

REVIEW

Diabetes Care in Brazil



Walmir F. Coutinho, MD, PhD, Wellington Santana Silva Júnior, MD

Rio de Janeiro, Brazil

Abstract

BACKGROUND The diabetes epidemic affects most countries across the world and is increasing at alarming rates in Latin America. Nearly 12 million individuals have diabetes in Brazil, and the current prevalence ranges from 6.3% to 13.5%, depending on the region and the diagnostic criteria adopted in each study.

OBJECTIVE To provide an overview of diabetes care in Brazil, focusing on studies of diabetes epidemiology, prevalence of patients within the standard targets of care, and economic burden of diabetes and its complications.

METHODS SciELO and PubMed searches were performed for the terms “diabetes,” “Brazil,” “Brazilian,” and “health system”; relevant literature from 1990 to 2015 was selected. Additional articles identified from reference list searches were also included. All articles selected were published in Portuguese and/or English.

FINDINGS Recent studies detected a prevalence of gestational diabetes mellitus of nearly 20%. Among patients with type 1 diabetes, almost 90% fail to reach target of glycemic control, with less than 30% receiving treatment for both hypertension and dyslipidemia. More than 75% of patients with type 2 diabetes are either overweight or obese. Most of these patients fail to reach glycemic targets (42.1%) and less than 30% reached the target for systolic and diastolic blood pressure, body mass index, or low-density lipoprotein cholesterol. Only 0.2% of patients reach all these anthropometric and metabolic targets.

CONCLUSIONS Brazil is the fourth country in the world in number of patients with diabetes. Regardless of the diabetes type, the majority of patients do not meet other metabolic control goals. The economic burden of diabetes and its complications in Brazil is extremely high, and more effective approaches for preventions and management are urgently needed.

KEY WORDS Brazil, diabetes, diabetes care, health care expenditures, Latin America, public health care, type 2 diabetes

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Walmir F. Coutinho reports receiving lecture fees from Abbott Diabetes Care, Abbott Nutrition, Aché Laboratórios Farmacêuticos, Janssen, Astra Zeneca, and Novo Nordisk; serving on advisory boards for Abbott Diabetes Care, Abbott Nutrition, Astra Zeneca, Janssen, and Novo Nordisk; and receiving travel reimbursement from Abbott Nutrition, Janssen, Astra Zeneca, Novo Nordisk, and Merck Sharp & Dohme. Wellington Santana da Silva Júnior has no conflicts of interests to disclose.

From the State Institute of Diabetes and Endocrinology (IEDE), Catholic University of Rio de Janeiro, 22451-900, Rio de Janeiro, Brazil (WFC); and the Diabetes Department, State Institute of Diabetes and Endocrinology (IEDE), 21330-683, Rio de Janeiro, Brazil; and PhD student in the Postgraduate Program in Clinical and Experimental Physiopathology (FISCLINEX), State University of Rio de Janeiro, 20551-030, Rio de Janeiro, Brazil (WSdSJ). Address correspondence to W.F.C. (wcoutinho@globo.com).

INTRODUCTION

Brazil is a continent-sized country divided into 5 major geographic regions: north, northeast, mid-west, southeast, and south. There are wide inter-regional demographic, socioeconomic, and cultural disparities. According to the last census, conducted by the Brazilian Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística*) in 2010,¹ there were about 190,755 million inhabitants in Brazil, concentrated in urban areas (84.4%) and in the southeast region (42.6%), comprising 10.9% of Brazil's total area. The average monthly incomes of the mid-west and southeast regions were similar and the highest in the country, followed by the monthly incomes of the south region. On the other hand, the average monthly incomes of the north and northeast regions were only 67.3% and 56.7%, respectively, of that found in the mid-west region.¹ These disparities are important when interpreting inter-regional differences in diabetes care in Brazil.

The Brazilian National Public Health Care System, also known as the Unified Health System (*Sistema Único de Saúde*; SUS), was created based on the Brazilian Constitution of 1988, which established that every Brazilian citizen has the right to access primary, secondary, and tertiary health care, which are provided free of cost by a national health system.² The SUS comprises public and private health care institutions and providers, financed primarily through taxes with contributions from federal, state, and municipal budgets. Health care management is decentralized, and municipalities are responsible for most primary care services as well as some hospitals and other facilities.³ The SUS applies to the spectrum of economic classes and provides basic to the most complex services, free of cost. It has been improved through new programs and policies but is also challenged by many operational obstacles.² As a result, 24% of the total Brazilian population is still assisted by the private or supplementary health care system.⁴

In Brazil, the costs of certain drugs for diabetes and hypertension are fully subsidized by the public sector; the federal government co-subsidizes private sector expenses through the Brazilian Popular Pharmacy Programme (*Programa Farmácia Popular do Brasil*), developed by the health ministry. The SUS also provides self-monitoring blood glucose (SMBG) supplies, but not always in the amount needed or recommended for optimal patient monitoring, and seldom uniformly across cities. Moreover, because medications available through this program do not always meet the patient's needs,

the patient or family must pay some of the treatment costs.⁵ Despite its many accomplishments, the SUS also faces serious financial challenges. Less than half of total health care spending in Brazil comes from public sources, a proportion that places Brazil far below the Organization for Economic Cooperation and Development average for government share of health expenditures.³

EPIDEMIOLOGY OF DIABETES IN BRAZIL

Prevalence of Diabetes. According to the current estimates by the International Diabetes Federation, 11.9 million individuals between 20 and 79 years of age currently have diabetes in Brazil, ranking the country as having the fourth largest number of diabetes cases worldwide.⁶ A single nationwide study, carried out in the late 1980s, detected a diabetes prevalence of 7.6% in individuals aged 30 to 69 years,⁷ similar to the prevalence of 7.1% in the same age-group in Rio de Janeiro in the mid-1990s.⁸ However, more recent regional studies^{9–11} demonstrated an increase in prevalence rates. The cities of Ribeirão Preto and São Carlos, both in the State of São Paulo (southeast region), and Porto Alegre, in the State of Rio Grande do Sul (south region), showed prevalence rates of 12.1%, 13.5%, and 12.4%, respectively.^{9–11}

Moreover, the prevalence of chronic disease risk factors in Brazil is estimated annually by the Surveillance System for Risk and Protective Factors for Chronic Diseases by Telephone Survey (*Vigilância de Fatores de Risco e Proteção para Doenças Crônicas por Inquérito Telefônico*; VIGITEL), which is conducted among the adult population in state capitals and the Federal District. In this survey, diabetes is defined as a self-report of a previous diabetes diagnosis by a physician. The prevalence of self-reported diabetes in adults (18 years and older) residing in the capitals of Brazil in 2011 was 6.3% (5.9–6.7). The prevalence increased dramatically with increasing age and, importantly, with overweight and obesity. Lower educational level and African ethnicity were associated with greater prevalence. Only minor differences were observed among regions, which disappeared almost entirely after taking into account differences in sociodemographic factors and nutritional status.¹²

However, it is important to note that (1) results from VIGITEL pertain to Brazilians living in capital cities, which according to the 2010 population census, account for only 24% of the total Brazilian population; and (2) because the vast majority (90%) of those who

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