

Quality of life and medication adherence in hypertensive patients

Qualidade de vida e adesão medicamentosa para pessoas hipertensas

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Keywords

Medication adherence; Hypertension; Blood pressure; Quality of life; Primary care nursing

Descritores

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Abstract

Objective: To analyze the correlation between medication adherence and quality of life for hypertensive people attended at Basic Health Units (UBS - Unidade Básica de Saúde).

Methods: Cross-sectional analytical study with a random and representative sample. The correlation between quality of life and medication adherence was evaluated by using the Minichal Brazil and the Morisky scale of medication adherence.

Results: The study included 720 people monitored in 13 Basic Health Units. The mean age was 62.5 years old. The Spearman's coefficient revealed an inverse ($Rho = -0.130$) and statistically significant ($p = 0.001$) correlation of low magnitude.

Conclusion: The inverse correlation means that greater adherence (higher scores of Morisky scale) equals better quality of life (lower scores of Brazil Minichal scale). The weak correlation between quality of life and medication adherence reinforces the idea that quality of life for hypertensive people is related to other factors, suggesting further research.

Resumo

Objetivo: Analisar a correlação entre adesão medicamentosa e qualidade de vida para pessoas hipertensas assistidas em Unidades Básicas de Saúde.

Métodos: Estudo transversal, analítico, com amostra aleatória e representativa. Avaliou-se a correlação entre qualidade de vida e adesão medicamentosa, utilizando-se o *Minichal* Brasil e a escala *Morisky* de adesão medicamentosa.

Resultados: Participaram do estudo 720 pessoas, acompanhadas em 13 Unidades Básicas de Saúde. A média de idade foi de 62,5 anos. O coeficiente de *Spearman* revelou uma correlação inversa ($Rho = -0,130$) e estatisticamente significante ($p=0,001$), de fraca magnitude.

Conclusão: A correlação inversa significa que maior adesão (maiores escores na escala *Morisky*) equivale a melhor qualidade de vida (menores escores da escala *Minichal* Brasil). A fraca correlação entre qualidade de vida e adesão medicamentosa reforça a ideia de que qualidade de vida para hipertensos está relacionada a outros fatores, sugerindo novas investigações.

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Conflicts of interest: no conflicts of interest to declare.

Introduction

High Blood Pressure (HBP) is a clinical multifactorial condition characterized by high and sustained levels of blood pressure. It is associated with metabolic changes and of the function and/or structure of vital organs, which reflects on increased risk of cardiovascular events and high mortality. The prevalence of this health problem has increased, and by the year 2025, there is a prospect of approximately 1.5 billion hypertensive individuals in the world.⁽³⁾ In Brazil, studies show prevalence of 20% to 30% in adults, reaching 75% in people aged over 70 years.^(4,5)

The long-term effects of hypertension are in part associated to its characteristics of chronic disease, often asymptomatic and therefore often unknown or neglected by patients themselves.^(1,3) Another point is the tendency of poor adherence to drug therapy among hypertensive patients, despite the wide therapeutic arsenal available and known to be effective for hypertension control.⁽⁶⁾ Several factors have been associated with non-adherence to medication by hypertensive patients. The difficulty with treatment adherence is linked to various reasons, namely those related to the availability and gratuity drugs, the way patients deal with the situation, how they were oriented, the difficulty in changing their lifestyle and daily routines, and how their families can influence and adapt to new changes.^(7,8)

Since HBP is a chronic condition with potentially serious outcomes, it has impacts on the quality of life of patients. Moreover, the undesirable effects of antihypertensive drugs may also interfere with the quality of life of patients and lead to a limited therapeutic adherence.⁽⁹⁾ In addition, effects of the disease itself on the quality of life can generate emotional impacts on people's lives, and make them give up the medication, see no reasons for medication intake, do not realize advances in treatment, think a lot about the limitations or do not realize improvement in their behavior. Therefore, it is easy to notice the complex interaction between quality of life in hypertensive patients and medication adherence, which should be better understood by health professionals.⁽¹⁰⁾ An adequate approach to

hypertensive patients should consider the characteristics of each individual and their blood pressure levels, and the implications of the disease and its treatment on the quality of life. These are the individuals' perceptions about the conditions in which they live within a context of multiple dimensions in relation to their goals and expectations.^(11,12)

The literature also has gaps in relation to medication adherence and quality of life for hypertensive individuals in Brazil. There are no studies evaluating this relationship in contexts of greater social vulnerability. Thus, the aim of this study was to analyze the correlation between medication adherence and quality of life in hypertensive patients assisted by the Unified Health System (SUS - Sistema Único de Saúde) in a city located in the northern region of the state of Minas Gerais.

Methods

This is a cross-sectional analytical study performed in a medium-sized city in the north of the state of Minas Gerais. The region has social and economic indicators that demonstrate significant vulnerability of the population.

Patients were selected through random sampling from the generation of random numbers by clusters with allocation from the Basic Health Units (UBS - Unidade Básica de Saúde) of the Family Health Strategy (ESF - Estratégia Saúde da Família), proportional to the number of registered hypertensive individuals. The records of hypertensive patients were obtained from the patients' medical records and registration forms of the Hiperdia Program. The total number of hypertensive patients for the study was defined based on a prevalence of 25%,⁽³⁻⁵⁾ an estimated population of 30,000 adults assisted by the FHS, a margin of error of 5%, and 95% confidence level. As this is a cluster sampling, the identified number was multiplied by the correction factor (deff) number 2, plus 20% for possible losses. Thus, the minimum number of people for the study defined by sample size calculation was 687 people.

People aged over 18 years, with diagnosis of high blood pressure, effectively registered and accompanied by health teams were considered eligible for the study. Bedridden and hospitalized subjects, or those considered by their family members as unable to answer the questionnaire for cognitive disability were excluded of the study.

Data collection was performed by a specially trained team of healthcare professionals (nurses and technicians) using previously validated instruments. Sociodemographic variables and evaluation of health conditions were identified, as well as specific instruments for assessing quality of life and medication adherence.

To evaluate the quality of life was used the specific validated tool for people living with hypertension named Minichal Brazil. This questionnaire has 17 items and two domains (Somatic Manifestations and Mental Status). The answers are distributed in a frequency Likert scale with four response options, from 0 (absolutely not) to 3 (yes, very much). On this scale, the closer to 0 is the result, the better the quality of life.⁽¹²⁻¹⁴⁾

For the assessment of medication adherence, was used the medication adherence scale of Morisky, Green and Levine, version adapted to the Brazilian culture. The scale contains four questions related to factors of non-adherence. It was developed for patients with HBP, and later indicated for use in the identification of non-adherence factors of any drug class. The four questions are related to forgetfulness, carelessness, interruption of drug use by noticing improvement, and discontinuation of therapy by the perception of worsening of clinical picture.⁽¹⁵⁾

The classification is defined as a high level of adherence when the answers to all questions are negative. The patient is classified in the medium adherence group when one or two answers are affirmative, and if three or four answers are affirmative, the classification is low adherence.⁽¹⁵⁾

Data collection occurred in the Basic Health Units where people were registered or in their households with use of equipment (scales, stadiometers and pressure measurement equipment) already validated in similar studies.

Data were analyzed using the Statistical Package for Social Sciences (SPSS®) version 18.0 (SPSS for Windows, Chicago, USA) for descriptive and analytical analysis. Data normality was tested by the Kolmogorov-Smirnov test. The Spearman correlation coefficient (Rho) was used to verify the relationship between medication adherence and quality of life. Correlation coefficients lower than 0.30 were considered of weak magnitude, between 0.30 and 0.50 of moderate magnitude, and over 0.50, strong magnitude. The significance level was set at 5% ($p < 0.05$).

All participants agreed with their participation in the study by signing or recording their digital signature on the informed consent (IC). The study was registered in Brazil under the Platform Presentation of Certificate number for Ethics Assessment (CAAE) 39640914.8.0000.5537.

Results

Information from 720 hypertensive people was collected, all of them monitored in 13 Basic Health Units. The average time since diagnosis of hypertension was 13 (± 9.9) years, according to data from medical records. The vast majority was currently using antihypertensive medication (94.4%).

The mean age of the group was 62.5 (± 13 years). Most were female (71.8%), declared themselves as being of mixed race (51.5%), and married or in a common-law marriage (55.0%). Regarding educational level, 53.4% of respondents reported up to four years of study. In relation to health conditions, 42.1% of respondents reported having high cholesterol; 31.7% reported diabetes as associated morbidity, and 27.3% reported a cardiac event. Table 1 shows the demographic, socioeconomic and health condition characteristics of the studied group.

The results of the evaluation of health-related QOL (quality of life) and medication adherence are shown in table 2. The group had an overall average of QOL of 12.35, with best score for the domain 'Somatic Manifestations'. Regarding medication adherence, about half of the group was characterized by medium or low adherence.

Table 1. Demographic, socioeconomic and health conditions profile of hypertensive individuals

Variables	n(%)
Mean age	62.5 (±13.13)
Sex	
Female	517(71.8)
Male	203(28.2)
Race	
Mixed	371(51.5)
Black	200(27.8)
White	142(19.7)
Asian/Indigenous	7(0.9)
Marital status	
Single	99(13.8)
Married or common-law marriage	396(55.0)
Divorced/separated	52(7.2)
Widowed	173(24.0)
Family income	
Less than 1 minimum wage	325(45.1)
1-3 minimum wages	354(49.2)
Over 4 minimum wages	36(5.0)
Did not answer	5(0.7)
Number of people living in the household	
Lives alone	76(10.6)
2-5 people	553(76.8)
Over 5 people	91(12.6)
Years of study	
None	91(12.8)
0-4 years	325(45.6)
5 years or more	297(41.6)
Self-reported morbidities	
Diabetes <i>mellitus</i>	228(31.7)
Heart problem	196(27.3)
High cholesterol	302(42.1)
Arthritis and/or rheumatism	197(27.4)
Osteoporosis	123(17.1)
BMI classification	
Low weight	11(1.5)
Eutrophic	164(23.1)
Overweight	284(39.9)
Obesity	252(35.4)
Self-perception of health status	
Very good/Good	311(43.4)
Regular	310(43.3)
Bad/Very bad	95(13.3)

In correlation analysis, there was an inverse correlation between the variables of medication adherence and quality of life, but the tests show the weak magnitude of this correlation, as demonstrated in table 3.

Table 3. Spearman's correlation coefficient (Rho) between quality of life (Minichal Brazil) and medication adherence in hypertensive individuals

Variable	Rho*	p-value
Mental Status	- 0.108	0.004
Somatic Manifestations	- 0.126	0.001
Self-perception of quality of life	- 0.120	0.001
Total Minichal	- 0.130	0.001

*Rho - Spearman's correlation coefficient

Discussion

The results of this study showed an inverse and statistically significant correlation between quality of life and medication adherence in people living with hypertension, although it was a weak magnitude correlation. The highest correlations were observed in the Somatic Manifestations domain and overall assessment of quality of life, according to the Minichal Brazil instrument. An inverse correlation means that higher adherence (higher scores in Morisky scale) equals better quality of life (lower scores of Minichal Brazil scale). The correlation magnitude depicts its mathematical nature, which is closer to zero, and therefore, considered low.

The literature shows a conflicting situation in the relationship between quality of life and medica-

Table 2. Domains of quality of life and classification of treatment adherence in hypertensive individuals

Quality of life (domains)	N	Mean	Standard deviation	Min	Max
Mental Status	712	6.56	±4.50	0	21
Somatic Manifestations	718	5.26	±3.64	0	18
Total Minichal	705	12.35	±7.54	0	41
Independent question: "Would you say that your hypertension and its treatment have been affecting the quality of life?"				n(%)	
Absolutely not				480(67.1)	
Yes, a little				95(13.3)	
Yes, quite a lot				132(18.5)	
Yes, very much				8(1.1)	
Classification of medication adherence				n(%)	
High adherence				373(51.9)	
Medium adherence				249(34.7)	
Low adherence				96(13.4)	

tion adherence among people living with hypertension. A cross-sectional study shows the existence of a relationship,⁽¹⁷⁾ but others report there is no such relationship.⁽¹⁸⁻²⁰⁾

For the correlation between quality of life and medication adherence, all identified studies used the WHOQOL questionnaire to assess the health-related quality of life. This instrument was developed by the World Health Organization Quality of Life Group.⁽¹⁷⁻²⁰⁾ For evaluation of medication adherence, in the studies by Holt et al. (2010)⁽¹⁷⁾ and by Coté, Farris, Feeny (2003),⁽¹⁸⁾ was used the Morisky scale, although to evaluate the association of quality of life they used the WHOQOL.

The other identified studies that evaluated the correlation between quality of life and medication adherence in hypertensive individuals^(19,20) used the Instrument for Evaluation of Treatment Adherence (DAI-10). This questionnaire has ten questions that evaluate behavioral aspects in relation to hypertension care, in addition to pressure control.⁽¹⁹⁾

In this regard, we have not identified studies using specific instruments for evaluation of quality of life and medication adherence for people living with hypertension with respect to analysis of the relationship between these variables, such as those used in the present study, which prevented the confrontation of our results with those of similar design studies. Although there is no gold standard for the evaluation of medication adherence and quality of life, it is advisable to use specific instruments.⁽²⁰⁾

Other studies evaluating the relationship between quality of life and medication adherence in people with chronic diseases have identified influencing factors such as patients' beliefs (self-efficacy), their attitudes and knowledge about the disease treatment (literacy or health literacy), and the health professionals' support for greater empowerment.⁽²¹⁻²³⁾ In this study, factors associated with greater adherence were not investigated, but it is possible that, in line with the literature, the support of health professionals is also an important aspect.

In a cross-sectional study performed in southeastern Louisiana, United States, with a population of hypertensive patients aged over 65 years,

was found an association between low quality of life and low adherence to antihypertensive medication, which were related to several reasons, including psychosocial well-being. However, according to the study findings, the exact mechanism of association between quality of life and medication adherence is part of a complex network of psychosocial characteristics that may negatively impact the patients' ability to manage their chronic disease, such as their personal beliefs, self-care, attitudes and knowledge about the disease, as well as the personal and social group expectations in relation to life.⁽¹⁷⁾

Note that the studied group comprised a sample representative of the elderly (mean age of 62.5 years), which meets the appreciation of quality of life in patients with chronic diseases, especially because of the increasing longevity of these individuals.⁽²⁴⁾

The adequate management of hypertensive patients should evaluate the characteristics of each individual, taking into account the blood pressure levels, and the implications of the disease and its treatment in their lives (and quality of life). These guidelines are based on the fact that just a small fraction of the hypertensive population has high blood pressure alone. The vast majority has additional risk factors such as dyslipidemia, smoking, diabetes, etc.⁽⁶⁾ The grouping of cardiovascular risk factors in hypertensive patients is very common, and 80% of them have one or more associated conditions. The combination of HBP with these factors results in a higher risk of developing cardiovascular disease than the sum of the individual factors.^(6,20)

Importantly, in addition to drug treatment, people living with hypertension should also adhere to a lifestyle with habits of weight control, diet with salt restriction, smoking cessation and physical activity practice.⁽²⁵⁾ Data from this study indicate the adoption of such habits by a large portion of the group, but many individuals have BMI (body mass index) above recommended.

The poor correlation between quality of life and medication adherence reinforces the idea of a relationship between quality of life and several factors not limited only to medication adherence.⁽²⁰⁾ Although other variables have not been ana-

lyzed in this study, the assessed population was restricted to the context of Basic Health Units in a region of low socioeconomic indicators, which highlights the study relevance and strengthens the role of FHS health professionals to ensure greater therapy adherence and better quality of life for the population assisted.

The present study shall be considered in light of some limitations. One of them is related to self-reported data, considering the social demand of being a role model imposed to the elderly population (most prevalent in the sample). The high proportion of people adherent to antihypertensive therapy may be the result of responses that do not reflect the reality of the facts. In this study, blood pressure levels were not measured nor was investigated the adherence to non-pharmacological measures to control hypertension, which could strengthen data of the adherence scale used.

Conclusion

The correlation between quality of life and medication adherence was inverse and statistically significant highlighting that greater adherence implies better quality of life, although such association was of weak magnitude. Further studies with approaches to the identification of factors associated with increased adherence are necessary, as they will assist health professionals in their activities of promoting health and better quality of life.

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Collaborations

Maciel APF participated in the project design, analysis and interpretation, article writing, critical review of the content and final approval of the version to be published. Pimenta HB and Caldeira AP participated in the project design, analysis, interpretation of results, critical review of the content and final approval.

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