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SOCIODEMOGRAPHIC PROFILE AND KNOWLEDGE OF PATIENTS WITH TYPE 2 DIABETES IN THE FAMILY HEALTH STRATEGY

PERFIL SOCIODEMOGRÁFICO E CONHECIMENTO DE USUÁRIOS COM DIABETES TIPO 2 NA ESTRATÉGIA SAÚDE DA FAMÍLIA

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ABSTRACT: **Aim**: To characterize the sociodemographic profile and identify the knowledge of individuals with type 2 diabetes mellitus within the Family Health Strategy (FHS). **Methodology**: This is a cross-sectional, descriptive study with a quantitative approach conducted with 58 patients treated in the FHS between April and August 2023 in a municipality in southeastern Mato Grosso. We used a structured questionnaire that included sociodemographic data and the Brazilian version of the Diabetes Knowledge Scale Questionnaire (DKN-A). We performed statistical analyses using jamovi software. **Results:** The study observed a predominance of female participants, with an average age of 59 years, self-reported as mixed race, with less than nine years of education, living with a partner, retired, with a monthly household income of up to one minimum wage, up to three people living on a single income, and owning their homes. The identified sociodemographic profile describes a vulnerable population with insufficient knowledge about diabetes mellitus. **Conclusions**: In this sense, the ESF is understood as a management tool that has the potential for change, aiming at the critical awareness of people with DM 2 regarding their health problems, based on the reality experienced.

KEYWORDS: Knowledge. Type 2 Diabetes. Family Health Strategy.

RESUMO: **Objetivo**: Caracterizar o perfil sociodemográfico e identificar o conhecimento da população com *Diabetes mellitus* tipo 2 na ESF. **Metodologia**: Estudo transversal e descritivo, de abordagem quantitativa, realizado com 58 usuários atendidos na ESF, entre abril e agosto de 2023, em um município no sudeste do Mato Grosso. Utilizou se um questionário estruturado contendo dados sociodemográficos e a versão brasileira do Questionário da Escala de Conhecimento sobre Diabetes. Foram realizadas análises estatísticas por meio do *software Jamovi*, versão 2.3. **Resultados**: Observou-se a predominância do sexo feminino, idade média de 59 anos, cor/raça autodeclarada parda, menos de 9 anos de estudo, com companheiro, aposentados, renda familiar mensal de até 1 salário mínimo, até 3 pessoas vivendo com uma única renda e possuíam casa própria. O perfil sociodemográfico identificado descreve uma população com características de vulnerabilidade e conhecimento insuficiente sobre o *Diabetes mellitus.* **Conclusões**: Nesse sentido, entende-se a ESF como ferramenta de gestão que tem o potencial de mudanças, visando a consciência crítica das pessoas com DM 2 a respeito de seus problemas de saúde, partindo da realidade vivenciada.

PALAVRAS-CHAVE: Conhecimento. Diabetes tipo 2. Estratégia Saúde da Família.

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INTRODUCTION

Brazil is experiencing a demographic and epidemiological transition due to decreasing mortality and birth rates and the advancement of industrialization, which have altered the population's age distribution and lifestyle. As a result of these changes, there has been an increase in noncommunicable diseases (NCDs) such as diabetes mellitus (DM).[1-2]

According to the International Diabetes Federation (IDF), Brazil currently has 17 million people with diabetes, ranking fifth globally, and it is estimated that half of this population is unaware of their diagnosis.[3] In the Central-West region of the country, an estimated 1,070,166 million people have diabetes, with 226,270 identified in Primary Health Care (PHC) services within the state of Mato Grosso.[4-5]

Type 2 diabetes mellitus (T2DM) is the most prevalent form of the disease, primarily affecting adults and older individuals. It is a metabolic disorder characterized by hyperglycemia resulting from decreased insulin production and/or resistance to this hormone caused by factors such as genetics and lifestyle.[2-6] The disease affects the health of individuals, families, society, and the healthcare system, becoming a significant public health challenge. When untreated and/or inadequately treated, it can lead to various complications such as cardiovascular and cerebrovascular diseases, as well as nephropathy, retinopathy, neuropathy, and lower limb amputations.[7-8]

To prevent potential complications, people living with T2DM must acquire knowledge about the disease process, pharmacological and non-pharmacological treatments, and lifestyle changes.[2-9] In this context, PHC, through the Family Health Strategy (FHS), is the primary level of care providing health assistance to individuals with T2DM. In the FHS, healthcare professionals engage with the local population, understanding their customs, cultures, families, needs, and characteristics, thereby establishing a bond that enables early diagnosis and intervention in various conditions through health promotion and disease prevention.[6-7]

Given the increasing number of T2DM cases, the risks of complications, and the potential for FHS healthcare team interventions in the population's health conditions, it is necessary to identify the sociodemographic profile and the knowledge of patients about the disease to plan and direct actions for this group, aiming to provide effective care. Therefore, we aimed to characterize the sociodemographic profile and identify the knowledge of individuals with type 2 diabetes mellitus within the Family Health Strategy.

METHODOLOGY

We conducted a cross-sectional, descriptive study with a quantitative methodological approach involving 58 patients residing in the area covered by a Family Health Unit (USF) in a municipality in the southeastern region of Mato Grosso, Brazil. The unit was selected for convenience as it served as the field site for the Multiprofessional Family Health Residency program.

The municipality where the studied USF is located had 191,455 patients registered in PHC during the research period, of whom 6.96% (13,318) were identified as having diabetes. The population registered at the unit consisted of 4,638 individuals, with 4.27% (198) diagnosed with diabetes.[4-5]

From the identified patients, we excluded 40 individuals who did not reside within the USF's coverage area, 50 who were not diagnosed with type 2 diabetes mellitus, 10 who had passed away, 10 who could not be identified in the electronic medical record, 7 who had communication difficulties and/or cognitive limitations, 7 who refused to participate, and 16 who were excluded after three unsuccessful contact attempts. The inclusion criteria for participants were being 18 years of age or older,

of either sex, with a diagnosis of type 2 diabetes mellitus. We excluded patients with communication difficulties or cognitive limitations that could interfere with data collection and those who could not be reached after three attempts on different days and at different times.

Data collection occurred from April to August 2023 at the USF in a reserved environment and in participants' homes. We approached and invited participants during their appointments at the USF and through home visits. Those who expressed interest signed the Informed Consent Form (ICF).

We collected data through interviews using two instruments: a structured questionnaire to characterize the sociodemographic profile and the Brazilian-translated, adapted, and validated version of the Diabetes Knowledge Scale Questionnaire (DKN-A) to assess the knowledge of patients diagnosed with T2DM about the disease.

The structured questionnaire for sociodemographic characterization consisted of nine closed questions covering the following variables: age, sex, self-reported race/ethnicity, marital status, education level, employment status, monthly household income, number of people living on the household income, and type of residence.

The Diabetes Knowledge Scale Questionnaire (DKN-A) comprises 15 multiple-choice items on various aspects related to general diabetes knowledge. It encompasses five broad categories: a) basic physiology, including insulin action; b) hypoglycemia; c) food groups and their substitutions; d) diabetes management during the occurrence of another illness; and e) general principles of diabetes care. The scale ranges from 0 to 15, with each item scored as 1 for a correct answer and 0 for an incorrect answer. Items 1 through 12 require a single correct response, while items 13 to 15 have two correct answers, both of which must be chosen to earn a score of 1. A score of 8 or higher indicates satisfactory knowledge of diabetes.[10]

We entered the data into Microsoft Excel®, transferred it to jamovi software (The jamovi Project), version 2.3, and then performed descriptive statistical analysis (frequency, mean, minimum and maximum values, and standard deviation) and tests for comparison between categorical variables (Pearson's chi-square and Fisher's exact tests), considering a 5% significance level.

This study adhered to ethical research principles, with data collection commencing after the Research Ethics Committee approved the matrix project titled "Knowledge, care practices, and multiprofessional assistance for patients with type 2 diabetes mellitus in the Family Health Strategy" under opinion number 5.921.316.

RESULTS

Of the 58 participants, 79.3% (n=46) were female, and 20.7% (n=12) were male; the participants' average age was 59 years (minimum=36; maximum=83; SD=9.5). Regarding self-reported race/ethnicity, the majority, 58.6% (n=34), self-identified as mixed race, while 48.3% (n=28) had less than nine years of education, and most, 60.3% (n=35), reported having a partner.

In terms of employment status, 39.7% (n=23) were retired, 31.0% (n=18) were unemployed, and 29.3% (n=17) were employed. Concerning monthly household income, 58.6% (n=34) reported earning up to one minimum wage, and 82.8% (n=48) indicated that one to three people lived on that household income. Additionally, 94.8% (n=55) lived in their own homes.

Table 1. Sociodemographic variables of patients with T2DM (n= 58), 2023

Variables	n (%)
Sex	
Female	46 (79.3)
Male	12 (20.7)
Age	
36 to 59 years	38 (48.3)
60 to 83 years	30 (51.7)
Self-reported race/ethnicity	
White	6 (10.3)
Mixed race	34 (58.6)
Black	18 (31.0)
Education level	
< 9 years of education	28 (48.3)
≥ 9 years of education	22 (37.9)
No education	8 (13.8)
Marital status	
With partner	35 (60.4)
Without partner	23 (39.6)
Employment status	
Retired	23 (39.7)
Unemployed	18 (31.0)
Employed	17 (29.3)
Monthly household income	
Up to 1 minimum wage*	34 (58.6)
Up to 2 minimum wages*	17 (29.3)
Up to 3 minimum wages or more*	7 (12.1)
People living on the monthly household income	
1 to 3 people	48 (82.8)
4 to 5 people	7 (12.0)
More than 5 people	3 (5.2)
Own home	
Yes	55 (94.8)
No	3 (5.2)

* Minimum wage: R$1,320 (US$240.70)
Source: Prepared by the authors.

Table 2 presents the distribution of sociodemographic variables according to the percentage of participants who demonstrated knowledge about DM within each variable. The DKN-A assessment revealed that 56.9% (n=33) of the individuals had insufficient knowledge about DM, with an average score of 7.05 (minimum=0; maximum=13; SD=2.64). There was no statistically significant association between the sociodemographic variables and the knowledge of patients with type 2 diabetes mellitus (T2DM).

Regarding the characterization of individuals who demonstrated sufficient knowledge about T2DM, we found that the majority were female (47.8%, n=22), aged between 36 and 59 years (50.0%, n=14), self-identified as white (50.0%, n=3), had nine or more years of education (45.5%, n=10), lived without a partner (43.5%, n=10), were employed (52.9%, n=9), had a monthly household income of up to two minimum wages (53.0%, n=9), had four to five people living on that household income (71.4%, n=5), and did not live in their own homes (66.7%, n=2).

Table 2. Distribution of sociodemographic variables between sufficient and insufficient knowledge (n= 58), 2023.

Variables	n (%) Sufficient knowledge	n (%) Insufficient knowledge	p-value**
Sex			0.155
Female	22 (47.8)	24 (52.2)	
Male	3 (33.3)	9 (66.7)	
Age			0.306
36 to 59 years	14 (50.0)	14 (50.0)	
60 to 83 years	11 (36.7)	19 (63.3)	
Self-reported race/ethnicity			0.366
White	3 (50.0)	3 (50.0)	
Mixed race	16 (47.1)	18 (52.9)	
Black	5 (27.8)	13 (72.2)	
Education level			0.926
< 9 years of education	12 (42.8)	16 (67.2)	
≥ 9 years of education	10 (45.5)	12 (54.5)	
No education	3 (37.5)	5 (62.5)	
Marital status			0.792
With partner	14 (40.0)	21 (60.0)	
Without partner	10 (43.5)	13 (66.5)	
Employment status			0.503
Retired	10 (43.5)	13 (56.5)	
Unemployed	6 (33.3)	12 (66.7)	
Employed	9 (52.9)	8 (47.1)	
Monthly household income			0.516
Up to 1 minimum wage*	14 (41.2)	20 (58.8)	
Up to 2 minimum wages*	9 (53.0)	8 (47.0)	
Up to 3 minimum wages or more*	2 (28.6)	5 (71.4)	
People living on the monthly household income			0.100
1 to 3 people	20 (47.1)	28 (58.3)	
4 to 5 people	5 (71.4)	2 (28.6)	
More than 5 people	0 (00.0)	3 (100)	
Own home			0.397
Yes	23 (41.8)	32 (58.2)	
No	2 (66.7)	1 (33.3)	
Total	24 (41.4)	34 (56.6)	

*Minimum wage: R$1,320 (US$240.70)
**Value of p.
Source: Prepared by the authors.

DISCUSSION

This study highlighted the predominance of women, consistent with research conducted in the Northern region[11] involving 169 individuals, where researchers assessed patients' knowledge levels about diabetes and found that 65.7% of the participants were female—a result also observed in the Southeastern region.[12] In this study, 47.8% of women demonstrated sufficient knowledge, a higher percentage than that found among men, where only 33.3% had sufficient knowledge. This trend aligns with findings from studies conducted in the North and Southeast of the country.[11-12]

We can attribute the predominance of women and the higher levels of sufficient knowledge among them to the fact that women tend to use healthcare services more frequently. This regular access

facilitates diagnosis, continuous monitoring of health conditions, and participation in Health Education (HE) activities, which may be linked to the social construction of gender, where women are traditionally responsible for family care within the domestic sphere, while men are associated with the workforce, performing virility and masculinity.[13-14]

The sample showed a prevalence of participants aged 60 to 83 years, a finding that is consistent with research conducted in the Northern and Northeastern regions of Brazil.[15-16] The predominance of this age group aligns with the demographic and epidemiological transitions experienced by Brazil and the characteristics of the disease, which predominantly affects adults and older individuals.[2-17] Regarding knowledge, the age group with the highest scores on the scale was 36 to 59 years, where 50% of these individuals showed positive results. This finding was also observed in a study conducted in the Northeast, in which similar results were reported.[1] Cognitive function and memory tend to decline with age, contributing to learning difficulties.[18]

Another significant result of this study was the predominance of self-identified mixed-race individuals. Most studies addressing the characteristics and/or sociodemographic profile of patients with T2DM do not include race/ethnicity as a variable,[16-19] similar to other health-related topics.[20] When race/ethnicity is used as a variable, the white population often represents the majority,[9-21-22] differing from the findings of this study. According to the 2019-2020 Guidelines of the Brazilian Diabetes Society,[23] skin color does not show statistically significant differences in the prevalence of diabetes. Although race/ethnicity may not present statistically significant differences in diabetes prevalence, the non-white population experiences greater epidemiological and social vulnerability, lower education levels, consequently less access to quality healthcare services, greater food insecurity, and more risk behaviors, contributing to the disease onset and poor management.[20] This study demonstrated that among the studied group, the non-white population had lower knowledge levels about DM.

According to the Brazilian Institute of Geography and Statistics (IBGE), in 2022, 28% (56.862.611 million) of the Brazilian population over 25 years old had not completed primary education.[24] This study group also exhibited low education levels, consistent with findings from studies conducted in the Northeast and Southeast regions with 300 and 210 participants, respectively.[25-19]

Low education levels can hinder a patient's understanding of the disease, its care, and complications, limiting learning opportunities and reducing the likelihood of treatment adherence,[8] as evidenced in this study. Participants with nine or more years of education showed a higher percentage of individuals with sufficient knowledge compared to others, which aligns with the findings of Duarte et al.,[19] in which researchers obtained statistically significant results ($p<0.001$) regarding the influence of education level on knowledge, indicating that the higher the education level, the greater the knowledge.

Regarding marital status, more than half of the participants reported having a partner. Several studies have demonstrated that individuals with a partner show higher treatment adherence rates, as seen in other studies examining this variable.[2-16-19] However, among the users who demonstrated knowledge about the disease, those who reported living without a partner outnumbered those who lived with a partner, which was also observed in research conducted in Southern Brazil,[26] where 31.9% of married individuals had sufficient knowledge about diabetes compared to 37.6% of single/widowed individuals.

The study found that participants with a monthly household income of up to one minimum wage, a result consistent with the findings of Borba et al.[1] and Bezerra et al.,[26] were those who had sufficient knowledge about diabetes and had a monthly household income of up to two minimum wages. Low household income can negatively influence treatment adherence, as it limits access to specialized

healthcare services, education, healthy food, and medications not provided by the Unified Health System (SUS).[2-15-22]

Most patients reported being retired, which is consistent with the prevalence of the age group and other studies on T2DM.[19-18] Retirement can be seen as beneficial since these patients would have a fixed income to cover expenses. However, as shown, the household income of the study group is up to one minimum wage, which corresponds to a minimum wage pension, making it a risk factor for treatment. Users who reported being employed at the time of the study had sufficient knowledge about DM, which may be explained by the prevalent age group in this study.

The variable "residence" appears infrequently in studies analyzing the sociodemographic profile of patients with T2DM. A study conducted in the Central-West region presented the same result found in this research, with most participants living in their own homes.[12] It is known that the number of homeowners has been declining, leading to a significant increase in the percentage of rented homes and housing costs.[27-28] Considering the predominant monthly household income in this study, homeownership is a positive factor in maintaining the health of the population in question. However, the results showed that those who do not live in their own homes have sufficient knowledge about DM.

Knowledge was considered insufficient among the respondents, as only 41.4% demonstrated sufficient knowledge. This result is similar to that found by Bezerra et al.[26] in the Northeastern region of Brazil, where only 47.7% of the 86 people studied had sufficient knowledge.

Health education plays a crucial role in the lives of patients with diabetes, as it provides users with the means to learn about the disease and manage their care.[29] A study conducted in the Northeastern region of the country with older adults with chronic diseases found that after participating in HE activities, these individuals showed increased self-efficacy,[30] similar to the findings of Magri,[29] in which after participating in HE, patients with diabetes and/or hypertension showed improvements in their self-awareness of these diseases.

CONCLUSION

The results of this study cannot be used to make generalizable inferences about the general population, as the sample size is numerically small, meaning that the findings pertain only to the group studied.

The sociodemographic profile identified by this research describes a vulnerable population with insufficient knowledge about DM.

This study demonstrates the importance of healthcare professionals understanding the sociodemographic profile of the population they serve and their knowledge regarding their health conditions. This information is essential for planning educational actions within the FHS to provide appropriate and timely responses to individuals' and the community's needs, thereby improving the quality of care and increasing the resolution rate PHC.

In this context, we understand HE as a management tool with the potential to drive changes, aiming to foster critical awareness among individuals with T2DM regarding their health issues based on the reality they experience.

The study's limitations include the sample size and its local scope. We believe that studies with a regional scope are likely to more accurately reflect the reality of the knowledge that FHS users have about their disease process—in this case, diabetes mellitus.

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