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Emotional regulation, disease perception and treatment adherence in Brazilians with arterial hypertension: a cross-sectional study

Regulação emocional, percepção da doença e adesão ao tratamento de brasileiros com hipertensão: estudo transversal

Regulación emocional, percepción de enfermedad y adherencia al tratamiento en brasileños con hipertensión arterial: estudio transversal

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ABSTRACT

Objective: To describe the emotional regulation, disease perception, and treatment adherence of Brazilians diagnosed with arterial hypertension. **Method:** A cross-sectional study. The collection occurred with 30 participants, through an electronic questionnaire, disseminated on social networks, with the Brazilian version of the Difficulties in Emotion Regulation Scale, the Brazilian version of the Questionnaire of Perception of Disease Brief Version, and the Questionnaire of Adherence to Treatment of Systemic Arterial Hypertension. Descriptive analyses were performed using IBM SPSS Statistics version 25 software. **Results:** The mean sum of the emotional regulation instrument was 81.4 ± 20.9. On the disease perception instrument, the dimension of treatment efficacy had the lowest mean (1.2 ± 1.9) and the instrument of adherence to antihypertensive treatment had a mean of 92.9 ± 6.9. **Conclusion:** Participants showed greater difficulty in concentrating and performing tasks when experiencing negative emotions, perceived the treatment with little relevance to the threat of the disease, and stopped taking medication at the established times, at least once a month.

Descriptors: Hypertension. Emotions. Patient Compliance.

RESUMO

Objetivo: Descrever a regulação emocional, a percepção da doença e a adesão ao tratamento de brasileiros diagnosticados com hipertensão arterial. **Método:** Estudo transversal. A coleta ocorreu com 30 participantes, através de um questionário eletrônico, divulgado em redes sociais, com a versão brasileira do *Difficulties in Emotion Regulation Scale*, versão brasileira do Questionário de Percepção de Doenças Versão Breve e Questionário de Adesão ao Tratamento da Hipertensão Arterial Sistêmica. Foram realizadas análises descritivas por meio do software IBM SPSS Statistics versão 25. **Resultados:** A média do somatório do instrumento de regulação emocional foi 81,4 ± 20,9. Sobre o instrumento de percepção da doença, a dimensão da eficácia do tratamento teve menor média (1,2 ± 1,9) e o instrumento de adesão ao tratamento anti-hipertensivo teve a média de 92,9 ± 6,9. **Conclusão:** Os participantes demonstraram ter maior dificuldade em se concentrar e realizar tarefas ao experimentar emoções negativas, percebem o tratamento com pouca relevância para a ameaça da doença e deixam de tomar a medicação, nos horários estabelecidos, ao menos uma vez por mês.

Descritores: Hipertensão. Emoções. Cooperação do Paciente.

RESUMÉN

Objetivo: Describir la regulación emocional, la percepción de la enfermedad y la adherencia al tratamiento de brasileños diagnosticados con hipertensión arterial. **Métodos:** Estudio transversal. La recolección se realizó con 30 participantes, a través de un cuestionario electrónico publicado en las redes sociales, con la versión brasileña del Difficulties in Emotion Regulation Scale, la versión brasileña del *Illness Perception Questionnaire Brief Version* y el *Questionário de Adesão ao Tratamento da Hipertensão Arterial Sistêmica*. Los análisis descriptivos se realizaron utilizando el *software IBM SPSS Statistics* versión 25. **Resultados:** La suma media del instrumento de regulación emocional fue de 81,4 ± 20,9. En cuanto al instrumento de percepción de la enfermedad, la dimensión eficacia del tratamiento tuvo un promedio más bajo (1,2 ± 1,9) y el instrumento adherencia al tratamiento antihipertensivo tuvo un promedio de 92,9 ± 6,9. **Conclusión:** Los participantes mostraron mayor dificultad para concentrarse y realizar tareas cuando experimentan emociones negativas, perciben que el tratamiento tiene poca relevancia ante la amenaza de la enfermedad y no toman la medicación, en los horarios establecidos, al menos una vez al mes.

Descriptores: Hipertensión. Emociones. Cooperación del Paciente.

INTRODUCTION

Arterial hypertension (AH) is a chronic multifactorial condition influenced by complex genetic, psychosocial, and environmental interactions. Considering the blood pressure measurements and use of antihypertensive medication, the percentage of adults with blood pressure greater than or equal to 140 by 90 mmHg, represents 32.3% in Brazil.[1] The disease continues to be undertreated, underdimensioned, and poorly controlled. In Brazil, Primary Health Care (PHC) is responsible for assessing blood pressure levels and encouraging adherence to treatment, including pharmacological and non-pharmacological therapies.[2]

There are multiple factors, not yet completely elucidated by the scientific literature, that can influence treatment adherence in people diagnosed with a chronic disease. In the case of AH, there are elements that the literature points to as determinants for behavior to follow treatment recommendations. In Nursing, the most cited publication on the dimensions of adherence to antihypertensive treatment is a conceptual analysis, which addresses three dimensions as antecedents: aspects related to the patient, to the therapeutic regimen, and to the health system. [3] These three groups of antecedent factors, acting in an interrelated manner, may determine different degrees of compliance: those related to the patient himself, such as the sociodemographic variables, knowledge and beliefs that patients have about the disease and treatment, and family support; those related to the pharmacologic and nonpharmacologic treatment; and factors related to the health system, such as the structure of health services and the process of care for the patient with AH.[3]

The starting point for this research was the need to obtain answers about some aspects, such as emotional regulation and perception of the disease. The intention is to identify and understand if these aspects influence, in any way, the adherence to antihypertensive treatment. Thus, the guiding question for this research is: what is the emotional regulation, perception of health, and adherence to treatment of persons with AH?. For purposes of understanding the object, definitions of the three elements that compose it are presented: adherence to treatment consists in following that which was proposed by health professionals;[4] emotional regulation refers to a dynamic process, intrinsically linked to conscious efforts in controlling behavior, feelings, and emotions so that some objective may be attained;[5] perception of the disease is how individuals understand diverse aspects related to health and disease, taking into consideration their individual and collective experiences.[6]

The relevance of this research is the possibility of bringing results that allow an understanding, in some way, of aspects that may influence adherence to treatment for AH. Understanding these factors may be important for the development of effective therapeutic strategies, which are taught since graduation in nursing, and which, when understood, have a greater chance of being put into practice during the performance as a health professional. Therefore, the objective of this research was to describe the emotional regulation, perception of the disease, and adherence to treatment of Brazilians diagnosed with AH.

METHODS

This is a cross-sectional study, whose setting was the Internet. The social networks Facebook® and Instagram® were used for the dissemination and recruitment of participants, which occurred through public posts on pages and groups that had AH as their theme.

The sample size was determined by time: the number of people who responded to the invitation to participate during the data collection period (February to April 2022). During this period, responses from 30 people were obtained, which constituted the study sample. The sampling was non-probabilistic, of the intentional type, considering that the components of the population were chosen intentionally: those who wished to participate in the research and who met the eligibility criteria: having a diagnosis of AH (with and without associated diseases); using at least one antihypertensive medication; age 18 years or older; using social networks (Instagram® or Facebook®); being literate. Those whose data collection instruments had at least one unanswered question from the sections on disease perception, emotional regulation, or adherence to antihypertensive treatment were excluded.

Data collection occurred through an electronic questionnaire produced by Google Forms®. The dissemination of the link occurred through social networks (Instagram® and Facebook®). Thus, people from all over Brazil could participate. The questionnaire was divided into five parts: 1) sociodemographic data; 2) questions related to the disease and lifestyle (weight, height, practice of physical exercises, time of diagnosis of the disease, number of medications in use - for AH or not, number of consultations per year); 3) assessment of emotional regulation - Brazilian version of the Difficulties in Emotion Regulation Scale (DERS); 4) Brazilian version of the Brief IPQ; 5) questionnaire on Adherence to Treatment of Systemic Arterial Hypertension (QATHAS).

The DERS (Brazilian version) is a self-administered questionnaire, which accesses elements involved in emotional regulation difficulties. It is composed of six subscales: Non-Acceptance of Emotional Response, Lack of Emotional Clarity, Limited Access to Emotional Regulation Strategies, Difficulty in Controlling Impulses, Difficulty in Maintaining Goal-Directed Behavior, and Lack of Emotional Awareness. The questions are answered on a Likert-type scale, ranging from 1 (rarely) to 5 (almost always). The sum of the subscale scores generates a total score (up to 180). High scores indicate greater difficulty in emotional regulation.[7-8]

The Brief IPQ has nine items (except the causal question - item 9) that are answered using a scale from 0 to 10. It is composed of five items to evaluate the cognitive representation of the disease:

consequences (item 1), time dimension (item 2), individual control (item 3), treatment control (item 4), and identity (item 5). Two items assess emotional representation: worry (item 6) and emotions (item 8). One item assesses understanding of the disease (item 7). To compute the scores, the values of items 3, 4, and 7 are reversed, and the values of items 1, 2, 5, and 6 are added. The scores range from 0 to 70, and the higher the score, the greater the perceived threat of the disease. The assessment of disease understanding and causal representation (items 8 and 9) are done by questions that are answered in full according to their interpretation. The answers related to this last item can be grouped into categories (for example lifestyle, stress, and heredity), and the frequency of responses is then calculated.[9]

The QATHAS is an instrument to assess adherence to pharmacological and non-pharmacological treatment for AH, developed based on the Item Response Theory. It has 12 items, which allow assessing the user regarding the use, dose, and time of medication, symptoms, drug treatment routine, use of salt and fat, consumption of white meats, sweets, and beverages with sugar, physical exercise, non-drug treatment routine, and attendance to appointments. These items are included in three domains for assessing adherence to antihypertensive treatment: disease/treatment, user, and health service. By filling them out, we do not obtain a sum of points or scores, but a coefficient, i.e., the answer is a value of the parameter estimated for that respondent's performance. Since it is a complex answer calculation, done with the help of software, the filling out of this part of the questionnaire will be reproduced in the electronic address (http://www.qathas.com.br) that contains the instrument made available by the author. In the end, the result is the scale level on which each respondent is situated. The final coefficient may vary from 60 to 110, and the higher the coefficient, the better the adherence to antihypertensive treatment.[10]

The data from the online instrument were made available by Google in a Microsoft Office Excel spreadsheet, generated in association with the Google Forms file. This spreadsheet was imported by the statistical package IBM SPSS Statistics version 25 for Mac, to proceed to descriptive analysis. Absolute and relative frequencies were calculated for all categorical variables originating from the questions in parts 1 and 2 of the data collection instrument. From the continuous quantitative variables, measures of central tendency and dispersion were calculated. It is worth mentioning that item 9 of the Brief IPQ originated a nominal qualitative variable. Responses to this item were grouped into categories by similarity of content. From these categories, absolute and relative frequencies of responses were calculated.

The instruments were answered after digital confirmation of acceptance to participate in the study, through the Informed Consent Form (ICF). In addition, all stages of the study respected the ethical aspects of the research, meeting the requirements that are established in Resolution No. 466/2012 of the National Health Council. The study was approved by the Research Ethics Committee of the University of International Integration of Afro-Brazilian Lusophony (CAAE: 52915621.0.0000.5576; opinion 5.198.286).

RESULTS

The 30 participants had a mean age of 45.9 ± 10.3 years and the majority were women (80.0%), with an education level corresponding to post-graduation (specialization, master's and/or doctorate) (40.0%), living in the Northeast of Brazil (63.3%), with a partner (70.0%), with a mean of 3.2 ± 1.3 cohabitants in the household (including the respondent) and with a job (73.3%) (Table 1).

Regarding Table 2 (clinical characteristics), the mean body mass index (BMI) was 29.2 ± 6.1 kg/m2, corresponding to overweight. Most participants were nonsmokers (96.7%), did not drink alcoholic beverages (63.3%), and exercised three times a week (53.3%). They were diagnosed with AH from 1 to 5 years (53.3%). On average, they took 2.6 ± 1.4 medications daily, including antihypertensives.

The results regarding the DERS, Brief IPQ, and QATHAS instruments were presented in Table 3. The sum of the emotion regulation instrument (DERS) was 81.4 ± 20.9, which was less than half of the maximum sum of the DERS (up to 180). High scores indicate greater difficulty in emotion regulation. Of the six subscales of this instrument, the one with the highest mean was the difficulty in maintaining goal-directed behavior (2.7 ± 0.6) and the one with the lowest mean was the difficulty in controlling impulses (1.9 ± 0.7). Thus, the 30 participants showed greater difficulty in concentrating and performing tasks when experiencing negative emotions.

In the instrument to assess the perception of disease (Brief IPQ), the mean was 23.1 ± 9.2, corresponding to the perception of low threat imposed by the disease. According to the items of the instrument, the highest means were in the dimensions impact of the disease on life (4.9 ± 2.7) and interpretation of symptoms (4.8 ± 3.1), indicating that the participants perceive the impact of the disease on life and the symptoms as a relevant threat. In contrast, the treatment efficacy dimension had the lowest mean (1.2 ± 1.9), which allows us to infer that participants perceive treatment with little relevance to the threat of the disease. Regarding the descriptive questions of the Brief IPQ, 76.7% believe that the duration of the disease will be forever and 13.3% believe that the disease will be for some time; 69.3% affirm that the cause of the disease is related to lifestyle (mainly psychological aspects, such as stress and anxiety) and 29.7% to heredity.

The instrument to assess adherence to antihypertensive treatment (QATHAS) had a mean of 92.9 ± 6.9, a result influenced by the 40% who were located in the 90 coefficient of the scale. The hypertensive patients located at this level stopped taking their medication, at the established times, at least once a month and halved salt, fat, sweets, and sugar drinks.[10]

Table 1. Sociodemographic characteristics of the study participants. Redenção, Ceará, Brazil, n=30, 2022.

Variables	*f*	*%*	*Mean ± SD*
Age			45,9 ± 10,3
Gender			
Female	24	80,0	
Male	5	16,7	
Did not Answer	1	3,3	
Education			
Did not attend school	1	3,3	
Elementary school	6	20,0	
High school	7	23,3	
College	4	13,3	
Post-graduation	12	40,0	
The region where you live in Brazil			
Midwest	3	10,0	
Northeast	19	63,3	
North	2	6,7	
Southeast	6	20,0	
Marital Status			
With partner	21	70,0	
Without partner	9	30,0	
Number of cohabitants in the household *			3,2 ± 1,3
Monthly remuneration			
Yes	22	73,3	
No	8	26,7	

SD: standard deviation
*Includes respondent.
Source: authors (2022).

Table 2. Clinical characteristics (disease-related and lifestyle) of study participants. Redenção, Ceará, Brazil, n=30, 2022.

Variables	*f*	*%*	*Mean ± SD*
BMI			29,2 ± 6,1
Smoking			
Yes	1	3,3	
No	29	96,7	
Alcoholism			
Yes, frequently	1	3,3	
Yes, sometimes	10	33,3	
No	19	63,3	
Physical exercise (3x a week)			
Yes	16	53,3	
No	14	46,7	
Time of diagnosis of AH			
Less than 1 year	2	6,7	
1 - 5 years	16	53,3	
6 - 10 years	5	16,7	

More than 10 years	7	23,3	
Medications in use*			2,6 ± 1,4

BMI: Body Mass Index, AH: Arterial hypertension
*Includes antihypertensive(s)
Source: authors (2022).

Table 3. Participants' results regarding instruments of emotional regulation (DERS), disease perception (Brief IPQ), and adherence to antihypertensive treatment (QATHAS). Redenção, Ceará, Brazil, n=30, 2022.

Variables	*f*	*%*	*Mean ± SD*
DERS			81,4 ± 20,9
Subscales of the DERS			
Non-Acceptance of Emotional Response			2,1 ± 0,8
Lack of Emotional Clarity			2,0 ± 0,7
Limited Access to Emotional Regulation Strategies			2,1 ± 1,0
Difficulty in Controlling Impulses			1,9 ± 0,7
Difficulty in Maintaining Goal-Directed Behavior			2,7 ± 0,6
Lack of Emotional Awareness			2,6 ± 0,7
Brief IPQ			23,1 ± 9,2
Dimensions of the Brief IPQ			
Impact of disease on life			4,9 ± 2,7
Disease control			3,5 ± 2,3
Treatment Effectiveness			1,2 ± 1,9
Interpretation of symptoms			4,8 ± 3,1
Concern about the disease			2,4 ± 2,5
Understanding about the disease			2,6 ± 2,3
Emotional impact of illness			3,6 ± 3,4
Duration of illness			
Forever	23	76,7	
For a while	4	13,3	
Do not know	1	3,3	
Did not answer	2	6,7	
Disease Causes*			
Lifestyle	21	69,3	
Heredity	9	29,7	
Previous medical condition	3	9,9	
Do not know	1	3,3	
Did not answer	1	3,3	
QATHAS			92,9 ± 6,9
QATHAS Levels			
70	1	3,3	
80	11	36,7	
90	12	40,0	
100	6	20,0	

Brief IPQ: Disability Perception Questionnaire Brief Version, DERS: Difficulties in Emotion Regulation Scale, SD: standard deviation, QATHAS: Systemic Hypertension Treatment Adherence Questionnaire
*The participant could give more than one answer.
Source: authors (2022).

DISCUSSION

Most of the study population diagnosed with AH was female. The same has been observed in other studies.[11-12] With increasing age, BP in women is usually higher, thus increasing the prevalence of AH in women aged 65 years or older.[2] A result also found by authors showing that the highest prevalence of AH is in elderly women.[12]

However, in the present study, the average age of the participants corresponded to people a little over 40 years old, since few elderly people were participants. Thus, it is believed that, since it is a research with online recruitment, for being more concerned with one's health, women, even if not elderly, were interested in participating.

According to the results found in the present study, AH is increasingly present in young individuals (adults). This fact may be related to lifestyle, since the participants in the research had a high BMI, corresponding to being overweight. It is known that there is a direct relationship between excess weight (overweight and obesity) and high blood pressure levels.[2]

AH affects more individuals with a low level of education, showing that the lower the level of education, the greater the chance of developing AH.[11] However, it is important to emphasize that this disease has increasingly affected individuals with advanced education, and may be related to occupations that generate more stress. This was also observed in the present study, in which the majority had completed post-graduate studies (specialization, master's, and doctorate degrees) and had paid jobs.

It was possible to observe that about one-third of the sample consumed alcoholic beverages. Despite being infrequent, it is known that blood pressure levels rise in individuals who drink alcoholic beverages.[1] This is an important result, especially because it reflects aspects related to adherence to non-drug treatment.

Other factors, such as smoking, sedentary lifestyle, and medication use, may influence the individual's responses to treatment. In this study, most of the participants were nonsmokers. However, about half of the participants did not engage in physical activity. Studies show that a sedentary lifestyle is related to several health problems and contributes to blood pressure control.[1]

Regarding the use of medications, the participants demonstrated that they use ≥ 2/day, including antihypertensive drugs and drugs used for other purposes. It is important to highlight that there is a relationship between the number of medications taken per day and adherence to treatment.[4] The lifestyle characteristics of most participants allow understanding of the reason for few medications in use since it is assumed to increase the number of drugs prescribed when no change in lifestyle is observed. It was evaluated that most participants had habits that allow characterizing the lifestyle as healthy.

The professional who follows patients in Primary Health Care (PHC) need to be aware of these issues to seek strategies to avoid advancing in the lines of choice of medications without first readjusting the care plan and to understand the reasons why some lifestyle changes may not have been implemented.

During the analysis of the DERS results, it was perceived that the participants had less difficulty regarding emotional regulation. On the other hand, it was possible to observe that they presented difficulties in maintaining goal-directed behavior.

This result deserves attention when considering that these are patients taking antihypertensive medications. In treatment adherence (pharmacological or not), it is essential to maintain the medication and the prescribed recommendations. However, it is known that the difficulty in controlling negative emotions can reflect on the good ability to maintain internal and external verbal behaviors consistent with self-care attitudes. This is because a person who has difficulty maintaining goal-directed behavior is challenged to commit to necessary changes that are in line with his values and health.[13]

According to the Brief IPQ instrument, participants perceive the impact of the disease on life and the symptoms as relevant threats. In contrast, they perceive treatment as having little relevance to the threat of the disease. Besides the negative perception regarding the permanent diagnosis of the disease (due to its chronic nature) and the manifestation of symptoms, the perception of threat to these two aspects may also be associated with the model of care focused on acute conditions (or the aggravation of chronic conditions), in which the patient is guided to seek care in situations of worsening of the chronic disease (manifestation of symptoms). Moreover, it is also possible to see the continuity of the biological conception of the body, in which a healthy person is considered healthy when there is no disease. Thus, it is understood that the perception of the disease and its symptoms as threats can also be explained by the fragmented care offered in various health services.[14]

The less negative perception regarding antihypertensive treatment may contribute to good drug adherence.[14] Thus, this study shows that participants recognize the importance of treatment and that health professionals should encourage actions to spread the efficacy of drug and non-drug treatment.

Regarding the subjective questions about the perception of the disease (Brief IPQ), the participants' understanding of the duration of the disease was notorious, with the majority believing that the disease is permanent (chronic) and some showing the opposite perception, believing that the disease will last for some time. Studies in China and the United States identified, among the behavioral beliefs, the chronicity of the treatment, which can be postponed for a lifetime, making it necessary for the health professional to guide the disease and the treatment.[15, 16]

Regarding the perception of curing the disease, it is associated with acceptance, which has an important role in the actions of control and care. The representation of the disease, the way of caring for oneself, recognizing oneself as hypertensive, and facing limitations determine the success of the

treatment. Many times, the denial of the disease or the resistance to following therapeutic recommendations can be a way of not assuming a chronic disease.[17]

About the instrument to assess adherence to antihypertensive treatment (QATHAS), most participants had been diagnosed between 1-5 years and most hypertensive patients were at the level corresponding to the coefficient 90, presenting some difficulty related to the use of medications, because they stopped taking the medication, at the established times, at least once a month. This result is frequently reported in the scientific literature and found in clinical care situations. This non-taking may be associated with forgetfulness, but other factors should also be considered, such as the cessation of the use of some of the medications on their own, especially due to the normalization of blood pressure.[18]

Normalization of blood pressure is a term used to refer to the individual with AH who stops taking some medication on his own, manifesting the feeling of healing, related to the control of this vital sign during a certain period. It is considered one of the main reasons for non-adherence to AH treatment, but other factors may be related to the absence of symptoms, emotional issues, and difficulty in remembering the time to take the medication.[18]

Treatment adherence may be related to the time of diagnosis: the longer the time of diagnosis, the greater the chances of treatment adherence.[2] The relation between socioeconomic factors, marital status, age, and education influence adherence to AH treatment, showing that individuals with low family income, single, older, male, and with less education have lower chances of adhering to treatment. Furthermore, the higher the number of medications (≥ 2/day), the more literature points out that treatment compliance is more difficult.[4]

Rescuing the three elements involved in the object of this study, it is understood that emotional well-being (indicated here as emotional regulation and positive perception of the disease), in its polysemic concept, portrays the primordial condition for health. Changes in the individual's emotional state can directly influence his clinical course, as well as his therapeutic decisions and adoption of disease control measures.[19]

The results discussed here have limitations. The sample size was the main limitation found, especially because this is a research with a long instrument that addresses psychological aspects. Even so, it was important to analyze responses regarding the time of treatment and perception of the disease, which are relevant subjective aspects, regardless of the number of responses obtained. It is also a limitation not to present inferences about the association between the three variables involved in the object of study because it is a descriptive research, in which the intention was to describe the three phenomena in an attempt to understand them. Since this is cross-sectional research data, it was not possible to infer whether the treatment adherence obtained is a cause or consequence of emotional regulation and/or perception of the disease. Even so, it is possible to recognize that such aspects can help understand some of the participants' health behaviors.

CONCLUSION

It was concluded that the participants showed more difficulty in concentrating and performing tasks when experiencing negative emotions; they perceive the impact of the disease on life and the symptoms as relevant threats, but that the treatment has little relevance to the threat of the disease. Regarding adherence to antihypertensive treatment, they present some difficulty related to the use of medications, not taking them at the established times, at least once a month.

It was understood that emotional regulation can contribute to treatment adherence in people with AH since non-regulation can trigger difficulty in performing tasks related to adherence when experiencing negative emotions. Furthermore, it was observed that the perception of the disease on the part of the patients is also important for adherence to treatment for AH since it is a chronic disease, in which treatment focuses on controlling blood pressure throughout the individual's life.

The lack of knowledge of some participants about the chronicity of the disease, difficulty, even if infrequent, concerning the performance of continuous treatment, and non-recognition of the effectiveness of the treatment, contribute to non-adherence. Such results are subject to other factors, such as beliefs that patients have about curing diseases and about non-pharmacological treatments. Thus, it is necessary that nursing turns its attention to care strategies that can provide emotional well-being to individuals affected by chronic diseases such as AH.

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