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## DOCUMENTARY STUDY ON ELDERLY PEOPLE DIAGNOSED WITH DIABETES MELLITUS, FOLLOWED UP IN A PUBLIC PRIMARY CARE SERVICE, IN THE CITY OF SÃO PAULO

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### ABSTRACT

**Objectives:** To know the prevalence of obesity in users diagnosed with type I or II diabetes mellitus, treated at a Basic Health Unit in the southern zone of the city of São Paulo, from month to month, 2022.

**Methods:** This is an epidemiological, descriptive, cross-sectional and documentary study, where data were collected from one hundred and thirty-nine assessments (139) medical records. attended by the Basic Health Unit, in the year 2022, located in the city of São Paulo, SP, Brazil The sample was made up of people diagnosed with type I and II diabetes mellitus, attended by the Jardim Cliper basic health unit. The inclusion criteria were all assessments of the diabetic foot of people treated by the unit and exclusion criteria were assessments that presented incomplete data. **Results and Discussion:** 57.66% of the sample is female and the vast majority of people with a medical diagnosis of diabetes are over 60 years old, around 77.78%. The present study demonstrates that the prevalence of obesity in adults is 40%, and the prevalence of overweight among people over 60 is 47%. Despite the knowledge that overweight and obesity are important predictors of morbidity and mortality in the general and diabetic population, effective actions to generally change this situation are still minimal. **Conclusion:** Of the population studied, 47% were not in the ideal weight range. Our data indicate the prevalence of obesity in diabetic patients was higher than that observed in the general Brazilian population according to data from the Brazilian Institute of Geography and Statistics.

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## INTRODUCTION

In Brazil, over the last 15 years, obesity has become the object of public policies, and the Ministry of Health (MS), through the Unified Health System (SUS), is the main proponent of actions, following the international trend. The National Food and Nutrition Policy (PNAN), 1999, has been defining guidelines for the organization of actions and treatment of obesity in the SUS, in 2012 this policy was revised and in 2013 the MS established the line of care for obesity as part of the Network of Health Care for Chronic Noncommunicable Diseases (NCDs), proposing intersectoral actions within the SUS itself (DIAS *et al.*, 2017). Public policies and intersectoral promotion actions must provide stimulating care environments centered on the well-being of the individual, so that they can face obesity, by receiving support to seek and maintain healthy eating and physical activity patterns, in addition to inform and educate the population, of all age groups and

all social classes, regarding the prevention of obesity (RECH *et al.*, 2016). To prevent and control obesity, it is necessary to create, organize, monitor and evaluate primary care intervention programs. In order to obtain parameters that allow managing the process of change, taking into account the subject's nutritional transition, and the reorganization and improvement of health actions and care in services, in order to broaden the vision of those involved in the search for proposals, actions and strategies to prevent obesity and promote its control and the emergence of pathologies related to it (FREITAS *et al.*, 2014). Obesity is a global public health problem, with both developed and developing countries showing an increase in its prevalence (PINHEIRO *et al.*, 2004). The NCD group has shown high expenses for the SUS, total costs of systemic arterial hypertension (SAH), diabetes mellitus (DM) and obesity reached 3.45 billion reais (R\$) (95% CI: 3.15 to 3.75) in 2018, that is, more than 890 million dollars (US\$). Of these costs, 59% were related to the treatment of hypertension, 30% to DM and 11% to obesity. Considering obesity

separately as a risk factor for DM and SAH, the costs attributable to this disease reached R\$1.42 billion (95%CI: 0.98 to 1.87), that is, 41% of total costs (NILSON *et al.*, 2018). Obesity is a metabolic disorder characterized by a chronic inflammatory state and excessive accumulation of body fat, which presents a risk with negative implications for health and contributes to the development of pathologies such as type 2 diabetes mellitus (DM2), hypercholesterolemia, hypertension, cardiovascular diseases, arteriosclerosis, obstructive sleep apnea syndrome, musculoskeletal disorders, reduced fertility, gallstones and various types of cancer such as breast, uterus, prostate and intestine (PEREIRA-LANCHA; CAMPOS-FERRAZ; LANCHA, 2012). Resulting in several pathophysiological changes such as reduced insulin extraction by the liver, with increased hepatic glucose production and decreased glucose uptake by muscle tissue. These events can result in different degrees of glucose intolerance and, in individuals with DM2, will influence glycemic control, reflected in higher levels of glycosylated hemoglobin (SBD, 2014).

### Goals

**General:** Characterize the profile of elderly users diagnosed with DM, at UBS Jardim Cliper, according to sex, age and marital status.

**Specific:** Determine, according to the data recorded in the evaluation forms, the prevalence of obesity among elderly subjects, according to sex. Identify among the total number of subjects, according to gender, the chronic diseases they present associated with DM2 and the types of treatments they carry out.

### Methodological procedures

**Study design:** This is an epidemiological, descriptive, cross-sectional and documentary study.

**Ethical aspects:** The project was submitted to the Research and Teaching Ethics Committee of the Municipal Health Department of the Municipality of São Paulo and to the Ethics and Research Committee of the Santo Amato University. It was approved by the respective Ethics Committees, obtaining authorization to access information from diabetic foot assessment forms, from users diagnosed with DM, from UBS Jardim Cliper.

**Study location:** Research carried out at UBS Jardim Cliper, located in the south zone, in the city of São Paulo, SP, from April to November, 2022.

### Inclusion and exclusion criteria:

**Inclusion criteria:** Diabetic foot assessment forms for people treated at the Jardim Cliper UBS with a medical diagnosis of DM.

**Exclusion criteria:** Diabetic foot assessment forms that showed incomplete data.

**Sample:** The data for this study were collected from diabetic foot assessment forms, from users monitored in the Hiperdia group and diagnosed with DM, at UBS Jardim Cliper. Of the one hundred and forty (140) completed forms, only one was excluded. Therefore, the sample for this study is made up of one hundred and thirty-nine (139) diabetic foot assessment forms, from users diagnosed with DM, monitored in the Hiperdia group, at UBS Jardim Cliper.

**Data analysis:** As a result variable, the prevalence of obesity presented by elderly users of UBS Jardim Cliper diagnosed with DM was considered. In the analytical approach, data was initially organized into Excel spreadsheets and statistical analysis was carried out using *stata 14* software. Afterwards, prevalence estimates were made and prevalence ratios were calculated for obesity with a 95% confidence interval. For the descriptive analysis of qualitative variables, absolute (n) and relative frequencies (%) were calculated. For the quantitative variables, the following were calculated: means, deviations, minimum and maximum values.

### Search variables

**Dependent variable:** Body Mass Index (BMI).

**Independent variables:** socio- demographic data, type of diabetes, type of treatment, anthropometric data, presence of associated chronic non-communicable diseases.

## RESULTS AND DISCUSSION

The results will be analyzed and discussed based on the presentation of data in table format. To this end, of the 5 tables composed with data collected from records of 139 diabetic foot assessment forms, from the Basic Health Unit (UBS) Jardim Cliper, a total of 95% are diagnosed with type II diabetes mellitus (DM2); 58.27% are female (n=81) and 41.73% are male (n=58); the average age found was 65.5 years, with a standard deviation of 10.5 years, a minimum age of 23 years and a maximum of 92 years. Regarding the records of the gender variable, table 1 defines that the diabetic foot assessment group was made up of 58.27% women. Demonstrating that the female gender in this study has greater involvement with their own health and that of their family, as seeking family health care is a role of women in our society, giving them greater access to health services available in the territory where they reside. Thus, women, in addition to having double tasks by working outside and at home, always want to ensure their health more than men. Men are still seen in the family and in society as invulnerable and strong, these characteristics being barriers to seeking health services. Because, in this view, seeking health services would show signs of weakness, fear and insecurity. The precarious male demand for primary care helps men develop pathologies that can be prevented and treated efficiently when diagnosed early. Remembering that late diagnosis negatively and unsatisfactorily affects the prognosis (STIVAL *et al.*, 2015). When analyzing only data relating to age, we observed that the diagnosis of DM2 was recorded in all assessment forms where the person was elderly; accounting for 109 (77.7%) evaluations from people over 60 years of age, of which 78 (56.52%) said they were married. These data corroborate findings from other studies that reported the prevalence of DM2 in elderly and married women.

**Table 1. Data (number and %) of variables: age, sex and marital status**

Variables Analyzed	n	%
Age		
23-59	30	22.30
60 plus	109	77.70
Sex		
Feminine	81	58.27
Masculine	58	41.73
marital status		
Single	26	18.71
Married	78	56.12
Widower	32	23.02
Separated	3	2.16

Data expressed as absolute (n) and relative frequency (%). Demographic members.

Among the elderly evaluated, DM2 was evident, with the following prevalence of obesity: 9.2% among men and 23.3% among women. Obesity and DM2, when not controlled, can cause, in the long term, dysfunction and failure of several organs, especially kidneys, eyes, nerves, heart and blood vessels. Encouraging the practice of physical activities, changing eating habits are behaviors that must be adopted in public health programs (CABRERA; JACOB, 2001). The body mass index (BMI) is obtained by dividing body mass (in kilograms) by height (in meters squared), which is an appropriate indicator for evaluating the nutritional status of adults and the elderly. The cutoff points frequently used for the elderly are body mass index <22kg/m<sup>2</sup> to define underweight; body mass index between 22 and 27kg/m<sup>2</sup> for eutrophy; body mass index >27kg/m<sup>2</sup> for overweight (TAVARES; NUNES; OLIVEIRA-SANTOS, 2010; CERVI *et al.*, 2005; VAN, 1985). In this sense, they differ from the values recommended for

adults by the World Health Organization (WHO), which classifies obesity based on BMI above 30 kg/m<sup>2</sup>. Obesity. As a global phenomenon, concomitant with population aging, it has also been increasing in recent decades, in all age groups (WHO, 2012; 2015). With the human aging process, some physiological and functional changes occur in the body that may predispose to the accumulation of fat.<sup>16</sup> Excess weight in the elderly can lead to unfavorable health conditions; surveys have found an association between excess weight/obesity and hypertension and DM (PINHO *et al.*, 2013). Table 2 highlights the variables in BMI: thinness, normal weight and overweight; 53 (48.62%) evaluations showed elderly subjects with excess weight as a risk factor for morbidity and mortality, 48 (45.28%) with good quality nutrition and 8 (7.34%) with underweight.

**Table 2. Data (number and %) of the Elderly BMI variable**

Variables Analyzed	n	%
Elderly BMI		
Thinness	8	7.34
Eutrophy	48	45.28
Overweight	53	48.62

Data expressed as absolute (n) and relative frequency (%). BMI.

In relation to other chronic diseases associated with DM, we observe in table 4 that of the total of those evaluated (139), 64.20% of females and 54.39% of males have SAH. SAH is a disease of global relevance, it represents one of the most prevalent public health problems, in addition to being widely associated with risk factors for cardiovascular morbidity and mortality, with an increased risk of negative outcomes, such as: acute myocardial infarction, heart failure, peripheral arterial disease, stroke and chronic kidney disease (MCLELLAN *et al.*, 2007; BRASIL, 2014). For decades, it has been observed that the prevalence of DM and obesity among hypertensive individuals is considerably higher when compared to normotensive individuals. Analyzing from the perspective of obesity, the literature reports an increase in the frequency of SAH of three to eight times more among obese people (ROSENFELD; SHOHAT, 1983). Literature has been pointing out for many years that the quality of care provided to the elderly population is low and depends on individual characteristics, such as socioeconomic level. A study carried out in Brazil in 2013 showed that a quarter of elderly people with SAH reported having received guidance and requests for tests, items indicating this care. Furthermore, the inequalities in health care for those affected by SAH were striking: those with more education received better quality care (DREVENHORN; KJELLGREN; BENGSTON, 2007). When analyzing the variable Dyslipidemia associated with DM in table 4, we observed that of the total of those evaluated (139), 56 (68.29 %) women and 40 (70.18 %) men did not present and; which 26 (70.18 %) men and 17 (29.82 %) men present. Dyslipidemia in DM may be associated with metabolic syndrome and, in this case, the sum of multiple risk factors requires a rigorous therapeutic approach due to the deleterious impact on quality of life and cardiovascular risk.<sup>21</sup> T2DM has an increased prevalence of lipid abnormalities that contribute to higher rates of coronary artery disease (CAD). Therefore, regardless of the level of dyslipidemia, monitoring tests should be carried out routinely to control LDL cholesterol, triglycerides and HDL cholesterol (TORAL; SLATER, 2007).

**Table 4. Data (number and %) of variables: Chronic diseases associated with DM**

Variables Analyzed	Feminine		Masculine	
	n	%	n	%
Associated hypertension				
Does not present	29	35.80	26	44.83
It presents	52	64.20	32	55.17
Associated dyslipidemia				
Does not present	56	68.29	40	70.18
It presents	26	31.70	17	29.82

Data expressed as absolute (n) and relative frequency (%). Associated chronic diseases, according to sex.

Regarding the types of treatments reported by the 139 people and recorded in the diabetic foot assessment form, the data available in table 5 show the diet variable in the food item, showing that 57 (70.37%) female subjects and 42 (72.41%) male. The difficulty of changing eating habits can be understood by the complexity of modifying them in adult life, because it involves biopsychosocial aspects arising from the entire course of life, considering that these habits are formed since childhood (CABRERA; JACOB, 2001). Since the 90s, studies have continued to show the emotional aspect as a factor in adherence to the diet, as eating habits, in addition to meeting men's physiological needs, also have a symbolic character, involving emotions, senses, memory and feelings (LIPSCHITZ, 1994). Research in which subjects were subjected to low-calorie diets, indicated in the treatment of DM, confirm that these people evolve with adaptive changes, in response to limited energy consumption. In other words, as energy consumption is restricted and energy expenditure remains the same, this leads to weight loss, improving health and over time, as a consequence, there are changes in body composition (CHACRA, 2001). In this study, the evaluation form records show that people report that they are unable to follow an adequate diet due to lack of time, money and/or discipline. Table 5 shows that of the people assessed, 60 (74.07%) were female and 41 (70.66%) were male, not practicing physical activity, highlighting a risk factor for the development of obesity (TORAL; SLATER, 2007). It has been known for many years that regular physical activity brings benefits to the body, such as improving cardiovascular and respiratory capacity, glucose tolerance and insulin action; decreased blood pressure in hypertensive patients (DENGEL *et al.*, 1998). And also that physical activity and nutrition are two behaviors considered priorities for promoting health and preventing NCDs in contemporary populations (SRIWIJITKAMOL *et al.*, 2006).

**Table 5. Data (number and %) of variables: Types of Treatment**

Variables Analyzed	Feminine		Masculine	
	n	%	n	%
Diet				
Do not do	57	70.37	42	72.41
He does	24	29.63	16	27.49
Perform physical activity				
Does not perform	60	74.07	41	70.66
Perform	21	25.93	17	29.31

Data expressed as absolute (n) and relative frequency (%). Types of treatment, according to sex.

Estimates indicate that between 2010 and 2030 there will be a 69% increase in the number of adults with DM in developing countries and a 20% increase in developed countries (FREITAS *et al.*, 2014). In Brazil, data from the National Health Survey (PNS) estimates around 9.2 million Brazilians diagnosed with DM, with the prevalence increasing with increasing age (MALTA *et al.*, 2019).

### Final considerations

In order to reduce the demands for long-term care and material and human resources, resulting from the worsening of chronic conditions, especially among elderly people with DM2, this documentary study provides information about people monitored in a public primary care service, whose results, although with some methodological limitations, point to the need for primary care services to target health promotion actions and control and prevention measures for pathologies associated with DM, hypertension, dyslipidemia and obesity at all ages.

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