Adherence to antihypertensive drugs evaluated by the Morisky-Green scale

Adesão ao uso dos anti-hipertensivos avaliada pela escala de Morisky-Green

Adherencia a fármacos antihipertensivos evaluada por la escala Morisky-Green

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RESUMO

Objetivo: Avaliar a adesão ao tratamento medicamentoso da hipertensão arterial sistêmica por meio da escala de Morisky-Green. **Método**: estudo descritivo com abordagem quantitativa envolvendo 103 pessoas com diagnóstico de hipertensão arterial acompanhados em um ambulatório de saúde. Os instrumentos de coleta de dados utilizados foram entrevistas semiestruturadas e questionário de Morisky e Green. A análise dos dados se deu pela estatística descritiva. **Resultados:** A amostra foi composta predominantemente de mulheres (85,4%), cor/raça preta (46,6%), faixa etária de 50-59 anos (68,9%), escolaridade com ensino médio incompleto e completo (45,6%), aposentados (35,9%), com renda de 1-2 salários mínimos (44,7%). Maior percentual tinha acesso à medicação de forma gratuita pelo Sistema único de Saúde (70,9%). Os resultados encontrados, por meio do teste do Teste de Morisky e Green, evidenciam que a maioria respondeu afirmativamente para o uso adequado da medicação. Entretanto somente 38,8% dos entrevistados foram classificados com alta adesão. **Conclusão:** Mesmo que as respostas para as oito questões tenham sido positiva para o uso do anti-hipertensivo conforme prescrito, a taxa de adesão ainda é insatisfatória.
Descritores: Hipertensão arterial; Adesão à medicação; Anti-hipertensivos; Tratamento farmacológico.

ABSTRACT

Objective: To evaluate adherence to drug treatment of systemic arterial hypertension using the Morisky-Green Scale. . **Method:** Descriptive study with a quantitative approach involving 103 people diagnosed with arterial hypertension followed up in a health clinic. The data collection instruments used were semi-structured interviews and Morisky-Green Scale. Data analysis was performed using descriptive statistics. **Results:** The sample was composed predominantly of women (85.4%), color / black race (46.6%), age group 50-59 years (68.9%), education with incomplete and complete high school (45.6%) %), retired (35.9%), and people with an income between 1-2 e Brazilian minimum wage (44.7%). A higher percentage had access to medication free of charge through the Public Health System (70.9%). The results found, through the test of the Morisky-Green Test show that the majority answered affirmatively for the proper use of the medication. However, only 38.8% of respondents were classified as having high adherence. **Conclusion:** Even if the answers to the eight questions were positive for the use of antihypertensive drugs as prescribed, the rate of adherence is still unsatisfactory.
Descriptors: Arterial Hypertension; Medication Adherence; Antihypertensive Agents; Drug Therapy.

RESUMEN

Objetivo: Evaluar la adhesión al tratamiento farmacológico de la hipertensión arterial sistémica mediante la escala de Morisky-Green. **Método:** estudio cuantitativo descriptivo con 103 personas con diagnóstico hipertensión arterial atendidas en una clínica de salud. Los instrumentos de recolección de datos utilizados fueron entrevistas semiestructuradas y un cuestionario de Morisky y Green. El análisis de los datos se realizó mediante estadística descriptiva. **Resultados:** La muestra consistió predominantemente por mujeres (85,4%), color/raza negra (46,6%), grupo de edad 50-59 años (68,9%), escolaridad secundaria básica incompleta y completa (45,6%), jubilados (35,9%), con un ingreso de 1 a 2 salarios mínimos (44,7%). Un mayor porcentaje de los participantes del estúdio tiene acceso a medicamentos de forma gratuita a través del Sistema Único de Salud (70,9%). Los resultados encontrados, a través de la scale de Morisky y Green muestran que la mayoría respondió afirmativamente por el uso adecuado de la medicación. Sin embargo, solo el 38,8% de los participantes fueron clasificados como de alta adhesión. **Conclusión:** Aunque las respuestas a las ocho preguntas fueron positivas para el uso de fármacos antihipertensivos según lo prescrito, la tasa de adherencia sigue siendo insatisfactoria.
Descriptores: Hipertensión Arterial; Cumplimiento de la Medicación; Antihipertensivos; Quimioterapia.

ORIGINAL

Introduction

Systemic arterial hypertension (SAH) is the most prevalent circulatory disease and represents a global public health problem and the most common modifiable risk factor for other cardiovascular diseases.[1] It is responsible for a high number of disabilities, hospitalizations, premature deaths, reduced life expectancy and impact on the economy of family members, communities and society in general.[2-3]

SAH is usually associated with metabolic risk factors for diseases of the cardiocirculatory and renal systems, such as dyslipidemia, abdominal obesity, glucose intolerance, and diabetes mellitus, further increasing the risks of morbidity and mortality.[2] Integrates health problems that disproportionately affect populations in low- and middle-income countries, where health systems are precarious.[1]

SAH affects more than 30% of the adult population worldwide, i.e. more than one billion people and it is estimated that one in eight deaths are caused by the disease.[1] In Brazil, about a quarter of the adult population living in Brazilian capitals reported having hypertension[4], and this frequency increases with age, causing a prevalence of 60 to 70% of the population over 70 years of age.[5]

The evidence that hypertension control substantially reduces the risk of cardiovascular outcomes is already consolidated.[2] This control fundamentally involves the correct use of drugs and changes in lifestyle, which is only done with the active participation of the person with the disease, adequate approach of health professionals, access to antihypertensive medication and correct performance of health programs.[2,6]

Although SAH represents the target of interventions in the health field, especially because of primary care and the existence of different effective drugs for its control, the lack of control of arterial hypertension stems mainly from non-treatment, undertreatment, difficulty in accessing the health system and the unavailability of medication in the primary health network.[7] Good adhering to the use of antihypertensive drugs has been related to improved blood pressure control, decreased complications caused by the disease and the overall efficiency of health systems.[8]

Adherence to the therapy of a disease consists in the conduct of a patient ahead of the recommendations of the multidisciplinary health team, not only regarding the use of drugs, but also regarding the acceptance of changes in their attitudes or changes in lifestyle to perform the treatment.[8] Regarding the pharmacological treatment, non-smoking consists of abandoning the use of medications, minor interruptions or irregular use of medicines.[8]

The analysis of drug support can be performed by methods classified as direct and indirect. Direct methods include direct observation of medication intake by the patient, detection of a biological marker included in the formulation of the drug, detection of a drug or its metabolite in the blood or urine, and, more recently, automatic electronic monitoring of drug intake.[9] Indirect methods, although less precise, have been more used in studies, and involve interviews with the patient, application of specific questionnaires, patient diary and pill count.[9]

One of the most used questionnaires that has been very beneficial to recognize individuals who adhere to drug treatment or not has been the Morisky-Green self-report scale, which was originally composed of four items for patients with hypertension and was expanded with four additional items that address the circumstances related to the behavior of the following.[10]

Due to this reality, it is considered relevant to conduct research that addresses the treatment of antihypertensive treatment in different scenarios in order to obtain specific information that can better clarify the factors that prevent the patient from adequately following the recommendations of health professionals. Based on the above, this study aims to evaluate the treatment of systemic arterial hypertension by means of the Morisky-Green scale.

Method

This is a descriptive study with a quantitative approach carried out in a health outpatient clinic of a private higher education institution that has multiprofessional care in a particular way, through insurance and the Unified Health System (SUS), located in the city of Salvador, Bahia, Brazil.

The study population consists of people diagnosed with hypertension. The selection was made by convenience sample, and the eligible people were invited to participate in the research when they attendthe health service on consultation days. People with a confirmed diagnosis of hypertension who were under follow-up at the locus health center of the study, using antihypertensive drugs and aged over eighteen years, were considered eligible. People who did not have cognitive conditions to answer the questionnaires due to psychiatric disorders and cognitive difficulties were excluded.

Data were collected through interviews and with the application of two specific questionnaires from December 2019 to March 2020. A questionnaire composed of questions about sociodemographic data (gender, age, marital status, education, income and skin color), clinical data and access to medication.

The second instrument was a scale of eight items with the objective of evaluating the factors of non-adherence to therapy. The first 7 questions require a dichotomic answer (Yes/No) and the last question uses a 5-point Likert scale11, translated into Portuguese and validated in Brazil.[10] The degree of adherence to MMAS-8 therapy is established according to the mean resulting from the sum of all correct answers. Aa score can range from zero to eight and be divided into three degrees of strength: high strength (= 8 points), average strength (6 to < 8 points) and low strength (< 6 points). Those who obtained a score equal to eight in the MMAS-8 are considered adherents.

Data analysis was performed through descriptive statistics with measures of central tendency and variability for quantitative variables and frequency measures for categorical variables. To store and process the data, the statistical program Statistical Package for Social Science (SPSS, version 18.0) was used.

The research complied with the principles of Resolution No. 466/12 that refers to aspects of research involving human beings. The project was submitted and approved by the Research Ethics Committee of the Bahian School of Medicine and Public Health with the opinion number: 3,612,116. Before the

beginning of data collection and all participants signed the Free and Informed Consent Form (TCLE).

Results

The study included 103 people with hypertension who used at least one antihypertensive drug. In the sociodemographic characterization, there was a predominance of females 88 (85.4%), age group 50-59 years 71 (68.9%), schooling with incomplete and complete high school 47 (45.6%), self-declared black race/color 4 8 (46.6%), retired 37 (35.9%), with income of 1-2 minimum wages 46 (44.7%), without a partner 55 (53.4) and living with family members 86 (83.5%) (Table 1).

Table 1- Sociodemographic characteristics of people with hypertension (n= 103). Bahia, 2020.

Characteristics	n	%
Sex		
Male	15	14,6
Female	88	85,4
Age Range		
30-49	13	12,6
50-69	71	68,9
≥70	19	18,4
Education		
Up to complete elementary school	46	44,7
Incomplete and complete high school	47	45,6
Incomplete and complete higher education	10	9,7
Self-declared race/color		
White	11	10,7
Black	48	46,6
Brown	40	38,8
Indigenous	4	3,9
Work Status (n=100)		
Worker with bond	13	12,6
Self-employed worker	25	24,3
Retired	37	35,9
Unemployed	5	4,9
From home	20	19,4
Income (Minimum wage)		
< 1 Minimum wage	14	13,6
1-2 Minimum wage	46	44,7
> 2 Minimum wage	17	16,5
Marital Status		
With partner	47	45,6
No partner	55	53,4
With whom you live		
Family	86	83,5
Another unfamiliar	3	2,9
Alone	14	13,6

Table 2 shows data on treatment and access to antihypertensive medication. It is observed that the highest percentage has been treated with a time greater than or equal for 10 years 56 (54.4%), with regular medical follow-up 92 (89.3%) and half use 2 to 3 antihypertensive drugs 52 (50.5%). Regarding access to medication 73 (70.9%) obtain free of charge by the SUS, and 89 (86.4%) respondents have full access.

Table 2- Distribution of people with hypertension according to variables related to treatment and access to antihypertensive drugs (n=103). Bahia, 2020.

Variables	n	%
Hypertension treatment time		
<10 years	47	45,6
≥10 years	56	54,4
Regular medical follow-up		
Yes	92	89,3
No	11	10,7
Number of antihypertensives daily use		
1	37	35,9
2-3	52	50,5
Access to free medication		
Yes	73	70,9
No	30	29,1
Type of access to free medication		
Full access	89	86,4
Partial access	14	13,6

Table 3 presents the answers of the interviewees obtained through the Morisky-Green Test regarding the use of some antihypertensive medication. There is a predominance of the "no" answer for the following questions: "sometimes you forget to take the medicine" (63.1%); "there was some day when he did not take his medicines" (70.9%); "has stopped taking or decreased the dose without warning the doctor" (77.7%); "when he travels or leaves, he forgets to take his medications" (86.4%); "when you feel bp controlled, sometimes you stop taking the medicine" (92,2); "has been bothered to properly follow his treatment" (77.7%). Regarding the question "took the drugs yesterday" the highest percentage was for the answer yes (90.3%). Regarding the question "how often do you have difficulty remembering to take all bp medications" presented higher frequency of the answer "never" (55.3%).

Table 3- Frequency of responses to the Morisky and Green Test regarding the use of some antihypertensive medication. Bahia, 2020.

Variables	n	%
Sometimes you forget to take the medicine		
Yes	38	36,9
No	65	63,1
There was a day when you didn't take your meds		
Yes	30	29,1
No	73	70,9
You have stopped taking or decreased the dose without notifying your doctor		
Yes	23	22,3
No	80	77,7

When you travel or leave, you forget to take your medicines		
Yes	14	13,6
No	89	86,4
You took your meds yesterday		
Yes	93	90,3
No	10	9,7
When you feel bp controlled, sometimes you stop taking the medicine		
Yes	8	7,8
No	95	92,2
Have you ever felt uncomfortable following your treatment properly		
Yes	23	22,3
No	80	77,7
How often do you have difficulty remembering to take all the remedies for BP		
Never	57	55,3
Almost never	17	16,5
Sometimes	25	24,3
Frequently	2	1,9
Always	2	1,9

Figure 1 represents the classification of the following the mmas-8 test score, the highest frequency (38.8%) is of people considered with medium-rated (score with score between 6 and 7).

Figure 1- Distribution of adherence of the research participants according to the morisky 8-item therapeutic adherence scale (MMAS-8)(n=103). Bahia, 2020.
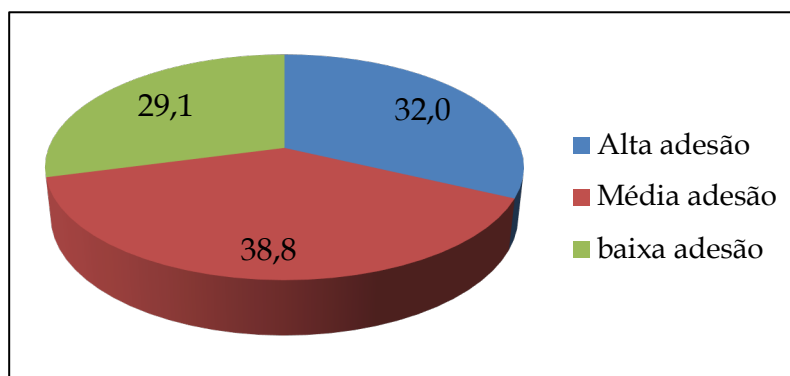
Discussion

In this study on the treatment of antihypertensive drugs, it was found that it was a sample of predominantly female people, aged between 50 and 59 years, low schooling, self-declared black race/color (black and brown) and with low purchasing power. Therefore, it is a sociodemographic profile that generally represents the population that attends an outpatient clinic that serves the Unified Health System. Regarding gender, Vigitel (2019) identified a higher prevalence of hypertension among women (27.3%) than among men (21.1%).[12] Women with both NCDs and without these diseases, compared to men, use health services more, either for medical consultation or performing habitual activities for health reasons.[4]

The higher frequency of participants aged 50 to 59 years can be explained by the fact that SAH increases with age, due to the progressive hardening of the arterial vasculature.[3] A similar profile is found in studies with people with hypertension under outpatient follow-up.[13-14]

Regarding schooling, the fact that the sample is composed more of people with low schooling, data from the Vigitel Telephone Survey of 2019, already indicate that hypertension is more frequent in the stratum of lower schooling, progressively decreasing in subsequent strata. Most participants have low income, corroborating literature that states that low-income people are more likely to develop hypertension.[5] The data related to the profile of the participants found in this study deserve to be highlighted, considering that the use of medication may be influenced by purchasing power and schooling. Research findings highlight the influence of socioeconomic characteristics on the treatment of SAH.[15] For these authors, low schooling and income, as well as difficulties in reading the packaging of medications can interfere negatively in the process of medication. Higher frequency of non-adhering distributed unequally among socioeconomic strata, being higher in people among individuals with worse socioeconomic status, is already a condition revealed by the literature.[16]

The condition of the majority of participants living with family members can be a positive data for medication adherence, considering that family members can be considered an important pillar in support in the process of illness and therapy, especially if family members are involved in care among them.

In the present study, a higher proportion of access to free medicines by participants is also found in a study conducted in 2016 that investigated the access and use of medicines for hypertension in the Brazilian population[17], which indicates that 56.0% of antihypertensive drugs are obtained in sus health units, 16.0% in the Popular Pharmacy Program (own network or accredited network) and only 2.3% in other places. It is important to highlight that although the vast majority of antihypertensive drugs are available free of charge by the SUS[17], there are significant differences between regions, socioeconomic levels and health conditions, especially in the Northeast region, where this access is lower.[18] This issue may impact on the continuous use of antihypertensive drugs, especially among the most economically vulnerable layer, considering that non-access to medications may represent the first barrier to pharmacological treatment.

Regarding the use of antihypertensive drugs, the responses of the MMAS-8 scale, the findings in percentage terms of this study were similar to those found in a study conducted with 100 people with hypertension under follow-up in a cardiology outpatient clinic of a university hospital.[19] This study also verified the predominance of the "no" answer for the following questions: "sometimes you forget to take the medicine" (68%); "in the last two weeks, there was some day when he did not take his medicines" (80%); "has stopped taking or decreased the dose without notifying the doctor" (83%); "when he travels or leaves home, he sometimes forgets to take his medications" (86%); "when you feel bp controlled, sometimes you stop taking the medicine" (97%); "has been bothered to properly follow his treatment" (77%). About the question "took the drugs for high blood pressure yesterday" the highest percentage was for the

answer "yes" (97%). Regarding the question "how often do you have difficulties to remember to take all your bp remedies", a greater mastery of the answer "never" was observed (69%).[19]

Considering that the high frequency of people who reported not forgetting to take, as well as taking every day, deserves to be highlighted, because forgetfulness is one of the main barriers to membership, especially if the person makes use of several drugs or complex therapeutic regimens with several associated drugs.[9] Another point no less important is the large proportion of interviewees who reported not failing to take or decrease the dose without notifying the doctor. Despite these positive aspects related to the use of medication, it cannot be considered that there are still people who still have failures in the use of antihypertensive drugs, and there may be uncontrolled blood pressure and vulnerability complications.

Also, with regard to the use of medication, it is important to highlight the high frequency of interviewees who do not interrupt use when they feel that controlled blood pressure, because the absence of symptoms and the feeling of well-being, may represent a justification for the patient to use the medication.

Previous studies involving the Morisky Drug Adhering Scale with 8 items (MMAS-8) highlight the high-adherence preponderance (44%) and low number of products (45.5%)20-21, respectively. Therefore, a study that applied the 4-item version of the Morisky-Green Scale (MMAS-4) in a sample of patients admitted to the Emergency Service, with a personal history of SAH, found a prevalence of moderate treatment treatment of 56%22, being in agreement with the present study, which also found the predominance of people with medium-to-adhere to antihypertensive drug therapy.

Although there is no robust evidence of the effectiveness of interventions to improve the treatment, educational activities and advice on the risks and consequences of the correct non-use of medications and consequently uncontrolled blood pressure, using simple language and visual resources, they can be of value. Given the complexity that involves the theme of the following, it is recommended, preferably, that people with hypertension be accompanied by a multidisciplinary team and that their families actively participate in the entire therapeutic process, which can increase the rates of treatment and the chances of success with the treatment.

The results of this study should be interpreted, considering limitations such as, relatively small sample population and non-probabilistic selection, which may have created some bias in the results. Another limitation concerns the answers being self-reported by individuals, and inaccuracy in the information may occur.

Conclusion

Data analysis allowed profiling people with hypertension who use antihypertensive patients at the locus outpatient clinic of the study, showing that they treat people with a predominance of females, aged between 50 and 59 years, low schooling and low purchasing power. Regarding access to medication, it was verified that the highest percentage had free access to the pharmacy network skin in the SUS units or network approved by the Popular Pharmacy Program of Brazil.

The results found, through the Morisky and Green Test, suggest that even though the frequency of answers to the eight questions was positive for the use of antihypertensive as prescribed, the rate of adhereto is still unsatisfactory.

Improving medication support for people with hypertension is still a challenge for health professionals, so more studies on the subject may contribute to a better understanding of the problem and implementation of more assertive strategies.

Aknowledge

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