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EPIDEMIOLOGICAL PROFILE OF TYPE 2 DIABETIC PATIENTS (DM2) IN THE FAR WEST MESOREGION OF BAHIA

PERFIL EPIDEMIOLÓGICO DOS PACIENTES DIABÉTICOS TIPO 2 (DM2) NA MESORREGIÃO DO EXTREMO OESTE BAIANO

PERFIL EPIDEMIOLÓGICO DE LOS PACIENTES DIABÉTICOS TIPO 2 (DM2) EN LA MESOREGIÓN DEL EXTREMO OESTE DE BAHÍA

https://doi.org/10.56238/sevened2025.037-004

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ABSTRATC
Type 2 diabetes mellitus (T2DM) is a chronic non-communicable disease with a globally increasing prevalence, representing a serious public health challenge due to associated risk factors such as overweight and obesity. This study aimed to analyze the epidemiological profile of patients with T2DM in the mesoregion of the extreme west of Bahia, Brazil. The sample consisted of 140 patients with T2DM from two healthcare units in the city of Barreiras-BA, including both sexes aged 40 years or older. The data indicate that the disease primarily affects elderly individuals, with a predominance of females, and is associated with a high prevalence of overweight and comorbidities. Therefore, a correlation was concluded between the epidemiological profile of these individuals with T2DM and the chronic complications associated with this disease in the population of western Bahia.

Keywords: Type 2 Diabetes Mellitus. Comorbidities. Epidemiology.

RESUMO
O diabetes mellitus tipo 2 (DM2) é uma doença crônica não transmissível com prevalência crescente globalmente, representando um sério desafio para a saúde pública devido aos fatores de risco associados, como sobrepeso e obesidade. Este estudo buscou analisar o perfil epidemiológico dos pacientes com DM2 na mesorregião do extremo oeste da Bahia. A amostra foi constituída por 140 pacientes portadores de DM2 de 2 unidades de saúde da cidade de Barreiras-BA, de ambos os sexos com idade igual ou superior a 40 anos. Os dados indicam que a doença acomete principalmente idosos, com predominância do sexo feminino e está associada à alta prevalência de sobrepeso e comorbidades. Logo, concluiu-se uma correlação entre o perfil epidemiológico desses indivíduos com DM2 e as complicações crônicas associadas por essa enfermidade na população do Oeste da Bahia.

Palavras-chave: Diabetes Mellitus Tipo 2. Comorbidades. Epidemiologia.

RESUMEN
La diabetes mellitus tipo 2 (DM2) es una enfermedad crónica no transmisible con una prevalencia creciente a nivel mundial, representando un serio desafío para la salud pública debido a factores de riesgo asociados, como el sobrepeso y la obesidad. Este estudio tuvo como objetivo analizar el perfil epidemiológico de pacientes con DM2 en la mesorregión del

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extremo oeste de Bahia, Brasil. La muestra estuvo constituida por 140 pacientes con DM2 de dos unidades de salud de la ciudad de Barreiras-BA, de ambos sexos y con edades iguales o superiores a 40 años. Los datos indican que la enfermedad afecta principalmente a personas mayores, con predominancia del sexo femenino y está asociada con una alta prevalencia de sobrepeso y comorbilidades. Por lo tanto, se concluyó una correlación entre el perfil epidemiológico de estos individuos con DM2 y las complicaciones crónicas asociadas a esta enfermedad en la población del Oeste de Bahia.

Palabras clave: Diabetes Mellitus Tipo 2. Comorbilidades. Epidemiología.

1 INTRODUCTION

Type 2 Diabetes Mellitus (DM2) is a notorious and growing condition in the global public health scenario. Its complications include retinopathy, lower limb amputations, kidney failure, and cardiovascular diseases such as strokes and coronary heart attacks (Tomic et al., 2022). In 2019, Brazil ranked fifth among the countries with the highest number of people with diabetes, totaling 16.8 million individuals between 20 and 79 years of age, which corresponds to approximately 11% of the Brazilian population in this age group (Saeedi, et al., 2019). Retrospective epidemiological studies have shown an increasing increase in hospitalizations and complications due to T2DM in the Northeast region of Brazil in the last decade, reflecting the emergence of T2DM as a public health problem in the region (Soares et al., 2024, Oliveira, et al., 2025). Macedo et al. (2019) analyzing the epidemiology of Diabetes Mellitus in the Northeast region of Brazil demonstrated a predominance of type 2 Diabetes Mellitus (DM2) and its complications, which represented 72.9% of cases. The state of Bahia concentrated most of the diagnoses, corresponding to 31.5% of the cases, while Sergipe had a lower proportion, with 2.8%. In terms of etiopathogenesis, DM2 can be classified as one of the most recurrent metabolic disorders, being influenced by two pathophysiological factors: Altered insulin secretion by pancreatic beta cells and the resistance of insulin-sensitive tissues to respond to this hormone. These processes lead to a metabolic disorder that allows the development of the disease and its complications (ADA, 2025, Oliveira et al., 2023). Lifestyle plays a crucial role in the progression and etiology of DM2 and its complications, with obesity, smoking, and excessive alcohol consumption (alcoholism) being identified risk factors. Alcohol, in acute or chronic consumption, potentiates insulin resistance, raises blood pressure and impairs the action of antidiabetic drugs, making glycemic control difficult. Smoking aggravates cardiovascular and metabolic complications, while obesity, especially abdominal obesity, increases insulin resistance, increasing the incidence and severity of DM2 (Hocayen & Malfatti, 2010; Dias et al., 2020, KLIER et al., 2021; FID, 2023; Dias et al., 2024; Couto et al., 2025). Thus, the development of this study was crucial to present the epidemiological scenario of type 2 diabetes mellitus in the Mesoregion of the Far West of Bahia, since this disease represents the second underlying cause and main diagnosis of hospitalization and hemodialysis in this region.

2 METHODOLOGY

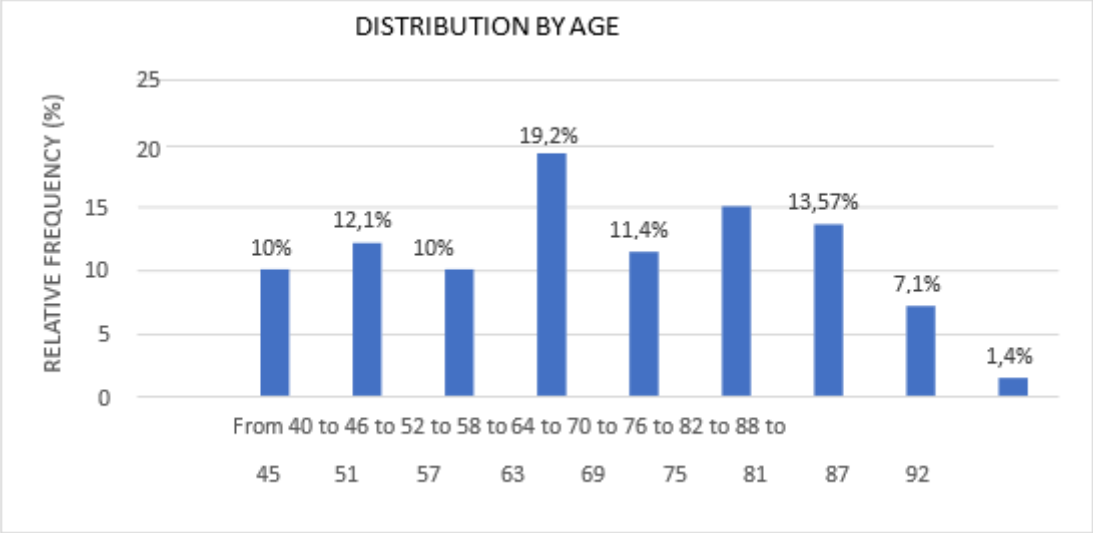
This is a descriptive, quantitative and cross-sectional study. The study was developed at the Clínica Nefroeste, a regional reference for nephrology care and hemodialysis, and at the Eurico Dutra Municipal Regional Hospital, which is a medical center that has about 50 ward beds, a reference in the treatment of DM2, both located in the municipality of Barreiras-Bahia. The sample was obtained from the analysis of the electronic and printed medical records of 140 male and female patients diagnosed with type 2 diabetes mellitus, aged 40 years, from various cities in the western region of Bahia and from municipalities belonging ≥ neighboring states. In addition to this categorization, anthropometric variables, such as body mass index (BMI), origin of the patient, and variables related to risk factors and concomitant diseases, were identified in the medical records. It is noteworthy that social history and body mass index were not recorded in all the medical records chosen. This survey was carried out during the period from April to August 2023, considering patients treated in the period from January 2018 to August 2023. Subsequently, a database was developed in Microsoft Excel®, for later application of descriptive statistical analysis, including calculation of means, as well as relative and absolute percentages. The project was submitted to the Human Research Ethics Committee of the Federal University of Western Bahia, and followed the rules established by the National Research Ethics Committee (CONEP) Resolution 466/12, CAAE protocol No. 68135222.5.0000.8060.

3 RESULTS

The study revealed that 62.1% (n = 86) of the patients with type 2 diabetes mellitus came from the city of Barreiras, while 16.9% (n = 52) came from other municipalities in the western region of Bahia. In addition, one patient is from Corrente, in the state of Piauí, and another is from Taguatinga, in the state of Tocantins. Regarding age (Figure 1), the selection criterion considered patients aged ≥ 40 years. Thus, a higher number of diabetics was observed, 19.2% (n= 27) among the age group of 58 to 63 years. A decrease in these numbers was also observed from individuals over 82 years of age.

Figure 1

Age distribution of patients with DM2

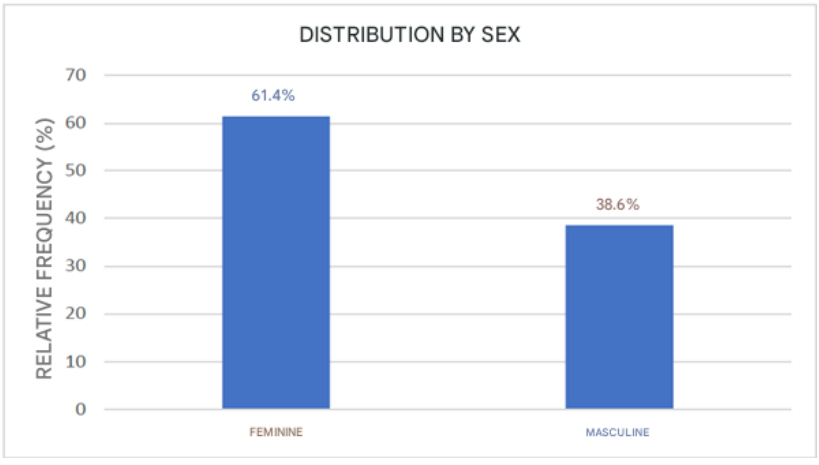


Source: Prepared by the authors.

Among the 140 data collected in the research, a greater number of diabetic women (Figure 2) was found, representing 61.4% (n=86), while male patients represented 38.6% (n= 54).

Figure 2

Gender distribution of patients with DM2



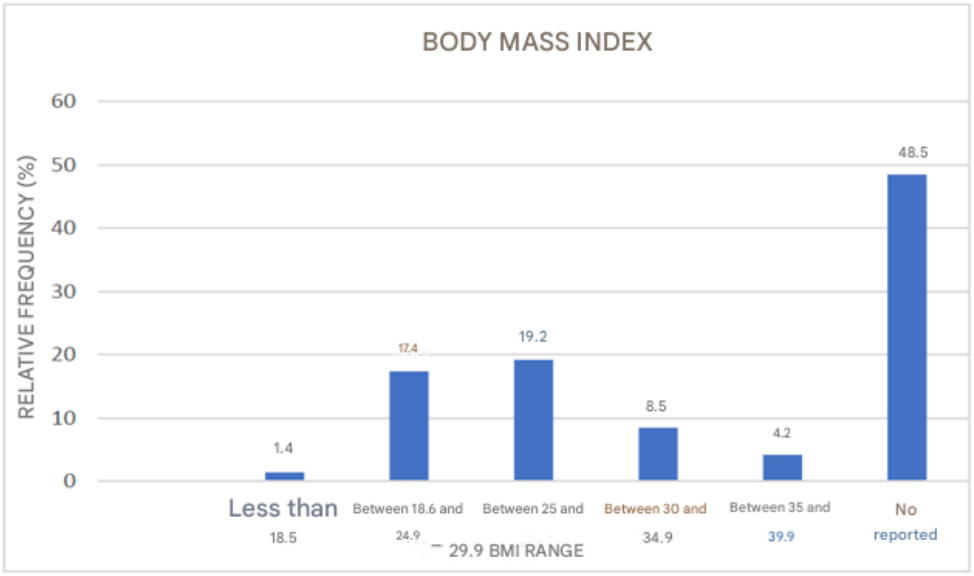
Source: Prepared by the authors.

Regarding BMI, despite the absence of records in the medical records to analyze how patients are being monitored, the present data are very relevant to establish relationships between DM2 and this variable. A total of 31.9% (n= 45) of patients were found to have a

Body Mass Index (BMI) between 25 and 39.9, numbers that are not within the recommended normal range (Figure 3).

Figure 3

Descriptive measure (mean) of anthropometric indicator (BMI) in patients with DM2

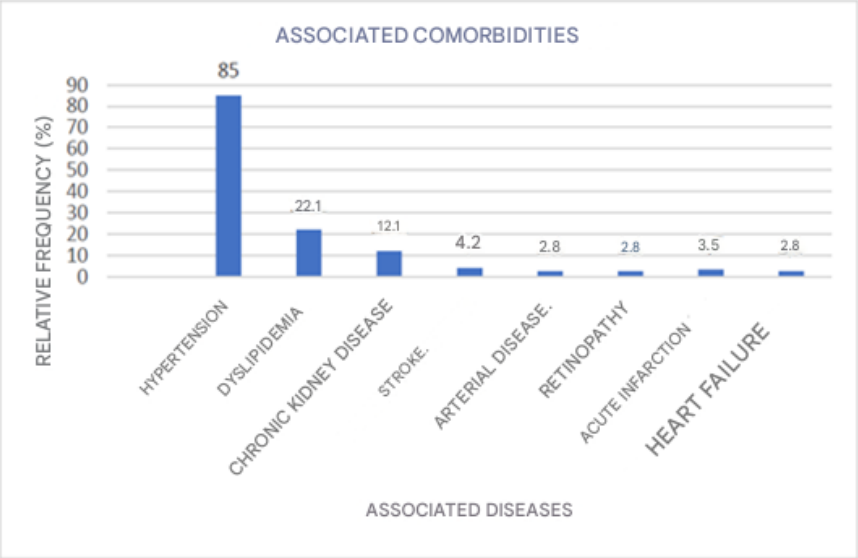


Source: Prepared by the authors.

The main comorbidities were systemic arterial hypertension (SAH) with the joint diagnosis in 85% (n=119) of the cases, dyslipidemia with 22.1% (n=31) and chronic kidney disease with 12.1% (CKD) (n=17). Other diseases, such as cerebrovascular accident (CVA) (4.2%), coronary artery disease (CAD) (2.85%), retinopathy (2.85%), acute myocardial infarction (AMI) (3.5%), heart failure (HF) (2.85%), were also found to be associated with the presence of DM2 and are pertinent to the study (Figure 3).

Figure 4

Presence of comorbidities in patients with DM2

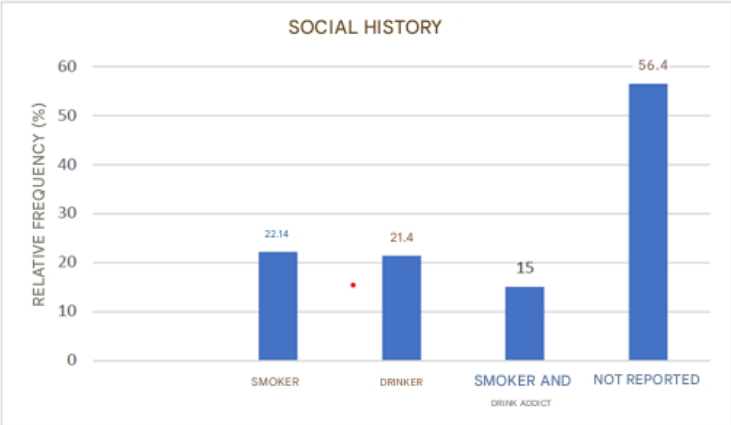


Source: Prepared by the authors.

Behavioral factors included smoking and alcoholism (Figure 4). The data, as they are of a secondary nature, do not have the information in all the medical records. In the analysis of smoking, 22.4% (n=31) individuals were identified as smokers or who had smoked for a considerable period of time. Alcohol consumption was 21.4% (n=30) and 15% (n=21) of patients who smoked and drank together. Of these, 56.4% (n=79) did not report habits.

Figure 5

Behavioral factors associated with patients with DM2



Source: Prepared by the authors.

4 DISCUSSION

When observing the incidence of DM2 by age group between the sexes, both men and women had a higher number of type 2 diabetics diagnosed between the ages of 58 and 63 years (19.2%) (Figure 1). IBGE data from 2020 on DM showed that the higher the age group, the higher the percentage of DM patients, which ranged from 0.6% for those between 18 and 29 years of age to 21.9% for people between 65 and 74 years of age. For those who were 75 years of age or older, the percentage was 21.1%. A study conducted by Macedo et al. (2019) highlighting the predominant age groups in the epidemiological profile of diabetes mellitus in the Northeast region of Brazil, showed that the highest prevalence of the disease was observed in the age group between 40 and 59 years (49.60%), followed by the age group of individuals aged 60 years or older (33.50%). Another study conducted in the state of Piauí, by Santos et al. (2018) identified a significantly high prevalence of type 2 diabetes mellitus in the elderly, reaching 76.1% in this population.

The study also observed a higher prevalence in females, as can be seen in figure 2, in which the difference, in percentage terms, between female and male DM2 patients was very expressive, in which 61.4% (n=86) was composed of women's medical records and 38.6% (n=54) of men. In addition, the significant prevalence of type 2 diabetes mellitus in women, when compared to men, corroborates findings reported in studies in the literature (Macedo et al., 2019, Ramos et al., 2020, Bizuayehu et al. (2022). When analyzing the BMI of the patients, it was possible to observe that 19.2% (n=24) had a BMI between 25 and 29.9, which represents overweight. Another 8.5% (n=12) had a BMI between 30 and 34.9 and 4.2% (n=6) obtained the parameter between 35 and 39.9, representing grade 1 and 2 obesity, respectively (Figure 3). It is noteworthy that these data are underestimated, since a considerable portion of the participants' BMI was not reported. Dyslipidemia is also another frequent condition in patients diagnosed with DM2. It was found that 22.1% (n=31) of the participants had dyslipidemia (Figure 4). This fact is due to the proportional relationship between the increase in fat levels that results in changes in the amount of glucose and serum lipids and is closely associated with cardiovascular diseases in patients with DM2 (Diaz Vera et al., 2020). It is recognized that systemic arterial hypertension (SAH) is one of the main factors that contribute to the emergence and worsening of chronic complications of DM2 (BANDEIRA; MOREIRA, 2025). Similarly, in this study, this comorbidity had the highest prevalence (85%), as demonstrated by SCHIEDECK et al. (2025). In addition, the association of SAH and DM2 are potentiators of cardiovascular risk, which makes the

individual more prone to developing cardiovascular diseases such as AMI, CAD, HF and stroke, all found in the study (Figure 4). DM2 causes an accelerated process of atherosclerosis, which causes macrovascular impairment that includes coronary artery disease (CAD), acute myocardial infarction (AMI), and heart pump dysfunction, culminating in heart failure (HF) (SBD, 2021, Macedo et al., 2019). As for microvascular dysfunctions, which include retinopathy and diabetic foot, the research identified few cases of these complications, a fact that can be linked to the lack of information in the registration forms or the development of an appropriate treatment in these patients. Regarding chronic kidney disease (CKD), we obtained a considerable result, in which 12.1% (n=17) presented the diagnosis of the disease together with DM2 (Figure 3). In agreement with these figures, it is known that diabetic patients are considered a risk group for the development of acute kidney injury (Rangel et al., 2024). In a recent study, Rabelo et al. (2023), demonstrated the presence of SAH in 67.19% of patients with DM2, in 7.81% of these cases SAH was accompanied by CKD.

As for the lifestyle factors related to DM2, there are smoking and alcoholism. In this study, an important portion of 22.14% (n=31) was found in the smokers with DM2 and 21.4% (n=30) were classified as drinkers (Figure 5). APN Health 2019, conducted between August 2019 and March 2020 by the Brazilian Institute of Geography and Statistics in partnership with the Ministry of Health, estimated that 3.8% (95%CI 3.3-4.3) of people who self-reported living with diabetes had abusive consumption of alcoholic beverages (Malta et al., 2022). A study conducted with individuals aged 45 years or older, diagnosed with diabetes in Belo Horizonte, Minas Gerais, found that 17.7% (95%CI 11.1-24.2) of those assisted by the Family Health Strategy (FHS) had a pattern of abusive alcohol consumption (Silva et al., 2016. Additionally, a study that addressed alcohol and tobacco consumption in elderly patients with DM2 revealed that the simultaneous use of these substances is frequent, especially among men (Láng et al., 2015). Considering the above, the great importance of the problem addressed is evident, since there has been a progressive increase in the number of cases of Diabetes Mellitus over the years. In this scenario, the present study aims to present the results of a research that seeks to analyze the epidemiology of Diabetes Mellitus in the Western Bahia region.

5 FINAL CONSIDERATIONS

The study showed that the majority of patients with type 2 diabetes mellitus (DM2) are female, a finding consistent with national data and other similar studies. This predominance may be related to physiological factors or to the fact that women seek health services more frequently. Thus, it is important to encourage early diagnosis in women and encourage men to undergo regular exams. As for the age group, it was observed that most of those affected are between 58 and 63 years old, in line with research that indicates an increase in incidence from the age of 50, with a decline after the age of 80. This information can guide preventive actions and early diagnosis. DM2DM was associated with comorbidities such as systemic arterial hypertension (SAH), dyslipidemia, and coronary artery disease (CAD). These comorbidities potentiate serious complications, including acute myocardial infarction (AMI), heart failure (HF), and stroke, increasing the risk of mortality. Microvascular complications such as diabetic foot and retinopathy have been rarely observed but are common in patients without adequate treatment. Obesity was shown to be a predominant risk factor, with a high prevalence of overweight and class I and II obesity in the sample, reinforcing the need for preventive interventions. In addition, the study identified that habits such as alcohol consumption and smoking, present in many patients, aggravate the risk and contribute to complications in the disease. The importance of additional long-term research, with different methodologies, to deepen knowledge about the effects of DM2 in the region and to improve disease control and prevention strategies is emphasized.

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