



ORIGINAL ARTICLE

# Knowledge of Diabetes Mellitus: Does Gender Make a Difference?

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**Abstract**

**Objective:** Diabetes mellitus (DM) is a chronic disease considered an important public health problem. In recent years, its prevalence has been exponentially rising in many developing countries. Chronic complications of DM are important causes of morbidity and mortality among patients, which impair their health and quality of life. Knowledge on disease prevention, etiology, and management is essential to deal with parents, patients, and caregivers. The aim of this study was to evaluate the knowledge regarding DM in an adult population from a Middle-western Brazilian city.

**Methods:** This was a cross-sectional study covering 178 adults, aged 18–64 years, who answered a diabetes knowledge questionnaire. In order to identify the difference between groups, analysis of variance was used.

**Results:** Higher knowledge scores were found regarding the role of sugars on DM causality, diabetic foot care, and the effects of DM on patients (blindness, impaired wound healing, and male sexual dysfunction). However, lower scores were found amongst types of DM, hyperglycemic symptoms, and normal blood glucose levels. Females tended to achieve better knowledge scores than males.

**Conclusion:** Women had better knowledge regarding types of DM, normal blood glucose values, and consequences of hyperglycemia revealed that diabetes education should be improved.

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## 1. Introduction

Prevalence of type 2 diabetes mellitus (DM) is increasing worldwide, especially among developing nations, and it has been estimated that by 2030, 366 million people will be affected by this disease, and two-thirds of which will be living in developing countries [1,2].

According to the American Diabetes Association, DM should be considered as a group of metabolic disorders characterized by a hyperglycemic state, as a result of chronic insulin resistance, which leads to pancreatic  $\beta$  cell dysfunction and subsequently a massive failure on insulin secretion. DM chronic hyperglycemia has been associated with long-term target-organ damage, dysfunction, and collapse especially among ophthalmologic, renal, neurologic, and cardiovascular systems [3].

It should be noted that type 2 DM is an independent risk factor for coronary artery disease, stroke, peripheral vascular disease, and congestive heart failure, and is the major cause of death for those patients [4–7].

Although the type 2 DM pathogenesis is still not fully elucidated, there are many contributing factors such as advanced age, familial history, and behavioral and environmental factors that develop a relevant role in disease prognosis and evolution [8–10].

In DM primary and secondary prevention strategies, the most important factors are population education and information, stronger information systems for patients, caregivers, and health professionals, as well as supportive environments for health promotion and disease prevention, healthy public policies, and adoption of structured healthy lifestyle intervention programs [11].

The aim of this study was to evaluate the diabetes knowledge of an adult population in the Araguaia region, Legal Amazon.

## 2. Materials and methods

### 2.1. Locality and population

The Bom Jardim de Goiás city is located in the northwest region of the Goiás. Its territory is limited by Aragarças, Baliza, Montes Claros, and Piranhas municipalities, which are to the Goianian side of the Araguaia region, Legal Amazon [12].

This municipality is 185,073 km<sup>2</sup> and its population is estimated to be 8,423 citizens with a very low demographic density (4.55/km<sup>2</sup>). This population includes Caucasian, AfroBrazilian, and indigenous people. Its geographic position is 16°12'36" latitude south and 52°10'19" longitude west, at an altitude of 318 m above sea level [12].

This cross-sectional study evaluated the knowledge of diabetes mellitus among 178 adults (age 18–64 years) from three family health units of Bom Jardim de

Goiás, located at the Goiás State in the Araguaian Valley, Amazônia Legal, Brazil. More detail regarding the studied population is presented in Table 1.

### 2.2. Evaluation of diabetes knowledge

To evaluate the knowledge of diabetes, a Portuguese version of the Star Country Diabetes Study's questionnaire was used [13]. The referred instrument has 24 items.

### 2.3. Ethical and statistical aspects

The volunteers signed an informed consent form prior to entering the study, which was approved by the Julio Müller University Hospital Ethics Committee on Research of the Federal University of Mato Grosso (protocol no. 668/CEP-HUJM/09).

Statistical analysis was done by the EpiTools program (Australian Centre for International Agricultural Research, Canberra, Australia). A variance analysis to compare two proportions was performed (ANOVA). Statistical significant differences were considered when  $p < 0.05$ .

## 3. Results

Among this population the majority of people was young or middle aged male gender, white Caucasian and AfroBrazilian, and were married with a low family income.

In general, the frequency of correct answers tended to be higher amongst women compared to men. However, statistical differences among gender were found only for

**Table 1.** Socioeconomic characteristics of a sample population from Bom Jardim de Goiás, Goiás, Brazil, 2013.

Variable	Categories	<i>N</i>	%
Gender	Female	70	39.32
	Male	108	60.68
Ethnicity	AfroBrazilian	77	43.26
	Caucasian	94	52.81
	Indigenous	7	3.93
Educational level	Illiterate	11	7.43
	Fundamental	97	54.49
	High school	74	41.57
	College	7	3.94
Marital status	Single	49	27.53
	Married	79	44.38
	Divorced	16	8.99
	Other	34	19.10
Age (y)	18–34	97	54.49
	34–59	63	35.39
	≥60	18	10.12
Family income (MS) <sup>a</sup>	≤1	87	48.87
	≥1–2	41	23.03
	>2	35	19.67
	Not answered	15	8.43

<sup>a</sup>In National base salaries/month (US\$296.00).

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