup> square	P
Sex	Female	40 (33,3)	32 (26,6)	6 (5)	24,31	0,0001
	Male	24 (20)	16 (13,3)	2 (1,6)	17,71	0,0001
Residence	Rural	49 (40,8)	23 (19,1)	4 (3,3)	40,29	0,0001
	Urban	15 (12,5)	25 (20,8)	4 (3,3)	15,05	0,0005
Ethnicity	Indigenous	36 (30)	19 (15,8)	6 (5)	22,26	0,0001
	Mestiza	28 (23,3)	29 (24,1)	2 (1,6)	23,86	0,0001
Language	Spanish	29 (24,1)	29 (24,1)	2 (1,6)	24,30	0,0001
	Kichwa	35 (29,1)	19 (15,8)	6 (5)	21,10	0,0001
Instruction	With studies	29 (24,1)	24 (20)	1 (0,8)	24,78	0,0001
	Without studies	35 (29,1)	24 (20)	7 (5,8)	18,09	0,0001
Occupation	Formal employment	25 (20,8)	18 (15)	1 (0,8)	20,77	0,0001
	Informal employment	39 (32,5)	30 (25)	7 (5,8)	21,50	0,0001
Marital status	With a partner	50 (41,6)	26 (21,6)	4 (3,3)	39,70	0,0001
	Without a partner	14 (11,6)	22 (18,3)	4 (3,3)	12,20	0,0022
Adverse effects	Digestive Effects	20 (16,6)	19 (15,8)	3 (2,5)	13,00	0,0015
	Neurological Effects	24 (20)	16 (13,3)	4 (3,3)	13,82	0,0010
	No Effects	20 (16,6)	13 (10,8)	1 (0,8)	16,29	0,0003
Comorbidities	Cardiorespiratory diseases	5 (4,1)	5 (4,1)	2 (1,6)	1,50	0,0324
	Metabolic diseases	8 (6,6)	12 (10)	1 (0,8)	8,86	0,0119
	Without comorbidity	51(42,5)	31(25,8)	5 (4,1)	36,69	0,0001



The data found in the study allow us to affirm according to the sociodemographic variables that of the 120 patients with a diagnosis of arterial hypertension 65% are female and 63% reside in the rural area, 54% have no education, 63% are engaged in informal work, 51% are of indigenous ethnicity, 50% speak Spanish and Kichwa, 67% have a partner, when compared with the study conducted by Rojas, et al 2018<sup>18</sup> in parallel it is observed that the female sex was the most prevalent, black ethnicity predominated, according to the habits it is observed that the associated factors were drinking alcoholic beverages, sedentary, obesity or overweight. On the other hand, Zubeldia, et al 2016<sup>19</sup> in their population-based study in 413 men and 415 women, the prevalence of hypertension of 38.2%, 40.7% male sex, the associated factors were overweight, obesity and suffering from diabetes mellitus. For their part Vega, et al 2018<sup>20</sup> determined that the prevalence rate of HT was 111.5 × 103. White ethnicity predominated, the age group between 45-59 years, with no sex differences. Risk factors were salt intake, coffee, sedentary lifestyle, and smoking and obesity.

In relation to the variables of antihypertensive treatment and compliance, it was found that 73% have AHT as a baseline diagnosis, 71% of hypertensive patients take only one medication among them losartan and enalapril, 54% of patients were diagnosed and receive treatment less than 5 years, 75% have adherence to pharmacological treatment, 35% present more frequently digestive alterations among them gastritis, diarrhea, or constipation. Similarly, Conte, et al 2016<sup>21</sup> mentions in their study of 1,200 people 91% suffer from some type of disease and take several medications, 40% did not comply with the ordered pharmacotherapy. Within this framework Pomares, et al 2016<sup>22</sup> describes in his study where the predominant age group was over 60 years old, female and with a higher level of schooling, the time of evolution of the disease was over 10 years. It should be noted that the population studied showed partial adherence to treatment.

From the position of Torres 2018<sup>23</sup> in his study conducted with the aim of determining the risk factors associated with non-adherence to pharmacological treatment in hypertensive patients, the results were the average age of 69.5 years; the most prevalent sex was female; married marital status, primary education and with more than 2 years of pharmacological treatment, pointing out as risk factors for non-adherence to antihypertensive pharmacological treatment the female sex and the deficit of knowledge about HTA. On the other hand, Jarquin, et al 2020<sup>24</sup> in their study where they assessed the relationship between factors and adherence to antihypertensive treatment. The results were: prevalent male sex, 41 to 45 years

of age, urban area origin, married, evangelical religion, high school academic level, security guard occupation. The factors influencing adherence to antihypertensive treatment were: occupation, sedentary lifestyle, feeling of well-being, forgetting to take the drug, and adverse drug reactions.

Compliance with antihypertensive treatment was associated with female sex, rural residence, indigenous ethnicity, Kichwa language, no education, occupation informal activity such as livestock farming, agriculture, among others, marital status, adverse effects at the neurological level such as headache and insomnia, and comorbidity patients who do not have diseases associated with the current one. Each of these sociodemographic and clinical variables pertain to patients consuming a drug as antihypertensive treatment. Similarly, Quintana, et al 2009<sup>25</sup> determined that 37.4% of hypertensive patients had pharmacological adherence and it was favorably related to age, sex, schooling, physical activity, living in company, adequate diet and regular attendance to consultations. On the other hand, Jiménez et al<sup>26</sup>, in their study, describe that 58.8% of hypertensive patients without adherence to pharmacological treatment were related to the following factors: incorrect follow-up, inadequate prescription and professionals with deficient knowledge.

Antihypertensive drug adherence according to the length of treatment was associated with the variables female sex, rural indigenous residence, Kichwa language, no education, occupation informal activity, marital status, partner, adverse effects at the neurological level, comorbidities, and no other disease. The association of both clinical and sociodemographic variables corresponds to patients receiving treatment for less than 5 years. Similarly Avila, et al 2019<sup>27</sup> determined in their study that being older than 60 years, female gender, married marital status or having a spouse, income level, unemployment, education level, number of medications, time of the disease, beliefs, attitudes and attributions about health, doctor-patient relationship, and the factor access to health services are directly related to adherence to treatment of HTN. Like Asto 2018<sup>28</sup> points out that low adherence to treatment is significantly associated with female sex, age over 65 years, incomplete primary education, single marital status, taking only one type of drug and treatment time of less than 5 years.

To summarize the above, adherence is important in the treatment of chronic diseases such as HT, whose control is increasingly close due to the relationship it has, not only on cardiovascular disease, but also on the patient's knowledge of the disease. The decrease in adherence to treatment should be a cause for concern, verification, and analysis.

**T**he adherence to treatment found was high with 75% who do adhere to antihypertensive pharmacological treatment, and the factors that were statistically associated with adherence to treatment were female sex, rural residence, indigenous ethnicity, Kichwa language, instruction have no studies, occupation informal activity such as livestock, agriculture, among others, marital status have partner, adverse effects at the neurological level as headache and insomnia and comorbidity patients who do not have diseases associated with the current.

The sociodemographic and economic characteristics of this research are similar to the profiles found at the national level and, as are the age range for the risk of complications international studies on chronic diseases, the prevalence of risks and the number of hospitalizations. The importance of pharmacological adherence in arterial hypertension should be strengthened, with activities that include frequently explaining and educating the patient about the importance of not suspending treatment, even if he/she does not see symptoms and signs of the pathology or feels well.

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#### Conflict of Interest

There are no personal, professional or other conflicts of interest.

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