DOI: 10.1590/1980-549720190057

ORIGINAL ARTICLE / *ARTIGO ORIGINAL*

Health services utilization to control arterial hypertension and diabetes mellitus in the city of São Paulo*

Uso de serviços de saúde para controle da hipertensão arterial e do diabetes mellitus no município de São Paulo

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ABSTRACT: ***Objective:*** To describe the prevalence of health services utilization for control of arterial hypertension (AH) and diabetes mellitus (DM) in the city of São Paulo in 2003, 2008 and 2015 and to analyze associated factors to this utilization in 2015. ***Methods:*** Data regarding adults who participated in the Health Surveys conducted in the city of Sao Paulo, ISA-Capital 2003, 2008 and 2015, were analyzed. Prevalences and 95% confidence intervals for the three years were estimated to describe the prevalence of the use of services to control HA and DM. For the year of 2015, prevalences of the same variables were estimated according to sociodemographic, geographic and health characteristics. Multinomial logistic regression was used to estimate AH and DM analysis models. ***Results:*** There was a significant increase in the prevalence of people who reported routine health services utilization to control AH and DM in the period 2003–2015. For 2015, an increased routine health services utilization to control AH was observed among elderly and those who reported health insurance. For those who reported DM, an association between health services utilization and low schooling was found. Being elderly reduces the risk of not going to the health services to control AH, while being male and not having a health insurance increase this risk significantly. ***Conclusions:*** to identify how individuals with AH and DM use health services in way to control these diseases is very important to reduce access barriers and, yet, provide guidance in health policies to reduce disparities.

Keywords: Epidemiological monitoring. Hypertension. Diabetes mellitus. Health services. Health surveys.

*Article based on the Ph.D. dissertation of Stopa SR, titled: "Monitoring hypertension and diabetes mellitus in the city of São Paulo: evolution of the prevalence and use of control measures", presented to the Post-Graduation Program in Public Health, School of Health, University of São Paulo.

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Conflict of interests: nothing to declare – **Financial support:** Conselho Nacional de Desenvolvimento Científico e Tecnológico, funding code 140483/2016-0.

RESUMO: ***Objetivo:*** Descrever as prevalências do uso de serviços de saúde para controle da hipertensão arterial (HA) e do diabetes *mellitus* (DM) no município de São Paulo nos anos de 2003, 2008 e 2015 e analisar os fatores associados a esse uso no ano de 2015. ***Métodos:*** Foram analisados dados de população adulta provenientes dos inquéritos de saúde no município de São Paulo em 2003, 2008 e 2015. Foram estimadas as prevalências e seus intervalos de confiança de 95% nos 3 anos para descrever as prevalências do uso de serviços de saúde para controle da HA e do DM. Para 2015, foram estimadas as prevalências para as mesmas variáveis segundo características sociodemográficas, geográficas e de saúde. Utilizou-se regressão logística multinomial para estimar modelos de análise para HA e DM. ***Resultados:*** Observou-se aumento significativo no percentual de pessoas que referiram ir ao serviço de saúde de rotina por causa da HA e do DM no período 2003 a 2015. Em 2015, maior uso de serviços de saúde de rotina para controle da HA foi observado entre os idosos e as pessoas que referiram possuir plano de saúde. No caso do DM, houve associação entre o uso de serviços e baixa escolaridade. Ser idoso diminui o risco de não ir ao serviço de saúde para o controle da HA, enquanto ser do sexo masculino e não possuir plano de saúde aumentam esse risco significativamente. ***Conclusões:*** Identificar como os indivíduos com HA e DM utilizam os serviços de saúde para controle das doenças é de extrema relevância para reduzir barreiras no acesso e, ainda, orientar políticas de saúde no intuito de reduzir desigualdades.

Palavras-chave: Vigilância epidemiológica. Hipertensão. Diabetes *mellitus*. Serviços de saúde. Inquéritos epidemiológicos.

INTRODUCTION

Rising prevalence, high levels of morbidity and mortality, and economic impact are examples of the complex challenges that hypertension (HT) and diabetes mellitus (DM) pose to individuals, society and health systems[1-4]. However, the development of these diseases in the population can be reduced by adopting healthy behaviors and lifestyle changes. Metabolic control and/or better blood pressure levels associated with these measures result in improved quality of life and reduced consequences due to HT and DM disorders[5,6].

In addition, it is essential that the management and control of these diseases is also done through a quality care system.[7]. Accompanying individuals diagnosed with HT and DM within the Unified Health System (SUS) in Brazil is the responsibility of primary care, the main gateway to the health system, in addition to structuring and promoting the completeness and longitudinality of care. The main objective of periodic follow-ups performed in health services is the control of HT and DM, which results in reduced hospitalizations and mortality from these diseases[8,9].

According to the World Health Organization (WHO), people with chronic noncommunicable diseases (NCDs) such as HT and DM have an economically aggravated social situation due to higher health expenditures, especially the demand for health services[10,11]. Moreover, WHO points out that many populations in various countries around the world have difficulty accessing and using health services, a considerable barrier to addressing chronic NCDs[11,12].

The use of health services is the result of a combination of factors, ranging from health needs or disease pre-existence to the severity or urgency of the disease, and availability of services as well. Demographic, cultural and socioeconomic factors determine the use of health services, such as age, gender, living and housing conditions, family income, and level of education of the head of household, among others[13-15]. The use of health services is higher in individuals with chronic NCDs[16,17].

Thus, it is important to monitor the use of health services for people with HT and DM to identify possible challenges and barriers. The organization of services requires the planning and adaptation of health policies and supply. Knowing such a demand is essential[13,15].

The aim of this study was to monitor the use of health services to control HT and DM in the city of São Paulo in 2003, 2008 and 2015 and to determine whether gender, age, education, health region and health insurance influenced the use of health services in 2015.

METHODS

In the present study we analyzed data from adult population samples (20 and older) from the São Paulo City Health Survey (ISA-Capital), a population-based household survey conducted in São Paulo in the 2003, 2008 and 2015, with the support of the Municipal Health Secretariat of São Paulo through an agreement with the Support Center for the School of Public Health of University of São Paulo. ISA-Capital addresses subject groups that are analyzed according to respondents' living conditions, such as lifestyle, health status and use of health services.

The sampling process in all editions took place by drawing the groups in two stages: census tracts and households. ISA-Capital does not carry out household drawing, i.e., all residents of the selected household belonging to the domain of interest are invited to participate in the survey.

In ISA-Capital 2003, 3,357 individuals were interviewed. 60 sectors were drawn based on the sample of the National Household Sample Survey (PNAD) 2002, grouped into 3 strata, according to the head of household's education, estimated by the percentage of heads with university level: <5.0; from 5.0 to 24.99 and ≥ 25.0%. This strategy aimed to increase the probability of including individuals from higher socioeconomic strata in the sample, allowing data analysis according to different social groups. The sample size was calculated considering the scenario corresponding to the maximum variability for the frequency of the events studied ($p = 0.50$); 95% confidence coefficient in the determination of confidence intervals ($z = 1.96$); sampling error of 0.06 and design effect of 1.5.

In ISA-Capital 2008, 3,271 individuals were interviewed and 70 census sectors of the city were drawn to make up the sample, calculated considering a set of estimates (parameters) of interest at different levels of disaggregation ($p = 0.50$), confidence level of 95%, sampling error from 0.04 to 0.07 and design effect of 1.5.

In ISA-Capital 2015, 4,043 individuals were interviewed. The city was stratified by regional health coordinators (RHC) in force at the time: north, midwest, southeast, south and east. Thirty census sectors were drawn from each RHC, on the basis of the listing of urban sectors in the 2010 census. The domains that comprised the sample in each stratum were: 12 to 19 years old (males and females), 20 to 59 years (males), 20 to 59 years (females) and ≥60 years (males and females). The minimum sample size in each domain was calculated based on a set of estimates (parameters) of interest at different disaggregation levels ($p = 0.50$), with a sampling error of 0.10, considering a confidence level of 95% and a design effect of 1.5.

Further details on the ISA-Capital sampling process are available on the research website and in previous publications[18,19].

In this study, we considered the sample domains of 20 to 59 years, males and females, and ≥60 years, males and females, from the three surveys described above.

Selected for the study were the following:

- sociodemographic variables: gender (female and male), age (20 to 59 years, ≥60 years), education in full years (0 to 3 years, 4 to 7 years, ≥8 years);
- geographical variable: RHC (north, midwest, southeast, south and east);
- use of health services variables: visits health services regularly because of HT (yes, regularly; no, only when having a problem; no), visits health services regularly because of DM (yes, regularly; no, only when having a problem; no), has health insurance (yes or no).

To describe the prevalence of the use of health services to control HT and DM, their prevalence and 95% confidence interval (95%CI) were estimated for the years 2003, 2008 and 2015. These analyses were performed in a single database, which combined the information from the three surveys for the variables studied. All variables were renamed, their values and labels categorized equally. In addition, a new variable was created to identify the source of information (ISA-Capital 2003, 2008 or 2015), allowing comparisons between surveys.

Also, for 2015, the prevalence and 95%CI of the same indicators were estimated according to sociodemographic, geographic and health variables. Association was determined by Pearson's c^2 test with Rao-Scott adjustment and significance level of 5%.

For multivariate analyses, multinomial logistic regression was used to estimate two analysis models, one for HA and the other for DM. In both models the category "yes, regularly" was used as a reference for comparisons. The adjustment was made for all variables and the measure used for comparison was relative risk (RR), an association measure estimated by multinomial regression, with a significance level of 5%.

The analyses were performed using the Stata 14.0 statistical program, in the survey module, which considers the effects of complex sampling. In all ISA-Capital editions, the individuals interviewed were consulted, informed and agreed to participate in the survey. This study was approved by the Ethics Committee of the School of Public Health of São Paulo University, No. 1.368.925, 2015.

RESULTS

Table 1 shows the evolution of estimates of the use of health services to control HT and DM in an adult population (20 years or older) in SP. The percentage of people reporting routine health care because of DM tended to increase from 2003 to 2015, from 58.6% (95%CI 46.2 – 70.0) in 2003 to 82.3% (95%CI 76.3 – 87.0) in 2015. In the case of HA, the use of routine services increased from 63.9% (95%CI 58.2 – 69.1) in 2003 to 70.4% (95%CI 66.0 – 74.5) in 2015.

In the 2015 data analysis, regarding the control of HT, the use of routine health services was higher among the elderly and people who reported having health insurance and was also associated with RHC (Table 2). For DM, there was a statistically significant association between the use of health services for disease control and education (Table 3).

Tables 4 and 5 present the results of multinomial logistic regression. Table 4 shows the results of the categories "no, only when having a problem" and "no" in contrast to the category "yes, regularly" (reference), in the analysis of the use of health services for HT control. The model had significant adjustment, with $F(18,122) = 3.04$ and $p < 0.001$. The adjusted analysis showed that the risk of going to the health service only when there was a problem decreased for individuals 60 or older (RR = 0.38; p = 0.005), while not having health insurance increased this risk by 99% (RR = 1.99; p = 0.028). Also, in the adjusted analysis of the "no" category, being 60 or older also reduced the risk of not going to the health service for HT control (RR = 0.45; p = 0.001), while being male and not having health insurance increased this risk significantly (RR = 1.42, p = 0.042 and RR = 1.81, p = 0.012, respectively). The other variables did not show significant results.

Table 1. Prevalence of use of health services for control of hypertension and diabetes in adult population, according to survey year. São Paulo City Health Survey (ISA-Capital) 2003, 2008 and 2015.

Goes to health services because of...	ISA-Capital 2003	ISA-Capital 2008	ISA-Capital 2015	p-value
	% (95%CI)*	% (95%CI)*	% (95%CI)*	
Hypertension				0.012
Yes, regularly	63.9 (58.2 – 69.1)	69.4 (64.4 – 74.0)	70.4 (66.0 – 74.5)	
No, only when having problem	12.4 (8.9 – 17.0)	13.8 (10.1 – 18.7)	7.6 (5.7 – 10.3)	
No	23.8 (18.5 – 30.1)	16.8 (13.6 – 20.5)	21.9 (18.0 – 26.5)	
Diabetes				< 0.001
Yes, regularly	58.6 (46.2 – 70.0)	74.1 (65.7 – 81.1)	82.3 (76.3 – 87.0)	
No, only when having problem	3.1 (1.4 – 6.9)	9.8 (4.9 – 15.6)	3.0 (1.6 – 5.8)	
No	38.3 (26.8 – 51.3)	16.1 (10.6 – 23.6)	14.7 (10.4 – 20.3)	

95%CI: 95% confidence interval; *prevalence and weighted 95% confidence interval.

Table 5 presents the results of the same analysis considering the use of health services to control DM. The model had significant adjustment, with $F(18,102) = 6.20$ and $p < 0.001$. Schooling and RHC data for the "no, only when having a problem" category were not presented due to very large 95%CI and coefficients of variation greater than 30%. There was no statistically significant difference in the use of health services for control of DM according to the analysis variables.

In all comparisons, all variables were adjusted.

Table 2. Prevalence of use of health services for control of hypertension in adult population, according to sociodemographic, geographic and health variables. São Paulo City Health Survey (ISA-Capital) 2015.

Variables	Yes, regularly	No, only when having problem	No	p-value
	% (95%CI)*	% (95%CI)*	% (95%CI)*	
Sex				0.109
Female	73.0 (68.3 – 77.2)	7.3 (5.0 – 10.5)	19.8 (15.7 – 24.6)	
Male	66.4 (60.0 – 72.2)	8.2 (5.5 – 12.1)	25.4 (19.9 – 31.8)	
Age (years)				< 0.001
20 to 59	62.0 (55.8 – 67.9)	10.1 (6.9 – 14.5)	27.9 (22.1 – 34.5)	
60 or more	81.2 (76.5 – 85.2)	4.5 (2.8 – 7.2)	14.3 (10.6 – 19.0)	
Schooling (years)				0.452
0 to 3	71.3 (63.6 – 78.0)	6.5 (3.9 – 10.8)	22.2 (16.1 – 29.7)	
4 to 7	70.8 (63.4 – 77.3)	5.5 (2.9 – 10.1)	23.7 (17.7 – 31.0)	
8 or more	69.3 (64.3 – 73.9)	9.4 (6.4 – 13.6)	21.3 (16.9 – 26.6)	
Regional health coordinator				0.008
North	67.3 (57.8 – 75.6)	7.5 (3.3 – 16.0)	25.2 (18.5 – 33.4)	
Midwest	81.0 (72.8 – 87.1)	5.0 (1.6 – 14.1)	14.0 (8.8 – 21.7)	
Southeast	77.3 (69.7 – 83.5)	7.3 (3.9 – 13.2)	15.4 (9.5 – 24.0)	
South	63.5 (49.4 – 75.6)	3.7 (1.6 – 8.1)	32.9 (20.6 – 48.1)	
East	64.7 (58.1 – 70.8)	14.4 (9.6 – 21.0)	20.9 (15.1 – 28.3)	
Has health insurance				< 0.001
Yes	77.9 (71.9 – 82.9)	6.0 (3.6 – 9.7)	16.2 (11.4 – 22.5)	
No	64.2 (59.2 – 69.0)	9.1 (6.5 – 12.5)	26.7 (22.2 – 31.8)	

95%CI: 95% confidence interval; *prevalence and weighted 95% confidence interval.
Significant difference indicated in bold.

DISCUSSION

This study analyzed the prevalence of the use of health services to control HT and DM in the city of São Paulo in 2003, 2008 and 2015. There was an increase in the use of routine services to control DM in the study period. Being elderly was associated with a decreased risk of not going to health services to control HT or going only when having a problem, while being male and not having health insurance significantly increased this risk.

Table 3. Prevalence of use of health services for control of diabetes in adult population, according to sociodemographic, geographic and health variables. São Paulo City Health Survey (ISA-Capital) 2015.

Variables	Yes, regularly	No, only when having problem	No	p-value
	% (95%CI)*	% (95%CI)*	% (95%CI)*	
Sex				0.663
Female	83.9 (77.3 – 88.9)	2.8 (1.2 – 6.5)	13.2 (8.9 – 19.3)	
Male	79.5 (68.6 – 87.4)	3.4 (1.2 – 9.2)	17.1 (9.7 – 28.4)	
Age (years)				0.736
20 to 59	81.4 (71.0 – 88.6)	3.9 (1.6 – 9.3)	14.7 (8.3 – 24.6)	
60 or more	83.1 (76.5 – 88.1)	2.3 (0.8 – 6.2)	14.7 (9.9 – 21.2)	
Schooling (years)				0.040
0 to 3	79.1 (67.7 – 87.2)	0.4 (0.1 – 2.5)	20.6 (12.5 – 32.0)	
4 to 7	80.0 (70.0 – 87.1)	7.1 (3.2 – 14.9)	13.1 (7.3 – 22.2)	
8 or more	85.4 (76.0 – 91.5)	1.9 (0.5 – 6.7)	12.7 (7.2 – 21.6)	
Regional health coordinator				0.644
North	76.3 (60.1 – 87.3)	4.1 (1.0 – 15.3)	19.5 (9.7 – 35.4)	
Midwest	83.8 (63.6 – 93.9)	2.3 (0.3 – 14.4)	13.9 (4.7 – 34.5)	
Southeast	83.8 (72.6 – 91.0)	1.5 (0.2 – 9.9)	14.7 (7.7 – 26.4)	
South	80.6 (66.4 – 89.7)	1.8 (0.3 – 12.0)	17.7 (9.0 – 31.9)	
East	87.4 (72.4 – 94.8)	5.7 (2.1 – 14.6)	7.0 (2.4 – 18.6)	
Has health insurance				0.250
Yes	87.2 (78.2 – 92.8)	2.5 (0.8 – 7.7)	10.3 (5.5 – 18.5)	
No	78.7 (70.7 – 84.9)	3.4 (1.5 – 7.6)	17.9 (12.2 – 25.7)	

95%CI: 95% confidence interval; *prevalence and weighted 95% confidence interval.
Significant difference indicated in bold.

Table 4. Crude and adjusted relative risk of use of health services for control of hypertension in adult population, according to sociodemographic, geographic and health variables. São Paulo City Health Survey (ISA-Capital) 2015.

	No, only when having problem				No			
Variables	CRR (95%CI) (95%CI)	p-value	ARR* (95%CI) (95%CI)	p-value	CRR (95%CI) (95%CI)	p-value	ARR* (95%CI) (95%CI)	p-value
Sex								
Female	1.00		1.00		1.00		1.00	
Male	1.24 (0.74 – 2.08)	0.408	1.17 (0.67 – 2.03)	0.585	1.41 (1.02 – 1.96)	0.041	1.42 (1.01 – 2.00)	0.042
Age (years)								
20 to 59	1.00		1.00		1.00		1.00	
60 or more	0.34 (0.18 – 0.66)	0.001	0.38 (0.19 – 0.74)	0.005	0.39 (0.25 – 0.60)	< 0.001	0.45 (0.29 – 0.71)	0.001
Schooling (years)								
0 to 3	1.00		1.00		1.00		1.00	
4 to 7	0.84 (0.36 – 1.98)	0.694	0.61 (0.26 – 1.43)	0.251	1.08 (0.71 – 1.65)	0.726	0.85 (0.54 – 1.34)	0.491
8 or more	1.48 (0.74 – 2.94)	0.262	1.17 (0.56 – 2.46)	0.674	0.99 (0.67 – 1.47)	0.962	0.96 (0.62 – 1.47)	0.839
Regional health coordinator								
North	1.00		1.00		1.00		1.00	
Midwest	0.55 (0.13 – 2.31)	0.415	0.71 (0.18 – 2.86)	0.626	0.46 (0.24 – 0.89)	0.022	0.58 (0.28 – 1.17)	0.126
Southeast	0.85 (0.28 – 2.51)	0.761	1.03 (0.33 – 3.15)	0.963	0.53 (0.27 – 1.04)	0.066	0.61 (0.32 – 1.17)	0.138
South	0.52 (0.16 – 1.72)	0.279	0.49 (0.14 – 1.67)	0.250	1.38 (0.65 – 2.93)	0.400	1.23 (0.58 – 2.61)	0.579
East	1.99 (0.75 – 5.33)	0.167	1.97 (0.75 – 5.18)	0.167	0.86 (0.49 – 1.51)	0.600	0.82 (0.47 – 1.44)	0.497
Has health insurance								
Yes	1.00		1.00		1.00		1.00	
No	1.84 (1.03 – 3.29)	0.039	1.99 (1.08 – 3.67)	0.028	2.00 (1.36 – 2.96)	0.001	1.81 (1.14 – 2.86)	0.012

CRR: crude relative risk; ARR: adjusted relative risk; *adjusted for sex, age and schooling (reference category: yes, regularly); 95%CI: 95% confidence interval. Significant difference inidcated in bold.

Table 5. Crude and adjusted relative risk of use of health services for control of diabetes in adult population, according to sociodemographic, geographic and health variables.

	No, only when having problem				No			
Variables	CRR (95%CI) (95%CI)	p-value	ARR* (95%CI) (95%CI)	p-value	CRR (95%CI) (95%CI)	p-value	ARR* (95%CI) (95%CI)	p-value
Sex								
Female	1.00		1.00		1.00		1.00	
Male	1.25 (0.32 – 4.82)	0.747	1.34 (0.87 – 4.82)	0.655	1.37 (0.64 – 2.93)	0.420	1.37 (0.63 – 2.94)	0.423
Age (years)								
20 to 59	1.00		1.00		1.00		1.00	
60 or more	0.56 (0.14 – 2.27)	0.413	0.82 (0.18 – 3.74)	0.800	0.98 (0.46 – 2.09)	0.961	0.95 (0.47 – 1.95)	0.897
Schooling (years)								
0 to 3	1.00		1.00		1.00		1.00	
4 to 7	**	**	**	**	0.63 (0.26 – 1.50)	0.290	0.62 (0.27 – 1.41)	0.250
8 or more	**	**	**	**	0.57 (0.24 – 1.37)	0.208	0.95 (0.47 – 1.95)	0.324
Regional health coordinator								
North	1.00		1.00		1.00		1.00	
Midwest	**	**	**	**	0.65 (0.15 – 2.75)	0.554	0.75 (0.19 – 2.90)	0.670
Southeast	**	**	**	**	0.69 (0.23 – 2.06)	0.500	0.77 (0.25 – 2.35)	0.643
South	**	**	**	**	0.86 (0.28 – 2.66)	0.787	0.75 (0.25 – 2.30)	0.618
East	**	**	**	**	0.31 (0.08 – 1.28)	0.105	0.31 (0.08 – 1.27)	0.104
Has health insurance								
Yes	1.00		1.00		1.00		1.00	
No	1.50 (0.35 – 6.47)	0.586	1.03 (0.17 – 6.37)	0.977	1.93 (0.88 – 4.21)	0.100	1.78 (0.80 – 3.99)	0.159

CRR: crude relative risk; ARR: adjusted relative risk; *adjusted for sex, age and schooling (reference category: yes, regularly); **data not shown as a function of coefficient of variation > 30%; 95%CI: 95% confidence interval.

The possibility of using health services regularly is an important indicator of access to health services, which is influenced by the provision of services and the perceived need by its users. In a hierarchical health system, as in case of Brazil, primary care, the gateway to health services, is also a reference for access to higher levels of complexity[15,20].

Regularly visiting health services is a primary way of monitoring individuals with HT or DM, to establish management and control of these diseases. This allows reevaluating individuals' health conditions, such as blood pressure or metabolic levels, (re)establishing treatment strategies, motivating healthy behaviors and self-care, as well as referring the individual to other specialists when needed. Previous studies have suggested that increased adherence to chronic disease treatment and control is also associated with greater contact with health services[17,21-23].

Among the strategies that may have contributed to the increase in the regular use of health services to control HT and DM, is the expansion of the family health strategy (FHS) in the country, which increased as of 2000. This measure aims to bring health services closer to the population and to promote better quality in primary health care[24,25]. In addition, FHS, in the organization of its implementation, aimed at universal access to health services, reflecting the need for expansion to assist the public evenlyl[26]. According to data from the Department of Primary Care (DAB) of the Ministry of Health, the estimated FHS population coverage for SP in January 2003 was 15.9%. In December 2015 the proportion was 33.8%[27].

Despite the efforts mentioned, the data from the present study for 2015 indicated that not having health insurance increased the risk of not going to the health service regularly or going only when there was a problem, in the case of HT. In the creation of SUS, the principles governing it were stipulated - universality, integrality and equity - and it was also established that the private health sector would be structured to complement public service[28,29].

According to data from the National Health Survey[30], 27.9% of the Brazilian population was covered by health insurance in 2013. This means that, while SUS accounts for the health of the entire Brazilian population, the private insurance segment accounted, albeit not exclusively, for approximately 56 million people in 2013. It is also worth mentioning that the state of São Paulo is the largest holder of health insurance in the country, with 42.1% coverage[31].

Previous studies have already pointed to increased demand for services among people with and without NCDs who have health insurance, suggesting that having health insurance increases the use of health and care services[17,32-34]. Lower percentages of medical visits were found among individuals who exclusively used SUS, when compared to those who had health insurance[32-34]. Supplementary Health Guide data[35] suggest that for those with supplementary health insurance, the average number of medical visits is 5.1 per beneficiary per year, roughly double the expected number for the general population, which is around two to three medical visits per inhabitant per year. This means

that differences still remain in the use of health services by individuals who benefit from supplementary health insurance[36].

Having health insurance plans can make it easier to schedule appointments and reduce waiting times as well[37]. A study conducted in the metropolitan region of São Paulo that evaluated the average waiting time for care and the type of service sought indicated that people without health insurance could wait up to 81 minutes for care, while those with health insurance waited on average 32 minutes[38]. Furthermore, having health insurance may prompt the beneficiary to use more health services, since they are investing part of the individual/family resources in this service.

On the other hand, it is important to highlight possible developments in relation to an increase in the use of health services, such as rising costs. Data from Satellite Account of Brazil 2010–2015, which systematizes information about health services and allows the analysis of the evolution of a sector in relation to the total economy, show that, in 2015, health expenditures in the country totaled R$ 546 billion, which corresponded at the time to 9.1% of the Brazilian gross domestic product (GDP). Of this total, about 3.9% of the GDP (R$ 231 billion) was federal government expenditure and the remainder (R$ 315 billion or 5.2% of the GDP) was expenditure by households and nonprofit family service institutions[39].

Other factors associated with the use of health services to control HT were sex and age. The findings corroborate previous studies that have reported the greater use of health services by women and people over 60. The first group, due to demands associated with pregnancy, childbirth, preventive examinations, greater interest and care for their own health. In the case of the elderly, there is a higher prevalence of chronic diseases and their problems, among other reasons[13,40].

Although social disparities and the lack of even distribution of urban privileges are considerable issues in SP, in this study no differences were found in the use of health services to control HT and DM according to the city's RHC. The objective of knowing and identifying factors that may or may not relate to the use of health services in the city is important to support the planning, organization and allocation of health resources. ISA-Capital 2015 was the first health survey conducted in SP to generate health estimates for smaller areas of the municipality..

Some limitations of the study should be considered. The type of service attended to control HT or DM was not evaluated; that is, the individual could refer to any service that was used, which makes the specificity of this discussion difficult. Nor was there any investigation of the quality or level of the care provided by the health service used. Still, the dependent variable (regular use of health service to control HT and/or DM) does not have a fixed periodicity, i.e., the regularity of this use was defined by the interviewee. Another important factor is that having health insurance is generally related to higher education and income, which could affect the results of this study. However, it should be recalled that the education variable was used in the analysis models as an adjustment to avoid possible distortions in the measures presented.

CONCLUSION

During the study period (2003 to 2015) there was an increase in the use of health services to control DM in SP. In addition, being 60 years or older was associated with a lower chance of not going to health services for HT control or going only when there was a problem, while being male and not having health insurance significantly increased this chance.

Studies on the regular use of health services are important for the organization of care as well as for monitoring health system performance. Through them, it is possible to determine the coverage of care and thus identify more vulnerable population segments. Identifying how individuals with HT and DM use health services for disease control is extremely important to reduce barriers to access and also to guide health policies to reduce disparities.

REFERENCES

1. Brasil. Ministério da Saúde. Plano de ações estratégicas para o enfrentamento das doenças crônicas não transmissíveis (DCNT) no Brasil, 2011–2022. Brasília: Ministério da Saúde; 2011.
2. Freitas LRS, Garcia LP. Evolução da prevalência do diabetes e deste associado à hipertensão arterial no Brasil: análise da Pesquisa Nacional por Amostra de Domicílios, 1998, 2003 e 2008. Epidemiol Serv Saúde 2012; 21(1): 7-19. http://dx.doi.org/10.5123/S1679-49742012000100002
3. Malta DC, Stopa SR, Andrade SSCA, Szwarcwald CL, Silva Júnior JB, Reis AAC. Cuidado em saúde em adultos com hipertensão arterial autorreferida no Brasil segundo dados da Pesquisa Nacional de Saúde, 2013. Rev Bras Epidemiol 2015; 18(Supl. 2): 109-22. http://dx.doi.org/10.1590/1980-5497201500060010
4. Malta DC, Iser BPM, Chueiri PS, Stopa SR, Szwarcwald CL, Schmidt MI, et al. Cuidados em saúde entre portadores de diabetes mellitus autorreferido no Brasil, Pesquisa Nacional de Saúde, 2013. Rev Bras Epidemiol 2015; 18(Supl. 2): 17-32. http://dx.doi.org/10.1590/1980-5497201500060003
5. Szwarcwald CL, Souza Júnior PRB, Damacena GN, Almeida WS, Malta DC, Stopa SR, et al. Recomendações e práticas dos comportamentos saudáveis entre indivíduos com diagnóstico de hipertensão arterial e diabetes no Brasil: Pesquisa Nacional de Saúde (PNS), 2013. Rev Bras Epidemiol 2015; 18(Supl. 2): 132-45. http://dx.doi.org/10.1590/1980-5497201500060012
6. Petersen KE, Johnsen NF, Olsen A, Albieri V, Olsen LK, Dragsted LO, et al. The combined impact of adherence to five lifestyle factors on all-cause, cancer and cardiovascular mortality: a prospective cohort study among Danish men and women. Br J Nutr 2015; 113(5): 849-58. https://doi.org/10.1017/S0007114515000070
7. Otgontuya D, Oum S, Palam E, Rani M, Buckley BS. Individual-based primary prevention of cardiovascular disease in Cambodia and Mongolia: early identification and management of hypertension and diabetes mellitus. BMC Public Health 2012; 12: 254. https://doi.org/10.1186/1471-2458-12-254
8. Brasil. Ministério da Saúde. Cadernos de Atenção Básica. Estratégias para o Cuidado da Pessoa com Doença Crônica. Hipertensão Arterial. Brasília: Ministério da Saúde; 2013.
9. Paim J, Travassos C, Almeida C, Bahia L, Macinko J. The Brazilian health system: history, advances, and challenges. Lancet 2011; 377(9779): 1778-97. https://doi.org/10.1016/S0140-6736(11)60054-8
10. Abegunde DO, Mathers CD, Adam T, Ortegon M, Strong K. The burden and costs of chronic diseases in low-income and middle-income countries. Lancet 2007; 370(9603): 1929-38. https://doi.org/10.1016/S0140-6736(07)61696-1
11. World Health Organization. Global status report on noncommunicable diseases 2010. Genebra: WHO; 2011

12. Bonita R, Magnusson R, Bovet P, Zhao D, Malta DC, Geneau R, et al. Country actions to meet UN commitments on non-communicable diseases: a stepwise approach. Lancet 2013; 381(9866): 575-84. https://doi.org/10.1016/S0140-6736(12)61993-X
13. Stopa SR, Malta DC, Monteiro CN, Szwarcwald CL, Goldbaum M, Cesar CLG. Acesso e uso de serviços de saúde pela população brasileira, Pesquisa Nacional de Saúde 2013. Rev Saúde Pública 2017; 51(Supl. 1): 3s. https://doi.org/10.1590/S1518-8787.2017051000074
14. Barata RB. Acesso e uso de serviços de saúde: considerações sobre os resultados da Pesquisa de Condições de Vida 2006. São Paulo Perspect 2008; 22(2): 19-29.
15. Travassos C, Martins M. Uma revisão sobre os conceitos de acesso e utilização de serviços de saúde. Cad Saúde Pública 2004; 20(Supl. 2): S190-8. http://dx.doi.org/10.1590/S0102-311X2004000800014
16. Almeida MF, Barata RB, Montero CV, Silva ZP. Prevalência de doenças crônicas auto-referidas e utilização de serviços de saúde, PNAD/1998, Brasil. Ciênc Saúde Coletiva 2002; 7(4): 743-56. http://dx.doi.org/10.1590/S1413-81232002000400011
17. Malta DC, Bernal RTI, Lima MG, Araújo SSC, Silva MMA, Freitas MIF, et al. Doenças crônicas não transmissíveis e a utilização de serviços de saúde: análise da Pesquisa Nacional de Saúde no Brasil. Rev Saúde Pública 2017; 51(Supl. 1):4s. http://dx.doi.org/10.1590/s1518-8787.2017051000090
18. Secretaria Municipal de Saúde de São Paulo. ISA-Capital. Inquérito de Saúde no Município de São Paulo [Internet]. [acessado em 10 set. 2018]. Disponível em: www.fsp.usp.br/isa-sp
19. Secretaria Municipal de Saúde de São Paulo. Aspectos metodológicos e produção de análises [Internet]. Secretaria Municipal de Saúde de São Paulo [acessado em 10 set. 2018]. Disponível em: http://www.prefeitura.sp.gov.br/cidade/secretarias/upload/saude/arquivos/publicacoes/ISA_2015_MA.pdf
20. Viacava F. Acesso e uso de serviços de saúde pelos brasileiros. Rev Radis 2010; (96): 12-9. Disponível em: https://radis.ensp.fiocruz.br/phocadownload/revista/Radis96_web.pdf
21. Brasil. Ministério da Saúde. Cadernos de Atenção Básica. Estratégias para o Cuidado da Pessoa com Doença Crônica. Hipertensão Arterial. Brasília: Ministério da Saúde; 2013.
22. Brasil. Ministério da Saúde. Cadernos de Atenção Básica. Estratégias para o Cuidado da Pessoa com Doença Crônica. Diabetes Mellitus. Brasília: Ministério da Saúde; 2013.
23. Girotto E, Andrade SM, Cabrera MAS, Matsuo T. Adesão ao tratamento farmacológico e não farmacológico e fatores associados na atenção primária da hipertensão arterial. Ciênc Saúde Coletiva 2013; 18(6): 1763-72. http://dx.doi.org/10.1590/S1413-81232013000600027
24. Barros AJD, Victora CG, Cesar JA, Neumann NA, Bertoldi AD. Brazil: are health and nutrition programs reaching the neediest? Washington, D.C.: The World Bank; 2005. (HNP Discussion Paper, 9).
25. Mendes EV. O cuidado das condições crônicas na atenção primária à saúde: o imperativo da consolidação da estratégia da saúde da família. Brasília: Organização Pan Americana da Saúde; 2012.
26. Fausto MCR, Giovanella L, Mendonça MHM, Seidl H, Gagno J. A posição da Estratégia Saúde da Família na rede de atenção à saúde na perspectiva das equipes e usuários participantes do PMAQ-AB. Saúde Debate 2014; 38(n. esp.):13-33. http://dx.doi.org/10.5935/0103-1104.2014S003
27. Brasil. Ministério da Saúde. Departamento de Atenção Básica. Histórico da cobertura da Estratégia de Saúde da Família [Internet]. Brasil: Ministério da Saúde [acessado em 4 dez. 2017] Disponível em: http://dab.saude.gov.br/portaldab/historico_cobertura_sf.php
28. Brasil. Constituição da República Federativa do Brasil de 1988. Diário Oficial da União 1988.
29. Malta DC, Cecílio LCO, Merhy EE, Franco T, Jorge AO, Costa MA. Perspectivas da regulação na saúde suplementar diante dos modelos assistenciais. Ciênc Saúde Coletiva 2004; 9(2): 433-44. http://dx.doi.org/10.1590/S1413-81232004000200019
30. Instituto Brasileira de Geografia e Estatística (IBGE). Acesso e Utilização dos Serviços de Saúde, Acidentes e Violências. Rio de Janeiro: IBGE; 2015.
31. Malta DC, Stopa SR, Pereira CA, Szwarcwald CL, Oliveira M, Reis AAC. Cobertura de Planos de Saúde na população brasileira, segundo a Pesquisa Nacional de Saúde, 2013. Ciênc Saúde Coletiva 2017; 22(1): 179-90. http://dx.doi.org/10.1590/1413-81232017221.16782015
32. Silva ZP, Ribeiro MCSA, Barata RB, Almeida MF. Perfil sociodemográfico e padrão de utilização dos serviços de saúde do Sistema Único de Saúde (SUS), 2003-2008. Ciênc Saúde Coletiva 2011; 16(9): 3807-16. http://dx.doi.org/10.1590/S1413-81232011001000016
33. Malta DC, Bernal RTI. Comparação dos fatores de risco e proteção de doenças crônicas na população com e sem planos de saúde nas capitais brasileiras, 2011. Rev Bras Epidemiol 2014; 17(Supl. 1): 241-55. http://dx.doi.org/10.1590/1809-4503201400050019
34. Lima-Costa MF, Guerra HL, Firmo JO, Vidigal PG, Uchoa E, Barreto SM. The Bambuí Health and Aging Study (BHAS): private health plan and medical care utilization by older adults. Cad Saúde Pública 2002; 18(1): 177-86. http://dx.doi.org/10.1590/S0102-311X2002000100018

35. Instituto de Estudos de Saúde Suplementar. Guia de Saúde Suplementar. São Paulo: IESS [Internet]. [acessado em 20 ago. 2018]. Disponível em: http://www.iess.org.br/?p=publicacoes&id_tipo=9
36. Castanheira CHC, Pimenta AM, Lana FCF, Malta DC. Utilization of public and private health services by the population of Belo Horizonte. Rev Bras Epidemiol 2014; 17(Supl. 1): 256-66.
37. Travassos C, Oliveira EXG, Viacava F. Desigualdades geográficas e sociais no aceso aos serviços de saúde no Brasil: 1998 e 2003. Ciênc Saúde Colet 2006; 11(4): 975-86. http://dx.doi.org/10.1590/S1413-81232006000400019
38. Pessoto UC, Heimann LH, Boaretto RC, Castro IEC, Kayano J, Ibanhes LC, et al. Desigualdades no acesso e utilização dos serviços de saúde na Região Metropolitana de São Paulo. Ciênc Saúde Coletiva 2007; 12(2): 351-62. http://dx.doi.org/10.1590/S1413-81232007000200011
39. Instituto Brasileiro de Geografia e Estatística (IBGE). Conta-satélite de saúde: Brasil: 2010-2015. Rio de Janeiro: IBGE; 2017.
40. Pinheiro RS, Viacava F, Travassos C, Brito AS. Gênero, morbidade, acesso e utilização de serviços de saúde no Brasil. Ciênc Saúde Coletiva 2002; 7(4): 687-707. http://dx.doi.org/10.1590/S1413-81232002000400007

Received on: 01/23/2018
Revised on: 09/10/2018
Accepted on: 10/05/2018

Author's contributions: Stopa SR was responsible for the study design, data analysis and drafting of the manuscript. Cesar CLG was responsible for supervising the study. Alves MCGP, Barros MBA and Goldbaum M were involved with data interpretation and final revision of the paper. All authors approved of the final version of the article.