PREVALENCE AND SOCIODEMOGRAPHIC PROFILE OF DIABETES AND HYPERTENSION IN INDIVIDUALS REGISTERED IN THE PRIMARY HEALTHCARE INFORMATION SYSTEM

Prevalência e perfil sociodemográfico de diabetes e hipertensão em indivíduos do Sistema de Informação da Atenção Básica

Prevalencia y perfil sociodemográfico de la diabetes e hipertensión de individuos del sistema de información de la atención básica

ABSTRACT

Objective: To determine the prevalence and sociodemographic profile of individuals with diabetes mellitus (DM) and systemic arterial hypertension (SAH), registered in the Primary Healthcare Information System (Sistema de Informação da Atenção Básica - SIAB) in the city of Lajeado, Rio Grande do Sul, in 2012. **Methods:** This cross-sectional, descriptive exploratory study, with a quantitative approach, used secondary data retrieved from the SIAB, regarding 757 individuals. Data was processed and analyzed with SPSS software version 20.0. **Results:** In the sample of 757 subjects, a mean age of 40.87 ± 16.15 years was obtained, with 50.2% (380) male and 49.8% (377) female. Similarly, 97% (734) are literate. The study found a DM frequency of only 3.1% (1,131) in the total population, and of 4.5% (34) in the selected sample, and a prevalence of hypertension of 15% (5,849) and 17.3% (131), respectively. There was a positive, weak but significant, correlation between SAH, DM and age (p=0.000). **Conclusion:** The data obtained indicates a low prevalence of DM and SAH in individuals registered in SIAB in a countryside city of Rio Grande do Sul.

Descriptors: Hypertension; Diabetes Mellitus; Prevalence.

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RESUMO

Objetivos: *Verificar a prevalência e o perfil sociodemográfico de indivíduos com diabetes mellitus (DM) e hipertensão arterial sistêmica (HAS), cadastrados no Sistema de Informação da Atenção Básica (SIAB) do município de Lajeado-RS, no ano de 2012.* **Métodos:** *O presente estudo, transversal, descritivo-exploratório, com abordagem quantitativa, utilizou dados secundários extraídos do SIAB de 757 indivíduos. Os dados foram processados e analisados com software SPPS versão 20.0.* **Resultados:** *Da amostra de 757 indivíduos, obteve-se uma média de idade de 40,87 ± 16,15 anos, sendo 50,2% (380) do sexo masculino e 49,8% (377) do sexo feminino. Da mesma forma, 97% (734) são alfabetizados. Encontrou-se uma frequência de apenas 3,1% (1.131) de DM na população total e de 4,5% (34) na amostra selecionada, e obteve-se uma prevalência de HAS de 15% (5.849) e 17,3% (131), respectivamente. Houve correlação positiva – fraca, mas significativa – entre HAS, DM e idade (p=0,000).* **Conclusão**: *Os dados obtidos indicaram uma baixa prevalência de DM e HAS em indivíduos cadastrados no SIAB em um município do interior do Rio Grande do Sul.*

Descritores: *Hipertensão; Diabetes Mellitus; Prevalência.*

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RESUMEN

Objetivo: *Verificar la prevalencia y el perfil sociodemográfico de individuos con diabetes mellitus (DM) y hipertensión arterial sistémica (HAS) registrados en el Sistema de Información de la Atención Básica (SIAB) del municipio de Lajeado-RS, en el año de 2012.* **Métodos:** *El presente estudio transversal, descriptivo-exploratorio con abordaje cuantitativo utilizó datos secundarios de 757 individuos extraídos del SIAB. Los datos fueron procesados y analizados en el software SPPS versión 20.0.* **Resultados:** *De la muestra de 757 individuos, se obtuvo una media de edad de 40,87 ± 16,15 años, siendo el 50,2% (380) del sexo masculino y el 49,8% (377) del sexo femenino. De la misma manera, el 97% (734) son alfabetizados. Se encontró una frecuencia de solo el 3,1% (1.131) de DM en la población total y del 4,5% (34) en la muestra seleccionada y se obtuvo una prevalencia de HAS del 15% (5.849) y el 17,3% (131), respectivamente. Hubo correlación positiva – débil, pero significativa – entre HAS, DM y edad (p=0,000).* **Conclusión**: *Los datos obtenidos indicaron baja prevalencia de DM y HAS en individuos registrados en el SIAB de un municipio del interior de Rio Grande do Sul.*

Descriptores: *Hipertensión; Diabetes Mellitus; Prevalencia.*

INTRODUCTION

The chronological age is a predictive factor for the onset of chronic noncommunicable diseases (NCDs), such as diabetes mellitus (DM) and systemic arterial hypertension (SAH). The study on NCDs becomes relevant to the extent that these conditions are present in the routine of health services in Brazil and demand continuous and long-term monitoring of the population in this situation[1].

SAH is a frequent disease in the Brazilian population[2,3], though its prevalence in the country remains unknown[4]. Epidemiological studies point that high blood pressure increases the risk for cerebral vascular disease, coronary artery diseases, congestive heart failure and stroke[5-9]. Furthermore, the influence of hypertension on the development of cardiovascular diseases (CVD) requires the recognition of their actual distribution within the different Brazilian states[10].

According to the 5th Brazilian Guideline on Hypertension of 2006, and using the current criteria for the diagnosis of hypertension – systolic blood pressure (SBP) $\geq$ 140 and/or diastolic blood pressure (DBP) $\geq$ 90 mm Hg – prevalence rates in the urban adult population in selected studies range from 22.3% to 44%, estimating values between 15.0% and 47.8% for men, and from 15.0% to 41.1%, for women[11].

A study conducted in all five Brazilian geographic regions, between 2006 and 2010, identified prevalence of hypertension above 50%[12]. In 2001, a research carried out the first survey by public health services in Brazil on diabetes and hypertension suspected cases. Data from 4,446 participant municipalities was submitted to the Ministry of Health, being tested 20 million people, among which, 3.3 million suspected cases of diabetes were detected[13]. Another population-based study showed the prevalence by sex in several cities of Brazil (in the State of Rio Grande do Sul, the prevalence was 31.6% for both sexes)[14].

Diabetes mellitus has presently reached the level of a worldwide epidemic, posing a major challenge for health systems all over the world. It is estimated that, in 2030, 11.3 million people will be diagnosed with diabetes in Brazil[15]. The many complications brought by diabetes should be borne in mind. A study that evaluated 357 diabetic patients in the State of São Paulo showed that half of them were not affected by diabetic retinopathy; additionally, 53.2% did not know what type of diabetes they had, and only 3.6% participated in some educational program on diabetes[16].

The estimated prevalence of DM is 7.6% in the adult population[17], whereas hypertension affects 35% of the population aged 40 years or older in Brazil[18]. A study in a Family Health Unit in the countryside of Bahia State, in 2005, reported that 40% of the population presented at least one type of chronic degenerative disease and, among those, 29% had hypertension and 4%, DM[19]. Individuals with diabetes and hypertension demand more resources for healthcare, besides other costs associated with pain, anxiety and reduced quality of life for the patients and their families.

The current knowledge of the population's health conditions comes from studies and analysis of the available information, especially the set of basic indicators selected for monitoring. The National Policy for Primary Care (*Política Nacional da Atenção Básica - PNAB*) points out common assignments to the Family Health Teams (FHT), such as: participation in the territorialisation process; comprehensive care starting from health promotion; planning and evaluation activities of the team's actions by means of available data and quality assurance of records in the national information systems used in primary care, among others[20]. With an increase in the number of FHT and, consequently, in the number of families being attended, the Primary Healthcare Information System (*Sistema de Informação da Atenção Básica - SIAB*) has been useful to condense the data that was previously collected and archived manually and, for such reason, showed to be insufficient, making it difficult to retrieve information[21].

SIAB was created in 1998 by the Department of Information and Computer Science of SUS (DATASUS), to assist the monitoring and evaluation of activities carried out by community health agents (CHAs). It provides

population-based indicators (morbidity, mortality, and services) of a given catchment area. Therefore, it proposes the knowledge of the enrolled population's health conditions, in addition to the health-disease determinants. It allows the retrieval of information relating the family records, housing and sanitation conditions, health status, production and composition of health teams[22].

The economic burden of these diseases generates high costs for health systems and social security, due to early mortality and disability and, most of all, for society, families and people with chronic diseases. The Ministry of Health has adopted strategies and actions to reduce the onus of cardiovascular diseases and diabetes mellitus in the Brazilian population. Additionally, health promotion should be emphasized, i.e., the actions directed at the social determinants for the improvement of the quality of life. To meet that purpose, studies that analyse the profile of the population assisted by support services can contribute through intricate actions on the concept of health promotion, such as the expansion of health awareness, health education, lifestyles etc.

In this context, the present study aimed to determine the prevalence and sociodemographic profile of individuals with diabetes and hypertension, registered in SIAB in the municipality of Lajeado, RS, in 2012.

METHODS

Cross-sectional, exploratory and descriptive study, with a quantitative approach, using secondary data retrieved from the SIAB of Lajeado, RS, which has around 70,000 inhabitants[23], 95% in the urban area. The municipality has nine Family Health Strategies (FHS) and is provided with Community Health Agents, what causes SIAB coverage to reach 65.5% of the population registered in 2012[22].

The FHS teams reckon various professionals which provide training and monitor the fulfilling of SIAB records by the CHAs. The municipality has also a computer service that offers specific support to the registration of records and monitoring of SIAB. The completion of the SIAB's data collection sheets starts from the CHAs' work. Initially, agents register all households in their catchment area, including under-construction and vacant houses. The A form represents the family registration form and contains basic data on socioeconomic, health and housing characteristics of families and individuals, that is, it is possible to survey the population characteristics of the agent's coverage area. Once the initial registration is done, the CHAs should accompany the families monthly, being the additional information recorded in another file, the B form, used for home monitoring of priority groups, such as hypertension or diabetes patients, pregnant women, and

individuals with leprosy or tuberculosis. The C form is used for health monitoring and medical follow-up of children under two years of age; and D form is used by all the FHS team for the register of the daily activities and notification of some diseases[23].

The study population comprised the adult residents registered in the municipal SIAB in 2012, totalling 36,662 entries. To calculate the sample of individuals, WinPepi 10.7 software was used; in order to estimate the prevalence of hypertension, the national benchmark of 23.6% was adopted[24], and the confidence level of 95%, resulting in a sample of 699 individuals. To estimate the prevalence of diabetes, the number of 447 was calculated. Adopting the highest estimate, plus 10% for inconsistency and 5% for probable losses, a minimum of 757 individuals was calculated.

After the sample size definition, the SIAB records were randomly selected by lot. Demographic and health data, access to health services, family allowance, and diagnosis of DM and SAH were the variables collected.

In this study, the SPSS version 20.0 was used to process and analyse the SIAB database. The results were presented as absolute and relative values. Pearson's correlation test was used to analyse the diagnostic variables of DM, SAH, age and alcoholism. Significance level of 5% (p <0.05) was adopted.

The Municipal Health Secretariat authorized access to data, and the overall research was conducted within the ethical standards of the Declaration of Helsinki (1964), in accordance with Resolution 466/2012 of the Ministry of Health, after approval by the Research Ethics Committee of Univates University Centre, under opinion no.1860.204.2009.

RESULTS

Among the overall population evaluated in the year 2012, 49.2% (n=18,020) were male and 50.8% (n=18,642), female, with average age of 39.44 ± 16.77 years. The majority of the population (n=27,873) is literate. Of the 757 randomly selected patients over 18 years of age, 50.2% (n=380) were male and 49.8% (n=377), female. The average age of the studied sample was 40.87 ± 16.15 years, and 97% (n=734) were literate, presenting alcoholism, mental disability, pregnancy, hypertension and diabetes rates very close to those relating the total number of registered individuals (Table I).

As for the occupation, 11.18% (n=85) were housewives, 10.13% (n=77) were retired, and 10.9% (n=83) worked with general services, among others. With regard to housing and healthcare, 83.5% (n=633) lived in masonry house and

10.7% (n=81), in wooden house. As for the number of rooms, 24.7% (n=186) of the houses have 6 rooms and 24% (n=182) have five. Also regarding the electricity availability (EELET), water supply (SUPH2O) and water treatment (TMTH2O), it was found that 99.5% (n=754) have EELET, 100% (n=757) have SUPH2O – of which, 92.3% (n=700) get it from the public system, and 7.6% (n=57), from a well or spring – and 84.7% (n=641) do not have TMTH2O system.

On garbage destination, 99.3% (n=752) have waste collection service and only 0.7% (n=5) burn or bury the garbage. In relation to faeces and urine destination, the majority uses cesspit (98.4%) (n=745), and a small part uses open or sanitary sewer systems, corresponding to 0.8% (n=6) each.

Table II shows data relating the access to health services and family allowance, the presence of health insurance, family allowance, and presence of hospitals and primary

Table I - Distribution of demographic data and diagnosis of systemic arterial hypertension (SAH) and diabetes mellitus (DM) in the sample of 757 individuals. Lajeado, RS, 2012.

Variables	Yes n (%)	No n (%)
Literacy	734 (97.0%)	23 (3.0%)
Alcoholism	7 (0.9%)	750 (99.1%)
Physical Disability	13 (1.7%)	744 (98.3%)
Gestation	9 (1.2%)	748 (98.85)
Systemic Arterial Hypertension (HAS)	131 (17.3%)	626 (82.7%)
Diabetes mellitus (DM)	34 (4.5%)	723 (95.5)

Table II - Distribution of data on the access to healthcare services and family allowance (*Bolsa Família Program*) in the sample of 757 individuals. Lajeado, RS, 2012.

Variables	Yes n (%)	No n (%)
Access to healthcare services		
Health ensurance	294 (38.3%)	463 (61.2%)
Hospital	255 (33.7%)	746 (98.5)
Primary Healthcare Unit	393 (51.9%)	502 (66.3%)
Pharmacy	32 (4.8%)	364 (48.1%)
Access to *Bolsa Família Program*	11 (1.5%)	721 (95.2%)

Table III - Association between the presence of Systemic Arterial Hypertension (SAH) or Diabetes Mellitus (DM) diagnosis, and age, in the sample of 757 individuals. Lajeado, RS, 2012.

Variables	SAH (r)	p	DM (r)	p
SAH*	-	-	0.373	0.000#
DM*	0.373	0.000#	-	-
Age	0.545	0.000#	0.311	0.000#

*SAH = Systemic Arterial Hypertension; DM = *Diabetes Mellitus*; # Pearson's Correlation.

healthcare units (PHU) near home. Regarding the health insurance plan, among those 38.9% (n=295) who have a health plan, 10.9% (n=83) cover one family member, 13.4% (n=100), 2 members; 8.4% (n=64), 3 members; 5% (n=38), 4 members; and 1.1% (n=8), 5 members. As for the adopted means of transport, 51.9% (n=393) use car and 65.4% (495), the bus.

Relating the presence of SAH to the age and DM, there was a weak positive correlation between SAH and DM, and between age and diabetes (p=0.000); and a moderate correlation between age and SAH (p=0.000) (Table III). The relationship between alcoholism and SAH, however, was not significant (r=0.029, p=0.425).

DISCUSSION

SIAB provides information about the population (morbidity, mortality and services) of a given catchment area, in order to know their health conditions and health-disease determinants. Therefore, it represents a valuable source of data for diagnostics accomplishment, directing health actions planning and evaluation[25].

This study evaluated more than 700 individuals and showed an even distribution according to sex among the registered users, with an average age of 40 years. Most of the population is literate and has a low percentage of alcoholism and diabetes. The percentage of hypertension, however, was about four to five times greater than the percentage of diabetics. Previous research has shown an inverse relationship between literacy and SAH[26,27] – diverging from the data found herein. In addition, another study conducted in 2011 also found a 17.7% prevalence of illiterates in a population of hypertensive individuals registered in a Family Health Unit in the State of Piauí[28].

Since the 1970s, local studies conducted in different areas of Brazil, using various sampling procedures and diagnostic criteria, have presented hypertension frequency in adults ranging from 11.6% to 44.4%[14]. A survey showed a 12.6% prevalence rate of hypertension in a small city in the State of Paraná, being higher in females (22.3%) and gradually increasing according to the age range[29].

The high number of patients with SAH in this study, despite being already under some kind of treatment, may be due to lack of effectiveness on the part of the attention directed at those patients, or faults may be occurring in the control of other chronic diseases (diabetes , dyslipidemia, obesity), eventually leading to increase in the risk for cardiovascular complications. Furthermore, it is worth noting that many patients with chronic diseases also show reluctance to seek attention in the PHU of the surroundings as early as the first symptoms, which leads to worsening of symptoms and secondary complications.

Regarding the frequency of diabetes in this population, data from this study shows low rates (between 3% and 4%). The epidemiologic data provided by the Ministry of Health in a study called VIGITEL Brazil 2008 showed a 5.3% prevalence of DM in Brazil, ranging from 2.4% (in Palmas, Tocantins) to 6.7% (in Natal, Rio Grande do Norte, and in Rio de Janeiro, RJ State)[30]. In the countryside of Minas Gerais, a prevalence of 5.8% was found - around 3.4% in men, and 8.0% in women[31]. In the countryside of Rio Grande do Sul, there was a prevalence of 5.6%[32]. On the other hand, a survey found that the prevalence of DM was above 10% in most Brazilian states, except only in the States of Goiás, Rondônia and Roraima, in the period from 2002 to 2004, and the States of Goiás and Rondônia, in the period from 2005 to 2007[33]. The results are conflicting, as the World Health Organization (WHO) estimated for Brazil, in 2000, 4.6 million people with diabetes, and 113 million in 2030[15].

In this study, as regards to the occupation, it was observed that the majority is housewife (11.18%), retired (10.13%) or providing general services (10.9%). Another study, in a countryside city of São Paulo, also observed a higher prevalence of housewife, retired or pensioner[34]. Perhaps these data may be associated with the prevalence of SAH or DM found in the current study, because individuals spend more time at home and perform less physical activity. Notwithstanding, at the same time, these subjects also have more time to participate in prevention and health promotion groups, and to receive more frequent monitoring.

A high percentage (38.9%) of private health insurance use was also found, besides SUS, in the present study. Another study showed divergent data: 91.8% of respondents reported using SUS, 5% were health plan users with full coverage and 6.4%, with partial coverage. The use of private plans may lead to lower morbidity and mortality rates for chronic diseases such as DM and SAH, since there is smaller reduction in the time for medical consultation[29].

This research sought to correlate the presence of SAH with age and DM, finding a weak correlation between SAH and DM, and age and DM, and a moderate correlation for age and SAH. In a study on risk factors for cardiovascular disease, it was found that SAH was associated with DM and dyslipidemia, these being the main risk factors for cardiovascular disease[35]. No significant association between SAH and alcoholism was evidenced. Similarly, a study conducted in 2007 found no association between smoking, alcohol consumption or sedentariness, and the occurrence of arterial hypertension[36]. However, the literature has shown significant associations between SAH and age over 60 years, illiteracy, formal schooling inferior to eight years, sedentary lifestyle, and alcohol habit[37].

Considering that SIAB is the current means of surveillance and monitoring of the enrolled families, there are concerns about its efficacy, since some flaws could be occurring in this process, as failure in completing the forms by the CHAs or mistakes on data obtained from the PHU. One hypothesis for such failures would be the high turnover of agents in the service, resulting in an inadequate filling in the forms (38). Other issues that may be related to low reliability of SIAB data refer to nonuse by other team members and the absence of a supervision practice directed at the CHAs. The agent can feel unmotivated to fill forms that the team does not use[39].

Thus, the diabetes and hypertension rates that were found may not represent the amount of affected population by those diseases in the region. Regardless of the numbers obtained in different studies, from the most diverse places, evidence points to the existence of a low follow-up rate for individuals with diabetes and hypertension, which can trigger an increase in complications and comorbidities of these diseases, causing burden to the public health and increased mortality in the country.

The present study shows data on the prevalence of DM and SAH in a countryside city of Rio Grande do Sul, which are consistent with other studies conducted in the country. Researches evaluating the prevalence of these diseases, among other chronic degenerative conditions, can contribute to the outlining of strategies, and health promotion.

CONCLUSION

The retrieved data indicates a low prevalence of DM and SAH in individuals enrolled in SIAB in a countryside city of Rio Grande do Sul. Furthermore, the results enabled the evaluation of the sociodemographic profile of users of the Primary Healthcare System in Lajeado, RS, the majority being literate, retired, living in masonry houses, with electricity and water supply, and garbage collection.

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