

A SOCIAL STUDY OF THE IMPORTANCE OF DIABETES MELLITUS SCREENING

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Abstract: Diabetes Mellitus (DM) belongs to the class of metabolic diseases whose main symptom associated with this disease is high blood sugar levels for a long period. It can be considered as a d the main diseases in the world, since it causes a large population, The objective of the present study was to analyze the relationship between the blood glucose values established by the Brazilian Society of Diabetes Mellitus with age and sex in a population of a city in the Northwest of São Paulo. This is a retrospective, qualitative-quantitative study, with data collected through an epidemiological survey with a group of people, chosen at random, in a city in the northwest region of São Paulo. Data were obtained through capillary blood glucose, for this purpose the test strip was inserted into the blood glucose device, after perforating the patient's finger with the device needle, once the sample was obtained, the test strip was placed in contact with the drop of blood until filling its deposit and after a few seconds the right-handed monitor showed the blood glucose value. The data obtained were tabulated, analyzed and represented in tables and figures. It was found that 52.38% of the individuals were male, and 47.62% were female. The correlation test between blood glucose and age showed no significant correlation between these variables. Therefore, the detection of Diabetes Mellitus carriers in campaigns is of paramount importance, for the understanding of disorders and diabetes care by the affected individual, their families and health professionals, it is of paramount importance since they have direct contact with the disease.

Keywords: Diabetes Mellitus, population affected, age, sex.

INTRODUCTION

One of the chronic and non-communicable metabolic diseases with a high incidence in Brazil is Diabetes Mellitus (DM), which consists of Persistent hyperglycemia (increased blood glucose), resulting from a deficiency in the production of insulin, also known as insulin-dependent or type 1, autoimmune DM, where the destruction of pancreatic B cells occurs, It can also be classified by deficiency in its action, type 2 DM, due to insulin resistance or also failure in both mechanisms, thus causing long-term complications such as neuropathy, retinopathy, blindness, diabetic foot, amputations and nephropathy (ADA, 2017; CARDOSO et al., 2020; LYRA, 2020, SILVA et al., 2022).

Currently, Brazil ranks fifth in incidence of diabetes in the world, with 16.8 million adult patients (20 to 79 years old), second only to China, India, the United States and Pakistan (Ministry of Health, 2022). The trend is for growth over the years, a worrying situation, because in addition to overloading health, the financial costs are high, thus generating a great economic impact on the country. Based on the studies carried out, of all DM patients, 90% are characterized as DM 2 (ADA, 2017; AMORIN, 2019).

Therefore, it is essential that health units carry out screening for DM, as it is estimated that about 50% of people who have DM 2 do not know they have the disease, sometimes remaining undiagnosed until signs of complications appear. And it is still important to make an early diagnosis when the patient has the most prevalent symptoms, such as polyuria, polydipsia, polyphagia and unexplained weight loss, not to mention fatigue (tiredness), weaknesses and repeated infection that can raise the clinical suspicion of DM. The laboratory diagnosis of DM can be performed by means of fasting glucose, 2-hour glucose after oral glucose tolerance test

(OGTT) and glycated hemoglobin (HbA1c) (CANDIDO et al., 2017; IDF, 2019).

Finally, because DM is a systemic disease, a multidisciplinary team is needed, capable of identifying the signs and symptoms presented by patients and following the specific protocol of the Ministry of Health, from requested tests to referral to appropriate professionals. People with DM must be guided to change their lifestyle, with an adequate diet and physical activity and in certain cases they must follow the prescription of medications, that there are two options: oral antidiabetics and insulin therapy (CANDIDO et al., 2017, FLOR, CAMPOS, 2017, SILVA et al., 2022). In this context The objective of this study was to analyze the relationship between the blood glucose values established by the Brazilian Society of Diabetes Mellitus with age and sex, and sexually transmitted infections (STIs) in a population of a city in the northwest of São Paulo.

METHODOLOGY

The present research is a retrospective, qualitative-quantitative study, with data collected through an epidemiological survey with a group N= 64, chosen at random, in a city in the northwest region of São Paulo, with a total population of 69,680 inhabitants (IBGE, 2022).

The collection was carried out in a public shopping center in the city, for a period of 4 hours, during an awareness campaign on Blood donation, Sexually Transmitted Diseases, Arterial Hypertension and Diabetes Mellitus, organized by the Nucleus of Hemotherapy of Fernandópolis and the Centro de Assistance to Infectious and Parasitic Diseases (CADIP). Participants who showed interest went to the collection site, informing their age and sex and immediately after collecting capillary blood glucose. The method used for the collection was in accordance with the Basic

Care Notebook of the Ministry of Health, number 36, on strategies for the care of people with a chronic disease, Diabetes Mellitus.

Data were obtained by means of capillary blood glucose, following the following steps: the test strip was inserted into the blood glucose device, after puncturing the patient's finger with the device needle, once the sample was obtained, the test strip was placed in contact with the drop of blood until it filled its deposit and after a few seconds the right-handed monitor showed the blood glucose value.

Users who present values higher than normal (> 126 fasting or > 200 at random) according to the endocrinology protocol for diabetes mellitus, were instructed to look for the health unit responsible for their region, for follow-up.

For the collection, it was necessary to have the support of health professionals (infectologists and family health doctors, nurses, social workers, psychologists), with right-handed equipment and disposable collection equipment. The following variables were analyzed for this research: age group, sex, and blood glucose level.

After the examination, blood glucose values were tabulated, as follows: <100 , 100 to 125 , >125 and >200 , according to the Brazilian Society of Diabetes Mellitus, classifying users as non-diabetic, pre-diabetic and diabetic, and after, correlated with the age and sex of each individual.

In the same study, the prevalence of HIV, syphilis and hepatitis B and C were evaluated. The present research was carried out through a retrospective, qualitative-quantitative study, with data collected through an epidemiological survey with a group $N= 125$, chosen at random,

Participants who showed interest went to the collection site, filling out a consent form to perform the rapid test and informing their

personal data, soon after, the test for ITS's. The step-by-step collection was in accordance with the Basic Care Notebook of the Ministry of Health, Clinical Protocol and Therapeutic Guidelines, Comprehensive Care for People with Sexually Transmitted Infection (STI).

For the screening of STIs, disposable rapid tests were used. The procedure was performed in people of legal age (>18 years) and with an active sexual life. The tests were carried out by means of a stamp with a needle, which, when applied to the patient's finger, causes a small lesion, leaving drops of blood, which were collected with a vacuum straw and placed in a reagent medium, and after 15 minutes of the reaction between the blood and the reagent medium, the result was demonstrated. For each disease, the test is prepared and the manufacturer's instructions are followed for carrying out the reaction.

The result was confidential and only the nurse in charge or the professor and the patient had access, and after a positive result, follow-up at CADIP was advised.

For the collection, it was necessary to have the support of health professionals (infectologists and family health doctors, nurses, social workers, psychologists), with disposable equipment for carrying out the rapid tests, in addition to the consent form for carrying out the test. exam. The following variables were analyzed for this research: age group, sex, and positivity for STIs (Hepatitis B and C, HIV and Syphilis).

After the examination, the positive and negative people for STIs analyzed (Hepatitis B and C, HIV and Syphilis) were tabulated and then correlated with the age and sex of each individual.

The study will respect all ethical aspects in research, but due to the nature of the research, based on secondary data from a population awareness campaign, there was no submission to the Research Ethics Committee (CEP) in

accordance with the Resolution of the National Council of Health No. 466, of December 12, 2012 (MINISTRY OF HEALTH, 2012).

After obtaining the data, the statistical analysis was carried out, which consisted of the percentage analysis of the categorical variables of the study; analysis of descriptive statistics of the continuous variables of the study; application of Student's t test for independent samples to compare continuous variables in relation to categorized variables; application of Fisher's exact test to associate the categorized variables with each other, application of the Spearman correlation test to correlate continuous variables with each other. The significance level applied to the tests: 0.05 or 5% and the software used: Minitab 17 (Minitab Inc., ZAR, 2009)

RESULTS

Table 1 shows the percentage results of the categorized variables that were evaluated in the study.

The results in Table 1 revealed that most individuals were male, 33 (52.38%) and 30 (47.62%) were female.

The statistical analysis was guided by the relationship of the obtained values of serum glucose with the age and sex of the individuals. The total of 63 individuals evaluated had a mean age of 42.19 years with a standard deviation of 16.17 years and a median of 44.00 years. The minimum age observed was 9 years and the maximum was 75 years. The age data of the individuals followed normality ($P>0.100$) and the distribution did not present discrepant values.

The glycemia of the evaluated individuals presented a mean of 109.43 mg dL⁻¹ with a standard deviation of 29.86 mg dL⁻¹ and a median of 103.00 mg dL⁻¹. The minimum value observed was 65 mg dL⁻¹ and the maximum was 272 mg dL⁻¹. The distribution of blood glucose data was not normal ($P<0.010$),

showing numerous higher discrepant values (values equal to or greater than 138 mg dL⁻¹) and one lower value, that is, the minimum value observed (65 mg dL⁻¹).

Table 2 shows the descriptive statistics of the blood glucose results in relation to the sex of the individuals evaluated in the study.

The results in Table 2 reveal the absence of significant differences in blood glucose results when compared in relation to the sex of the individuals evaluated ($p=0.652$).

Blood glucose results were also correlated with the age of the subjects. The correlation test between blood glucose and age showed no significant correlation between these variables ($r=0.174$; $p=0.172$). In addition to the p-value being above the level of significance, assuming no significant correlation, the Spearman correlation coefficient was close to zero, reiterating the hypothesis of no correlation. Figure 1 shows the behavior of blood glucose data in relation to the age of the individuals.

The behavior of the data shown in Figure 1 reiterates the absence of correlation between age and blood glucose of individuals, since the relationship between both variables mentioned is practically linear, with no positive or negative correlation.

Blood glucose data were categorized into two groups: normal, for individuals with blood glucose lower than or equal to 99 mg dL⁻¹; and altered, for individuals with blood glucose above 99 mg dL⁻¹. Table 3 shows the descriptive statistics of the age of the individuals in relation to the categorized glycemia.

The results in Table 3 show the absence of significant differences in the age of individuals when compared to categorized blood glucose ($p=0.193$). In this context, age is not a factor that significantly influenced the blood glucose differences of the individuals evaluated in the study.

Table 4 shows the association between

Categorized variables	No	%
Sex		
Feminine	30	47.62
Male	33	52.38

Table 1: Percentage referring to the categorized variables.

Sex	descriptive statistics					p value ¹
	No	Mean±SD ³	MD ²	Minimum	Maximum	
Feminine	30	111.27±35.75	104	65	272	0.652
Male	33	107.76±23.74	102	77	198	

¹ p value referring to the t test for independent samples at $p < 0.05$. ² Median. ³ Standard deviation.

Table 2. Descriptive blood glucose statistics in relation to the sex of individuals.

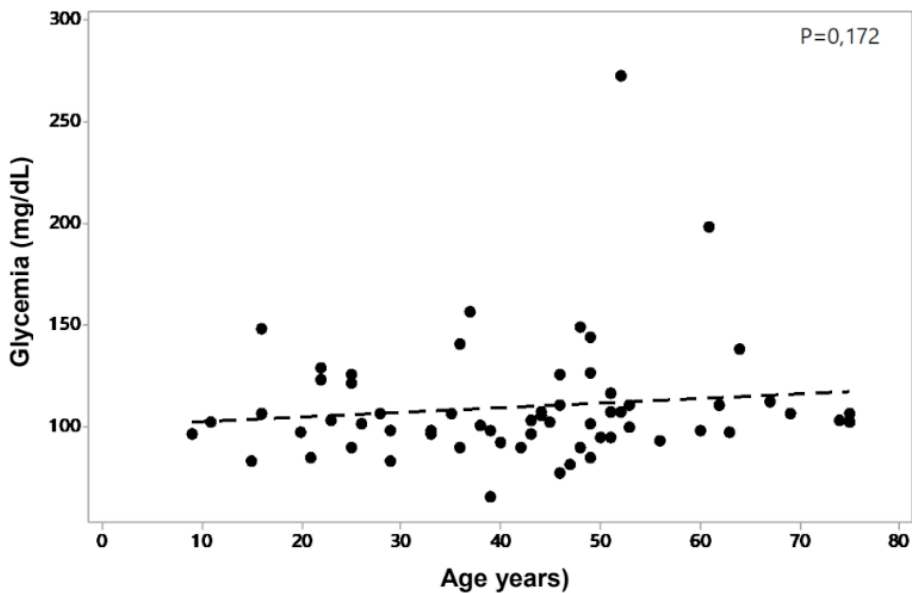


Figure 1, Blood glucose results in relation to age.

blood glucose	descriptive statistics					p value ¹
	No	Mean±SD ³	MD ²	Minimum	Maximum	
changed	38	44.26±17.30	46	11	75	0.193
Normal	25	39.04±14.03	40	9	63	

¹ P value referring to the t test for independent samples at $P < 0.05$. ² Median. ³ Standard deviation.

Table 3: Descriptive statistics of age in relation to categorized blood glucose.

categorized blood glucose	Sex				p value ¹
	Feminine	%	Male	%	
changed	17	44.74	21	55.26	0.614
Normal	13	52.00	12	48.00	

¹ P value referring to Fisher's exact test at $P < 0.05$.

Table 4, Percentages of individuals' gender in relation to categorized Blood glucose.

categorized blood glucose and the sex of individuals. The results show the absence of a significant association between the categorized blood glucose and the sex of the individuals ($p=0.614$).

In the same study, the prevalence of seropositive individuals for HIV, syphilis and hepatitis B and C were evaluated. Of the individuals evaluated, only one tested positive for HIV, this being a male; 3 cases for syphilis, 2 men and 1 woman and no cases of hepatitis B and C.

DISCUSSION

Brazil is in an ambivalent scenario in relation to Diabetes Mellitus, because in addition to having a large adult diabetic population, it also has a large contingent of diabetics who have not yet been diagnosed according to data present in the 10th edition of the Diabetes Atlas of the International Federation of Diabetes (IDE, 2019). This fact is worrying, because, despite DM being a silent disease at the beginning, the long-term consequences, such as micro and macrovascular complications, are serious and the costs to the public coffers are high, which is why the importance of screening of hyperglycemia in public environments (TILAHUN et al., 2020).

In the present study, of the 63 individuals evaluated, 38 were detected with changes in capillary glycemia. In relation to the sex of these individuals, the results were discrepant with those obtained by Macedo et al. (2018), as there was no prevalence in females equal to the reference study.

Furthermore, when taking into account the age group, a pattern was not found in the present findings, a fact that differs from those found in Mangueira et al. (2020), who found a predominance of patients with Diabetes Mellitus in patients older than 60 years (57.8%) in the city of Ibiapara, Paraíba, Brazil,

in Primary Health Care (PHC).

However, although the values do not show a normal pattern, the finding of a right-hander with a value of 272 mg dL^{-1} shows that hyperglycemia is a silent disease and therefore there is a need for better investigation and active search for DM in the population. place.

Finally, it is worth remembering that in addition to screening for DM, investing in strategies that emphasize modifiable risk factors, such as reducing overweight and obesity and lifestyle changes, can delay the onset of the disease or its complications, in addition to generate greater glycemic control (FLOR; CAMPOS, 2017).

FINAL CONSIDERATIONS

The understanding of disorders and diabetes care by the affected individual, their families and health professionals is of paramount importance since they have direct contact with the disease. It manifests itself in routine laboratory tests during visits to the family health unit, and thus begins a planning for patients involving regular consultations with medical determination, incorporating guidelines for the treatment and prevention of diabetes complications, as well as assessment of the condition. patient's psychological state and their sense of well-being, taking into account the burden of managing living with a chronic illness.

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