

ORIGINAL ARTICLE

CLINICAL CHARACTERISTICS OF USERS WITH ARTERIAL HYPERTENSION AND DIABETES MELLITUS

CARACTERÍSTICAS CLÍNICAS DE CLIENTES COM HIPERTENSÃO ARTERIAL E DIABETES MELLITUS

CARACTERÍSTICAS CLÍNICAS DE CLIENTES CON HIPERTENSIÓN ARTERIAL Y DIABETES MELLITUS

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ABSTRACT

Objective: to describe the clinical characteristics of users with systemic arterial hypertension and associated diabetes mellitus assisted by the Hiperdia system in a Family Health Strategy, relating to sociodemographic variables. **Method:** this is a quantitative, cross-sectional study, with 20 patients who answered a structured questionnaire. The Microsoft Office Excel 2007® program was used for data analysis. **Results:** there was predominance of females, elderly, white, married and with low education. There was a high prevalence of physical inactivity, a family history of hypertension or diabetes, low adherence to educational activities, with a diagnosis time greater than five years, sleep disturbance and the accomplishment of only two meals a day. **Conclusion:** it is concluded that the high prevalence of the simultaneous occurrence of risk factors such as physical inactivity, hereditary history, sleep disturbance and low number of daily meals shows social assistance voids. Furthermore, this study advances the multidimensional perspective of health care, as it encompasses variables beyond the disease. **Descriptors:** Hypertension; Diabetes Mellitus; Noncommunicable Diseases; Primary Health Care; Cross-Sectional Studies; Nursing.

Resumo

Objetivo: descrever as características clínicas da clientela com hipertensão arterial sistêmica e diabetes mellitus associado acompanhada pelo sistema Hiperdia em uma Estratégia Saúde da Família, relacionando com variáveis sociodemográficas. **Método:** trata-se um estudo quantitativo, transversal, com 20 pacientes que responderam a um questionário estruturado. Utilizou-se o programa *Microsoft Office Excel 2007®* para a análise dos dados. **Resultados:** verificou-se a predominância do sexo feminino, idosas, brancas, casadas e com baixa escolaridade. Observou-se alta prevalência de inatividade física, histórico familiar de hipertensão ou diabetes, baixa adesão a ações educativas, com tempo de diagnóstico maior que cinco anos, distúrbio do sono e a realização de apenas duas refeições diárias. **Conclusão:** conclui-se que a alta prevalência da ocorrência simultânea de fatores de risco como inatividade física, histórico hereditário, distúrbio do sono e baixo número de alimentações diárias evidencia vazios socioassistenciais. Avança-se, além disso, por este estudo, na perspectiva multidimensional da atenção à saúde, pois engloba variáveis para além da doença. **Descritores:** Hipertensão; Diabetes Mellitus; Doenças não Transmissíveis; Atenção Primária à Saúde; Estudos Transversais; Enfermagem.

Resumen

Objetivo: describir las características clínicas de la clientela con hipertensión arterial sistémica y diabetes mellitus asociada acompañada del sistema Hiperdia en una Estrategia de Salud Familiar, en relación con variables sociodemográficas. **Método:** este es un estudio cuantitativo, transversal, con 20 pacientes que respondieron un cuestionario estructurado. El programa *Microsoft Office Excel 2007®* se utilizó para el análisis de datos. **Resultados:** predominó el sexo femenino, ancianas, blancas, casadas y con baja educación. Hubo una alta prevalencia de inactividad física, antecedentes familiares de hipertensión o diabetes, baja adherencia a actividades educativas, con un tiempo de diagnóstico superior a cinco años, trastornos del sueño y solo dos comidas al día. **Conclusión:** se concluye que la alta prevalencia de la ocurrencia simultánea de factores de riesgo como inactividad física, antecedentes hereditarios, trastornos del sueño y bajo número de comidas diarias muestra vacíos en la asistencia social. Además, este estudio avanza la perspectiva multidimensional de la atención médica, ya que abarca variables además de la enfermedad. **Descriptor:** Hipertensión; Diabetes Mellitus; Enfermedades no Transmisibles; Atención Primaria de Salud; Estudios Transversales; Enfermería.

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INTRODUCTION

It is known that Chronic Non-communicable Diseases (CNCDS) are multifactorial diseases that develop during a person's life, have a long duration and can be the result beyond genetics, with social and conditioning determinants. Included among the main modifiable risk factors are harmful alcohol consumption, insufficient physical activity and unhealthy eating.¹

The human, social and economic consequences of CNCDS are felt by all countries, but they are particularly devastating in poor and vulnerable populations. It is revealed, according to the United Nations (UN), that CNCDS wash 41 million people to death every year, of which 16 million are considered premature, before the age of 70.²⁻³

The World Health Assembly (WHO) Global Action Plan for the Control and Prevention of CNCDS 2013-2020 was approved by the World Health Assembly. Nine global goals are stipulated in the global action plan, including a 25% reduction in mortality by 2025 due to CNCDS. In 2011, the Ministry of Health created the Strategic Action Plan for Coping CNCDS, through public policies with the integrated health network, which provides for the prevention and control of CNCDS and their risk factors.⁴⁻⁶

CNCDS in Brazil represent a public health problem, with Systemic Arterial Hypertension (SAH) and Diabetes Mellitus (DM) being the most frequent, triggering important economic and health costs resulting from associated complications. Therefore, it becomes essential to monitor individuals diagnosed with SAH and DM as a competence of the Unified Health System (UHS) through primary care. Through the Registration and Monitoring System for Hypertensive and Diabetic Patients (Hiperdia), within the scope of UHS, it is possible to monitor patients with SAH and / or DM in a full, longitudinal manner and also guarantee medications to all assisted patients. Thus, with the constant control of SAH and DM, it is possible to reduce the rates of hospital admissions and mortality from these diseases.⁷⁻⁸

It is understood that DM is an old disease, with a well-established pathophysiology and many preventable triggering factors, which, even so, remains a global epidemic, being one of the four priority CNCDS directed at the action of world leaders. In 2015, due to this health condition, approximately 14.3 million Brazilians were reached; however, the forecast for 2040 is 23.3 million carriers.⁹⁻¹⁰

Diabetes is caused by a metabolic disorder characterized by inadequate production of insulin by the pancreas, or when the body cannot use the insulin produced satisfactorily. Both the incidence and prevalence of diabetes have steadily increased over the past few decades.¹¹

Type 1 diabetes, also called insulin-dependent, is caused by deficient insulin production. Thus, patients are required daily injections of the hormone. Type 2 diabetes is caused by the resistance of tissues and cells to the action of insulin, which causes an increase in blood glucose.^{9,11}

It is pointed out that diabetes is a disease with significant morbidity and mortality, because, if not well controlled, it can cause obesity, cardiovascular events (CV), cataracts, blindness, kidney failure, erectile dysfunction, non-alcoholic fatty liver disease, amputation lower limbs, still complications in pregnancy and increase the risk of infectious diseases such as tuberculosis and several other long-term consequences that substantially affect quality of life.¹¹

According to the Ministry of Health, in 2017, in Brazil, about 142 thousand deaths caused by SAH or causes attributable to this health condition were registered. It is explained that SAH is a clinical condition caused by numerous factors, characterized by persistent levels equal to or greater than 14 by nine (140mmHg X 90mmHg) of blood pressure (BP).¹²⁻³

Hypertension is often associated to deleterious effects on human health, functional or structural changes in target organs, such as metabolic syndrome, cardiovascular diseases, CKD, stroke, acute myocardial infarction, peripheral arterial disease, heart failure and coronary heart disease and DM, with a consequent increase in non-fatal risks.¹³

OBJECTIVE

- To describe the clinical characteristics of users with systemic arterial hypertension and associated diabetes mellitus assisted by the Hiperdia system in a Family Health Strategy, relating to sociodemographic variables.

METHOD

This is a quantitative, cross-sectional study. The study included the population of hypertensive patients and associated diabetes registered in a Family Health Strategy (FHS) School in a city in the interior of Minas Gerais that serves about 2,250 people.

They were listed as inclusion criteria for hypertensive patients with associated diabetes registered and monitored in the ESF's Hiperdia system and accepting to participate in the research, with acquiescence and signing the Free and Informed Consent Term (FICT). Patients who had only diabetes were excluded; hypertension only; patients unable to answer the questionnaire and those who refused to participate in the study.

For data collection, a questionnaire structured in order to reveal eating habits, addictions,

frequency of visits to the FHS post, age, education, use of medications, smoking, sleep quality, beliefs and religiosity, frequency of physical activities and socioeconomic conditions, among other variables, were used.

The study subjects were informed about the research objectives and procedures, as well as about their rights not to accept participation, confidentiality and anonymity, to withdraw their consent at any time and to have their questions about the study answered by the researchers. Those who agreed to participate signed a Free and Informed Consent Term, and they received a copy of the document.

In face of the data collection, 339 hypertensive, 106 diabetic and 67 people with SAH associated with DM were registered. As a limitation of the study, a small sample of participants is pointed out, and this factor was due to the restricted number of hypertensive patients with associated diabetes, as well as sample losses. Sample losses occurred due to refusal to answer the questionnaire, absence at home after three attempts to visit and limiting disabilities such as stroke with speech-language

disorders, Alzheimer's and senile dementia. Thus, the sample was composed of 20 patients.

The data collected in a database was consolidated and structured. The Microsoft Office Excel 2007® program was also used during the creation and analysis of the database.

This study was approved by the Human Research Ethics Committee, Resolutions nº 466/12 and 510/16 of the National Health Council - Ministry of Health, according to CAAE nº 81340117.3.0000.5112.

RESULTS

In the sample of 20 individuals, in table 1, the female gender is the most prevalent (70%), with the most frequent age group from 60 to 71 years old, represented by 40% of the interviewees, and 80% had over 60 years of age, that is, there was a large percentage of elderly. White color and low education also prevailed. In terms of income distribution, a variation was observed in which approximately 50% represented receiving less than one salary up to two minimum wages, and the other 50% stated that they received between two and more than three minimum wages.

Table1. Relationship between the distribution of sociodemographic variables. Passos (MG), Brazil, 2018. n=20.

Variables	n	%
Sex		
Male	6	30
Female	14	70
Age		
< 50	1	5
50 to 65	5	25
66 to 75	5	25
76 to 85	8	40
85 to 95	1	5
Race/Color		
White	15	75
Black	3	15
Brown	2	10
Yellow	0	0
Marital Situation		
Single	4	20
Stable Union	8	40
Divorced/Separated	2	10
Widow(er)	6	30
Education		
Never studied	0	0
Pre-school	2	10
Elementary school	12	60
Highschool	2	10
Higher Education	4	20
Income		
< than 1 minimum wage	4	20
1 to 2 minimum wages	5	25
2 to 3 minimum wages	6	30
> 3 minimum wages	5	25

Table 2 shows that more than half of the interviewees have health insurance; 65% have never participated in any health education activity provided by the FHS. Drug therapy is carried out

by all patients, although 15% addressed forgetting to take their medication daily and 85% said they had medical appointments within a six-month period.

Table 2. Relationship between the distribution of variables on the use of health services. Passos (MG), Brazil, 2018. n=20.

Variables	n	%
Type of health service used		
UHS and private	11	55
Only UHS	9	45
Undergoes drug therapy		
Yes	20	100
No	0	0
If yes		
Regular use	17	85
Irregular use	3	15
Frequency of medical consultation		
Monthly	6	30
Between 2 to 3 months	5	25
Between 4 to 6 months	6	30
Between 7 months to 1 year	2	10
Sporadically	1	5
Family history of hypertension and / or diabetes		
Yes	14	70
No	6	30
Medical diagnosis of cardiovascular disease		
Yes	6	30
No	14	70
Time of diagnosis of SAH and / or DM		
< or equal to 5 years	4	20
> than 5 years	16	80
Had information about the disease before diagnosis		
Yes	4	20
No	16	80
Participation in educational activity developed by the FHS		
Never	13	65
Once	4	20
2 or more times	3	15

Table 3 shows that 65% of patients have more than six hours of sleep per day; among other variables, although 90% consider themselves religious and 95% believe that having a religion is

an important or very important factor in a person's life, 45% of respondents said they attend a religious temple only sporadically due to the difficulty of getting around outside their homes.

Table 3. Relationship between the distribution of variables related to sleep, pharmacological therapy, among others. Passos (MG), Brazil, 2018.

Variables	n	%
Daily sleep		
1 to 2 daily hours	1	5
3 to 5 daily hours	6	30
6 to 8 daily hours	9	45
> de 9 daily hours	4	20
Has a sleep disorder		
Yes	10	50
No	10	50
Use of sleeping medication		
Yes	8	40
No	12	60
Use of medication for depression		
Yes	6	30
No	14	70
Consider yourself a religious person		
Yes	18	90
No	2	10
Attends religious group / temple / place of prayer		
1 or more times a week	9	45
1 or more times a month	2	10
Once a year	1	5
Never	8	40
What is the importance of religion / spirituality		
It's not important	1	5
A little important	0	0
Important	6	30
Very important	13	65
Considered anxious		
Yes	13	65
No	7	35
Feels stressed frequently		
Yes	11	55

No	9	45
Believes that stress, insomnia and anxiety can alter BP and / or blood glucose		
Yes	11	55
No	9	45

Table 4 shows that only 15% of respondents ingest alcoholic beverages two to more than six times a week; the same percentage, 15%, represents the number of individuals who have a

smoking habit. It is noteworthy that 85% eat only three meals a day, with 60% not consuming fruits and vegetables daily and more than half do not control the intake of sodium and sugars.

Table 4. Relationship between the distribution of variables related to diets and risk factors. Passos (MG), Brazil, 2018. n=20.

Variables	n	%
Drinking alcohol		
None	13	65
Once a week	4	20
2 to <4 more times per week	2	10
4 to <6 times a week	1	5
Daily	0	0
Current smoking habit		
Yes	3	15
No	17	85
Amount of tobacco consumption		
< 1 pack-year	0	0
1 up to <20 pack-years	2	67
20 up to <40 pack-years	1	33
Number of daily meals		
1	0	0
2	10	50
3	7	35
4 or more	3	15
Consumption of fruits and vegetables		
Daily	8	40
Weekly	4	20
Monthly	2	10
Rarely	6	30
Consumption of meat with visible fat		
Daily	4	20
Weekly	2	10
Monthly	3	15
Rarely	11	55
Controls the intake of salt, sugar, sausages and soft drinks		
Yes	7	35
No	13	65
What importance do you attach to a diet without salt and / or sugar		
Important	7	35
Very important	12	60
Not important	1	5

Table 5 shows that 65% watch one to three hours of television daily, with an even greater number of 85% representing those who do not

practice any physical activity for at least 30 continuous minutes.

Table 5. Relationship between the distribution of variables related to risk factors. Passos (MG) 2018. n=20.

Variables	n	%
Hours you watch television per day		
Do not watch or < 1 hour	2	35
1 up to <3 hours	8	40
< than 3 hours	5	25
Regular physical activity		
Do not practice	17	85
Light physical activity	3	15
Vigorous physical activity	0	0
Considered to be above average / ideal weight		
Yes	10	50
No	10	50
Ever heard of the popular outdoor academy program		
Yes	11	55
No	9	45
Has used the popular gym		
Yes	1	5
No	19	95

After the diagnosis of hypertension or diabetes, he noticed a change in his life habits		
Yes	12	60
No	8	40
How do you rate your health		
Good	8	40
Bad	12	60
Main means of leisure		
Electronic devices (cell phone, computer, video game, tablets, and others).	2	10
Books, newspapers and magazines	3	15
Crafts	1	5
Television and / or radio	8	40
Community groups (religious, socio-cultural, political and sports)	6	30

DISCUSSION

Social diversities in the health conditions of elderly Brazilians (60 years or older) are widely described. People from all socioeconomic classes and, more significantly, vulnerable groups, such as those with low income and education, are affected by the CNCD, further increasing the poverty of those diagnosed due to disabilities, limitations and reduced workforce.¹⁴⁻⁵

In this study, the prevalence of female patients, in advanced age, among patients with SAH and DM is observed, which is considered compatible with other findings in the literature.^{14,16-7} It is noticed that women are more likely to self-care and to carry out routine consultations and that the service hours made available by health services make it difficult for men to attend consultations and that health campaigns also generally do not focus on this part of the population;¹⁸ in addition, there are social stereotypes that men are invulnerable beings and self-care practices are seen by them as weakness and insecurity.¹⁸

It is pointed out that there is a direct and linear correlation between age and BP, with a predominance of SAH above 60% in the age group above 65 years of age. This age group is also more likely to develop a CV event.¹⁶

It is also revealed that the low level of education was demonstrated in several studies, considering that 70% of users attended elementary school or the equivalent in home classes with private teachers. It is added that schooling is a determinant strongly associated with issues related to the health and illness of the elderly. It is explained that, in Brazil, SAH is more prevalent among individuals with less education.¹⁶ This factor results from the lack of access to opportunity throughout life, the difficulty of adhering to treatment, the effective implementation of guidelines and the understanding of the relevance of adopting healthier lifestyle habits; in addition, individuals who have studied less and have CNCDs are also more likely to abandon activities for health

reasons and a higher rate of medical consultation.^{14,17-8}

It was found that 85% of respondents carry out at least four medical appointments in a six-month period. Studies have pointed out some factors that define greater contact with the health unit, such as family culture, demographic and economic conditions such as housing conditions, family income, age, sex and education of the head of the family. Determinants of the demand for a health service are understood as factors such as the search for health, the pre-existence of illness, the urgency and severity of the illness and, also, the available supply of services.¹⁹

Greater contact with the health unit becomes essential to control the monitoring of individuals with SAH or DM, periodically check blood pressure or metabolic levels, seek better treatment strategies, sharpen healthier and self-care behaviors, as well as referral to other experts.¹⁹

It was observed, in relation to the prevalence of white color, that this variable differed from several studies^{16,17,20} and this finding may be justified because the study was carried out in the southeastern region of the country where, according to the Brazilian Institute of Geography and Statistics (IBGE), 64% of the population is white, followed by 28.4% brown.

Most patients were in a stable union, which is a facilitating factor for patients' adherence to treatment due to the involvement of their spouse, which contributes to the maintenance and care of diseases, such as measuring blood pressure levels, measuring blood sugar levels or even remembering to take your medications.¹⁶

It is determined, in relation to economic class, for a low-income population, that the need to buy medicines can negatively influence the family budget and, thus, be a factor of low adherence to health treatments.¹⁶

Drug therapy is carried out by all study participants, which corroborates the studies found in the literature; drug therapy, although not an exclusive treatment measure, is one of the important components for the control of patients with SAH and DM.¹⁸

It is indicated that, although 70% of the interviewees had a family history of SAH or DM, 80% said they did not have information about the disease before diagnosis, and the majority never participated in any educational activity developed by the FHS. It is known that there is evidence of variations on how patients use the health service, depending on the region of the country. It was also evident in studies carried out in the Northeast and Southeast regions, low adherence of patients to educational prevention programs. It has been pointed out in the literature that there is better health coverage for individuals who have a private health plan, however, not even these have high quality care correlated with SAH.¹⁵

Half of the patients were said to have some sleep disorder, and in hypertensive patients, the prevalence of Obstructive Sleep Apnea Syndrome (OSAS) is more common than that seen in the population in general, and there are indicative that their diagnosis is associated concomitantly with SAH.²¹

It should be noted that depression is a disease that is also growing in Brazil and was present in 30% of respondents, which is an unfavorable factor in the control of chronic diseases. Studies have shown that, in people who have more than one CNCD, depression can be up to twice as frequent. It is possible, due to this mental health condition, to predispose the individual to certain diseases due to hormonal and physiological changes that occur in the body. Reports of depressive episodes with decreased heart rate variability, elevated cortisol levels, and impact on the autonomic nervous system, cellular metabolism and the hypothalamic-pituitary axis have been described.¹⁸

Almost all respondents considered themselves to be religious people, and a study conducted with patients with Chronic Kidney Disease (CKD) stated that having a religion is associated with happiness, better well-being and physical health, optimism, lower rates of depression, suicide, substance use / abuse and general mortality, in addition to better adaptation to chronic diseases and decreased perception of the negative impact of the disease, that is: a relevant factor for improving the quality of life.²²

It is shown that, in spite of this, 55% of the interviewees affirmed to attend a religious temple only sporadically due to the difficulty of moving outside their homes; however, religious beliefs and practices are powerful sources of social support. It was pointed out, due to the same finding in the literature, the same of its participants, already in advanced age and with the presence of comorbidities, often dependent on buses or friends and family members who can take them, making attendance to religious services unfeasible, in general, located far from their homes. Weekly religious attendance was

associated with a lower prevalence of hypertension and even a decrease in diastolic pressure when equating with participants who did not attend religious services. It has also been claimed, furthermore, by studies, that the relationship between religiosity and spirituality brings clinical and laboratory benefits, including the decrease in cortisol and mortality rates.²³

It can be seen, in issues related to anxiety and stress, that more than half of the patients said they experience these feelings frequently and 55% believe that stress, insomnia and anxiety can alter BP and / or blood glucose. It was pointed out, by literature findings, that feelings, such as anxiety and concern, are significant reasons for the lack of control of BP and blood glucose. In addition, high sensitivity to anxiety was strongly associated with the abandonment of medication for SAH.²⁴

It is examined that alcoholic beverages and smoking habits had a lower prevalence, which corroborates other research. It should be noted that dyslipidemias, smoking, physical inactivity, obesity, high salt consumption and alcohol are included as modifiable risk factors. It has been pointed out in the literature that the habit of smoking cigarettes significantly influences the mean BP, and this is because the cigarette causes an increase in BP through nicotine.^{16,20}

It is accentuated, with regard to food, that there are controversies, because, in other studies, the majority of participants ate fruits / vegetables every day. Diet plays an important role not only in the control of SAH, but also in the reduction of hypercholesterolemia, DM and obesity. It is recalled that the Global Action Plan for the Prevention and Control of CNCDs 2013-2020 determines, among other interventions, to reduce salt, sugar and trans fats and saturated fats in foods.^{16,20,4}

It is noteworthy, in relation to the variables related to the practice of physical activity, that 85% of the patients reported not practicing regular physical activity and half of the participants said they considered themselves overweight. These findings corroborate those from other studies where more than half (235 = 70.4%) did not perform any physical activity and, in another, it was shown that only 14.52% of individuals reported practicing physical activity regularly ; in addition, a Body Mass Index (BMI) above normal is attributed to the greater propensity to acquire cardiovascular diseases.^{16,20}

Regular physical activity is considered a health protection factor, whereas sedentary life is the fourth largest risk factor for global mortality. There is a constant practice of physical exercises as extremely important in the control of diabetes because it allows the increase of cellular insulin receptors and decreases blood glucose. In

addition, physical activity is also used to control BP and reduce CV event risk.^{17,25}

It is warned that, although 55% of patients know the popular outdoor gym program, only 5% have already used this resource. Evidence from epidemiological studies has suggested that diabetes is also a risk factor for functional limitations and disability in the elderly. This relationship can be explained by a hypothesis that diabetes has been associated with a faster decline in cognitive function, as well as with an increased incidence of falls; in addition, chronic hyperglycemia is an indicator of diabetes and is associated with muscle weakness, which can cause difficulties in performing daily activities.²⁶

Obesity increases the risk of developing comorbidities, such as gastrointestinal, pulmonary, musculoskeletal, cardiovascular diseases, congestive heart failure, stroke and diseases in the female reproductive system and urinary tract, SAH and DM.¹⁸

It is believed that the self-assessment of health status is an indicator of measuring and monitoring the health status of individuals that has been used in several analyzes on morbidity and mortality. Self-perception can be a tool used to improve health conditions and access health services. In this study, only a simple question was asked about the perception of health, however, 60% of respondents rated their health as poor. As in these studies, some aspects can be attributed, such as the presence of physical, psychological, emotional and social problems, which end up causing feelings of insecurity and fragility. The concept of negative or positive health is added in terms of physical, social and psychological aspects: the first related to morbidity and mortality and the second due to the ability to appreciate life and overcome everyday challenges.²⁷

It should be noted, regarding the main means of leisure that the habit of watching television for prolonged periods is among the central causes for the development of several CNCs, such as SAH, dyslipidemia and type 2 DM.²⁸

CONCLUSION

Therefore, it is considered that the study characterized the profile of hypertensive patients with associated diabetes in this FHS unit. It was found that the subjects are predominantly female, elderly, and white and with low education, which is in accordance with studies published in national and international literature. It is noteworthy that the findings of this study reiterate the importance of monitoring CNCs and risk and protective factors.

It is suggested the implementation of health education actions, which aim to reach this population, addressing their physical and mental

limitations and barriers, also seeking male adherence to activities in order to provide a better quality of life.

It is hoped that this study may prompt further investigations that aim to characterize the profile and that seek new alternatives to stop the SAH and DM epidemic. Furthermore, this study advances the multidimensional perspective of health care, as it encompasses variables beyond the disease.

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