







## FACTORS ASSOCIATED WITH THE USE OF PRIMARY CARE BY THE ADULT POPULATION OF BELO HORIZONTE, MINAS GERAIS, ACCORDING TO A TELEPHONE SURVEYS

FATORES ASSOCIADOS À UTILIZAÇÃO DA ATENÇÃO PRIMÁRIA PELA POPULAÇÃO ADULTA DE BELO HORIZONTE, MINAS GERAIS, SEGUNDO INQUÉRITO TELEFÔNICO

FACTORES ASOCIADOS CON EL USO DE LOS SERVICIOS DE ATENCIÓN PRIMARIA DE SALUD DE LA POBLACIÓN ADULTA DE BELO HORIZONTE, MINAS GERAIS, SEGÚN UNA ENCUESTA TELEFÓNICA

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**Funding:** Fundo Nacional de Saúde. TED 66 – 2018.

**Submitted on:** 2019/09/14

**Approved on:** 2020/01/30

### ABSTRACT

**Objective:** to analyze the profile of use of primary health care services (PHC) and the association with sociodemographic characteristics, health conditions, behavioral risk factors for chronic non-communicable diseases (NCDs). **Methods:** analysis of the PHC assessment module included in the Vigitel 2015 telephone survey. Two-thousand and six adults were interviewed. The eligibility criteria were adults  $\geq 18$  years old who used PHC in the 12 months prior to the interview. Raw and adjusted prevalence ratios by education and race/color were calculated. Poisson regression was used to verify the association between the use of PHC with sociodemographic characteristics, health conditions and risk factors. **Results:** it was observed that the use of PHC was higher among respondents without private health insurance (PR = 1.76; 95% CI 1.55-1.99); with low education, that is,  $\leq 8$  years of study (PR 1.59; 95% CI 1.35-1.87), followed by nine to 11 years of study (PR 1.37; 95% CI 1.16-1.61); and women (PR 1.34; 95% CI 1.19-1.51). Respondents who reported alcohol abuse were less likely to use PHC (PR = 0.79; 95% CI 0.66-0.95) and in the 40 to 59 age group (PR 0.93; 95% CI 0.88-0.99). **Conclusion:** the telephone survey is a useful tool to understand the population's health reality. The current study for the first time analyzed the Vigitel pilot module on the use of health services and identified that the use of PHC was more frequent in the population with low education, without private health insurances, women, 40 to 59 years old and in abusive use of alcohol.

**Keywords:** Primary Health Care; Health Services Research; Health Services; Life Style; Chronic Disease; Health Surveys.

### RESUMO

**Objetivo:** analisar o perfil de utilização dos serviços de atenção primária à saúde (APS) e a associação com as características sociodemográficas, condições de saúde, os fatores de risco comportamentais para as doenças crônicas não transmissíveis (DCNT). **Métodos:** análise do módulo sobre a avaliação da APS incluído no inquérito telefônico Vigitel 2015. Foram entrevistados 2.006 adultos. Os critérios de elegibilidade foram adultos  $\geq 18$  anos que utilizaram a APS nos 12 meses anteriores à entrevista. Foram calculadas as razões de prevalência bruta e ajustada por escolaridade e raça/cor. Utilizou-se a regressão de Poisson para verificar a associação da utilização da APS com características sociodemográficas, condições de saúde e fatores de risco. **Resultados:** observou-se que a utilização da APS foi maior entre entrevistados sem plano de saúde (RP=1,76; IC95% 1,55-1,99); com baixa escolaridade, isto é,  $\leq 8$  anos de estudo (RP 1,59; IC95% 1,35-1,87), seguido de nove a 11 anos de estudos (RP 1,37; IC95% 1,16-1,61); e as mulheres (RP 1,34; IC95% 1,19-1,51). Usaram menos APS os entrevistados que referiram uso abusivo de álcool (RP=0,79; IC95% 0,66-0,95) e na faixa etária de 40 a 59 anos (RP 0,93; IC95% 0,88-0,99). **Conclusão:** o inquérito telefônico consiste em ferramenta

### How to cite this article:

Perillo RD, Poças KC, Machado IE, Bernal RTI, Duarte EC, Malta DC. Factors associated with the use of primary care by the adult population of Belo Horizonte, Minas Gerais, according to a telephone survey. REME - Rev Min Enferm. 2020[cited \_\_\_\_\_];24:e-1300. Available from: \_\_\_\_\_ DOI: 10.5935/1415-2762.20200030

útil para conhecer a realidade de saúde da população. O estudo atual pela primeira vez analisou módulo-piloto do Vigitel sobre uso de serviços de saúde e identificou que a utilização da APS foi mais frequente na população de baixa escolaridade, sem planos de saúde, mulheres, 40 a 59 anos e em uso abusivo de álcool.

**Palavras-chave:** Atenção Primária à Saúde; Avaliação de Serviços de Saúde; Serviços de Saúde; Estilo de Vida; Doença Crônica; Inquéritos Epidemiológicos.

## RESUMEN

**Objetivo:** analizar el perfil de uso de los servicios de atención primaria de salud (APS) y la asociación con características sociodemográficas, condiciones de salud, factores de riesgo conductuales para enfermedades crónicas no transmisibles (ENT). **Métodos:** análisis del módulo de evaluación de APS incluido en la encuesta telefónica Vigitel 2015. Se entrevistó a 2.006 adultos. Los criterios de elegibilidad fueron adultos  $\geq 18$  años que usaron los servicios de APS en los 12 meses previos a la entrevista. Se calcularon las tasas de prevalencia brutas y ajustadas por educación y raza / color de la tez. Se utilizó la regresión de Poisson para verificar la asociación entre el uso de APS con características sociodemográficas, condiciones de salud y factores de riesgo. **Resultados:** se observó que el uso de APS fue mayor entre los encuestados sin obra social (RP = 1.76; IC 95% 1.55-1.99); con bajo nivel de educación, es decir,  $\leq 8$  años de estudio (PR 1.59; IC 95% 1.35-1.87), seguido de nueve a 11 años de estudio (PR 1.37; IC 95% 1.16-1.61); y mujeres (RP 1.34; IC 95% 1.19-1.51). Los encuestados que informaron abuso de alcohol tenían menos probabilidades de usar APS (RP = 0,79; IC del 95%: 0,66-0,95) y en el grupo de edad de 40 a 59 años (RP 0,93; IC del 95%: 0,88-0,99). **Conclusión:** la encuesta telefónica es una herramienta útil para comprender la realidad sanitaria de la población. El estudio actual analizó por primera vez el módulo piloto Vigitel sobre el uso de los servicios de salud e identificó que el uso de APS era más frecuente en la población con bajo nivel de educación, sin obra social, mujeres, de 40 a 59 años y en uso abusivo de alcohol.

**Palabras clave:** Atención Primaria de Salud; Investigación sobre Servicios de Salud; Servicios de Salud; Estilo de Vida; Enfermedad Crónica; Encuestas Epidemiológicas.

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## INTRODUCTION

The use of health services includes any direct or indirect contact with the professionals or services made available to the user in the health care network. In Brazil, users seek services through the most diverse demands, being a complex process that depends on several factors.<sup>1,2</sup>

Usually, the first contact with the service is due to an individual demand related to the individual's health need, determined by sociodemographic characteristics (age, gender, education, race/color, among others), enhanced by behavioral risk factors for chronic diseases non-communicable diseases (NCDs), in addition to the organization of the care network and the provision of services. The return to the service may be related to the establishment of a

bond with the health professionals and with the service, as well as satisfaction with the care received.<sup>1</sup>

Thus, the structuring and organization of the Health Care Network (*Rede de Atenção à Saúde - RAS*) and the points of attention of this network contribute positively to the optimization of the use of services. Primary Health Care (PHC) within the RAS plays a fundamental role in ordering care, constituting the individual's first contact with the health system, being the key element in the characterization of an effective RAS.<sup>3</sup>

Starfield<sup>4</sup> emphasizes that PHC plays an important role in the first contact, in longitudinality and in the coordination of care, and should be the preferred gateway for the RAS. PHC thus constitutes a key element in guaranteeing integrality, universality and equity, thus reinforcing the principles of the Unified Health System (*Sistema Único de Saúde - SUS*).<sup>5</sup>

In Brazil, the Family Health Strategy (*Estratégia Saúde da Família - ESF*) is considered a priority in the structuring of PHC, being the main gateway for SUS.<sup>6</sup> The implementation of the ESF began in 1994, with great expansion fostered by the Ministry of Health, especially in the last decade, from 50.9% coverage (2008) to 74.65% (October, 2019), with major regional differences in coverage.<sup>7</sup>

The expansion of the population served is a major step forward in the country, although the qualification of PHC is still a great challenge, through the guarantee of its attributes and the expansion of the bond with the user.<sup>7</sup> In this sense, the monitoring and evaluation of the PHC performance can contribute to the qualification of the health system and the response to users' problems.

The municipality of *Belo Horizonte*, capital of the state of *Minas Gerais* and the sixth most populous city in Brazil, implemented the ESF in 2003 and has since made major investments in the reorganization of the care network and the ESF. In the latter, coverage increased from 60.38% (July, 2007) to 80.13% (October, 2019) of the municipality's population, being the capital with the highest coverage in the Southeast.<sup>7</sup> On the other hand, according to data from the National Agency of Health (*Agência Nacional de Saúde - ANS*), the private health insurance coverage rate in *Belo Horizonte*, considering health care coverage, is 49.1% (November, 2019).

The assessment of access and use of health services has been the subject of analysis in national and international literature, mainly due to the unsettling economic moment of the last decade, with a significant impact on the health sector. The Ministry of Health, together with researchers from the *Universidade Federal de Minas Gerais* (UFMG) and the *Universidade de Brasília* (UnB), proposed the inclusion of a PHC assessment module in two Brazilian capitals (*Belo Horizonte* and *Brasília*) in the survey questionnaire of the Risk Factors Surveillance System by telephone survey (Vigitel) in 2015. This made it possible, in an unprecedented way, to analyze the use

of PHC and the association with sociodemographic characteristics, self-reported health conditions and behavioral risk factors of patients interviewed by telephone surveys. Thus, the aim of this study is to describe the profile of use of PHC services in the adult population of *Belo Horizonte* and to analyze its association with sociodemographic characteristics, self-reported health conditions and behavioral risk factors for NCDs in the city of *Belo Horizonte*.

## METHODS

This is a population-based cross-sectional study. Data from the Vigitel 2015 telephone survey were used, which annually interviews, through a structured questionnaire, the adult population ( $\geq 18$  years of age) from the capitals of the 26 Brazilian states and the Federal District, residing in households with at least one landline telephone.<sup>8</sup> The questionnaire items included the collection of data on the sociodemographic conditions, self-reported health conditions and behavioral risk factors for NCDs of the interviewees.

In that year, for two cities, *Belo Horizonte* and *Brasília*, Vigitel also had an additional pilot module on PHC assessment, containing questions related to the use of health services and assessment of PHC attributes.<sup>9</sup> Thus, who used PHC in the last 12 months was then invited to answer the items that make up the PHC evaluation module.

In Vigitel 2015 (Vigitel BH 2015 sample) 5,000 landline telephone were drawn, divided into 200 replications lines, totaling 25 replicates. Each replication has 25% of ineligible lines, that is, commercial lines, lines that do not respond to six attempts at calls made at different days and times, including Saturdays and Sundays and night periods and that probably correspond to closed households.<sup>8</sup>

Of the 5,000 lines drawn, contact was made with 3,800 (19 replicates), of which 1,695 were considered ineligible.<sup>8</sup> Of the 2,125 lines eligible for this study, 2,006 respondents reported having sought a health service when they became ill or needed assistance. Regarding the use of PHC services, 914 respondents used their services in the last 12 months at least once (Figure 1).

The present study analyzed data from the Vigitel BH 2015 sample, through the items on the use of health services, self-reported health conditions and some behavioral risk factors for selected NCDs, with an emphasis on the use of PHC services.

The eligibility criteria for the population in this study were: adults aged 18 years or more, residing in households served by at least one home telephone line in the municipality of BH and who sought some health service when they became ill or needed assistance in 12 months prior to the interview.

The telephone interviews were conducted by a specialized company, from January to December 2015. The team responsible for the interviews received prior training and was supervised by

researchers from UFMG and UnB and technicians from the Health Surveillance Secretariat/Ministry of Health.

As Vigitel interviews individuals who have a landline telephone, post-stratification weight calculated using the Raking method are necessary to expand the sample to the total population, in order to reduce selection bias. The details on the sample design of the Vigitel survey were described in another publication.<sup>10</sup> The variables age, gender and education were used to calculate the post-stratification weights obtained by the Raking method, which used the reference population of Vigitel 2015. In this way, the sociodemographic distribution of the Vigitel sample is equal to the distribution of the adult population of BH. For the sub-sample Vigitel BH/PHC assessment, new post-stratification weights were constructed for joint analysis of the data.

The outcome variable of this study was the use of health services in the last 12 months (whether PHC was used or not). Within the data collected at Vigitel, some variables were selected that may influence the demand or not for PHC services. Thus, the explanatory variables were the sociodemographic characteristics, the behavioral risk factors for the selected NCDs and the self-reported health conditions described below.

The variables can be described in three groups:

a) Use of health services: this variable was created from two questions that were included in Vigitel in 2015. They are:

- "When you are sick or in need of assistance to take care of your own health, which health service do you usually look for?" (If you looked for the basic health unit or health unit or health center or family health unit);

- "In the last 12 months, did you seek care at a basic health unit (be it a health unit or health center or family health unit) to take care of your own health? (Yes or no). If so, how many times?"

For this study, the respondent who answered that he had sought a health service at least once in the last 12 months was considered, based on the previous questions.

b) Sociodemographic characteristics (extracted from the Vigitel questionnaire):

- gender (male; female);

- age range (in years: 18-29; 30-39; 40-59; 60 or more);

- education (years of study: 0 to 8; 9 to 11; 12 or more);

- skin color (white, black, yellow, brown, indigenous);

- marital status (with or without a partner);

- have private health insurance (yes or no).

c) Behavioral risk factors for selected NCDs and self-reported health conditions (extracted from the Vigitel questionnaire):

- self-reported health conditions: report of previous medical diagnosis of diabetes and hypertension; obesity (BMI  $\geq 30$  kg/m<sup>2</sup>, calculated from self-reported weight and height);

- behavioral risk factors for selected NCDs: a) tobacco use (yes or no), that is, the interviewees who declared themselves to be

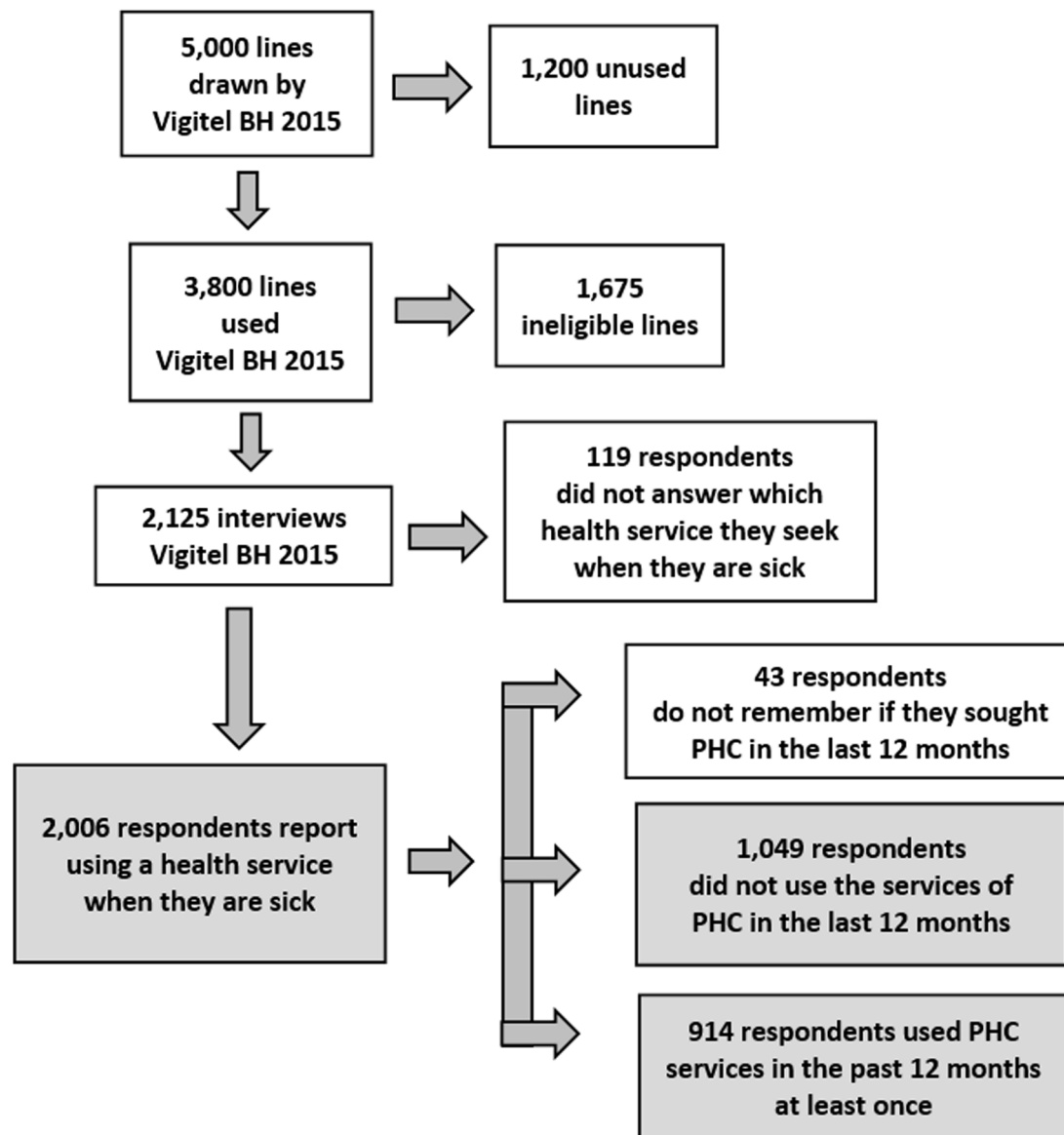


Figure 1 - Sample flow of the study on the use of PHC services from the user's perspective. *Belo Horizonte*, Brazil. Vigitel, 2015

smokers regardless of the number of cigarettes, the frequency and duration of smoking. The indicator used related to smoking was the same as that of Vigitel, which considers who reports smoking regardless of the number of cigarettes. Tobacco load and ex-smokers were not considered, only current smokers; and b) alcohol abuse (yes or no). In this last risk factor, it was considered that interviewee who reported consuming five or more doses (man) or four or more doses (woman) on a single occasion, at least once in the last 30 days. These are indicators available at the base of Vigitel.

Initially, a descriptive analysis of the variables was performed using absolute and relative frequencies. In a second step,  $\chi^2$  Test of

Independence was used to identify associations, with a significance level of 5%, with all variables being assessed in the model in a bivariate way. Subsequently, raw prevalence ratios (PR) were calculated and adjusted for education and skin color with 95% confidence intervals using the Poisson regression model, with robust variance estimator. All analyzes were performed using the survey method available in Data Analysis and Statistical Software (STATA) version 14.0, so that it was possible to incorporate the weighting of Vigitel data.

The Vigitel telephone survey was approved by the National Ethics and Research Commission (*Comissão Nacional de Ética e Pesquisa - CONEP*), Opinion Report Nr. 355,590, dated 26/Jun/2013,

and the research was approved by the Research Ethics Committee of the *Faculdade de Medicina* of the *Universidade de Brasília* under Opinion Report Nr. 089/12 CEP/FM/UnB, of May 5, 2013. Since these are telephone interviews, free and informed consent was replaced by verbal consent obtained during telephone contacts with the interviewees.

## RESULTS

Among the 2,006 respondents in the Vigitel BH 2015 sample, the frequency of using PHC services in the last 12 months was 45.56% (n = 914). Of the total, 1,049 respondents reported not having sought out PHC services (Figure 1).

Table 1 shows the characterization of the interviewees, in which 60.83% (95% CI 56.86-64.66) of the users of the PHC services are female.

Regarding the age group, the ones who most sought PHC services were adults, aged 40 to 59 years, that is, 30.76% (95% CI 27.38-34.37). It is worth noting that the frequency of elderly people who seek PHC services is higher (22.77%; 95% CI 20.07-25.71) when compared to those who do not seek PHC (16.38%; 95% CI 14.28 -18.70) (Table 1).

The adults with low education -  $\leq 8$  years of study (39.84%; 95% CI 36.03-43.77) - also used PHC services more, in addition to those who declared themselves to be brown (49.31%; 95% CI 45.33-53.30), who live without a partner (54.05%; 95% CI 50.10-57.94) and those who did not have private health insurance (54.78%; 95% CI 50, 85-58.66). It is noteworthy that 45.22% (95% CI 41.34-49.15) of users of PHC services reported having a private health insurance (Table 1).

Considering those who did not use PHC services in the last 12 months, men (51.87%; 95% CI 48.13-55.58), adults between 40 and 59 years of age (34.84% ; 95% CI 31.45-38.39), with higher education -  $\geq 12$  years of study (36.39%; 95% CI 32.94-39.98), - those who declared themselves brown (42.34%; 95% CI 38.60-46.16) and whites (42.29%; 95% CI 38.65-46.01), who live without a partner (51.84%; 95% CI 48.06-55, 59) and those with private health insurance (74.63%; 95% CI 71.05-77.90) (Table 1).

When evaluating the behavioral risk factors for selected NCDs, it was found that the prevalence of tobacco use among users of PHC services was 9.20% (95% CI 7.05-11.91), being higher in relation to those who did not use PHC (8.60%; 95% CI 6.69-11.11). However, the prevalence of alcohol abuse in users of PHC services was lower (15.23%; 95% CI 12.46-18.49) when compared to the prevalence in those who did not use PHC (22.73%; 95% CI 19.56-26.24) (Table 2).

Considering the self-reported health condition among those who used the PHC services, the prevalence of hypertension (32.48%; 95% CI 29.08-36.07), diabetes (8.98%; 95% CI 7.20-11, 15) and obesity (19.00%; 95% CI 16.27-22.07) were higher when compared to non-users - 23.19% (95% CI 20.29-26.37), 6.12% ( 95% CI 4.69-7.95) and 15.44% (95% CI 12.88-18.39), respectively (Table 2).

The variables gender, age, education, having a private health insurance, alcohol abuse, hypertension and diabetes showed statistical significance ( $p < 0.001$ ) among those who used PHC or not in the last 12 months (Tables 1 and 2).

Table 3 shows the raw prevalence ratios (PR) between the use of PHC (outcome) and the explanatory variables (sociodemographic, behavioral risk factors for NCDs and self-reported health conditions). An association is observed between the greater use of PHC services by people without private health insurance (PR 1.86; 95% CI 1.67-2.09), with low education -  $\leq 8$  years of study (PR 1.64; 95% CI 1.40-1.92) -, followed by respondents with 9 to 11 years of study (PR 1.41; 95% CI 1.20-1.65), women (PR 1.31; 95% CI 1, 16-1.48), hypertensive (PR 1.26; 95% CI 1.13-1.41), diabetic (PR 1.22; 95% CI 1.04-1.44) and brown (PR 1, 21; 95% CI 1.06-1.37).

In the analysis of Poisson regression and after adjusting for education and skin color, it was observed that the use of PHC services in *Belo Horizonte* was higher among respondents: without private health insurance (PR = 1.76; 95% CI 1, 55-1.99), with low schooling -  $\leq 8$  years of study (RP 1.59; 95% CI 1.35-1.87) - followed by 9 to 11 years of study (RP 1.37; 95% CI 1.16-1.61), women (PR 1.34; 95% CI 1.19-1.51) and hypertensive patients (PR 1.13; 95% CI 1.00-1.28). PHC services are less sought after by the population aged 40 to 59 years (PR 0.93; 95% CI 0.88-0.99) and who report alcohol abuse (PR 0.79; 95% CI 0.66 -0.95) (Table 3).

## DISCUSSION

The study presents, for the first time, an analysis of the characteristics of the use of PHC services in *Belo Horizonte*, using a population survey by telephone. The results revealed that the use of PHC was greater among women, users with low education, who declared themselves to be brown in color, without a partner, hypertensive and without private health insurance. The interviewees who reported alcohol abuse and were in the 40 to 59 age group sought less PHC.

The use of telephone surveys to assess the use of health services in the population is highlighted as an important tool that can support the planning and management of services.<sup>1,11,12</sup>

Authors describe that the use of services depends on several factors, such as the users' need, their perception of the disease, the available offer of services, as well as sociodemographic characteristics.<sup>1,11,13,14</sup>

Several studies reveal that social conditions and inequalities are decisive in accessing and using health services and that low-income and less educated populations tend to consume these services less.<sup>13-15</sup> It is essential to ensure the principle of equity from SUS, aiming to reduce these differences. It is up to the State to reduce inequalities and facilitate access for the most vulnerable populations.<sup>13-16</sup>



Table 1 - Characterization of the use of Primary Health Care services in the last 12 months, by adults, according to sociodemographic characteristics, *Belo Horizonte, Brazil*. Vigitel, 2015

Variables	PHC <sup>a</sup> Users			Non-PHC <sup>b</sup> Users			p <sup>d</sup> value
	% <sup>c</sup>	95% CI		% <sup>c</sup>	95% CI		
Gender							0.000
Male	39.17	35.34	43.14	51.87	48.13	55.58	
Female	60.83	56.86	64.66	48.13	44.42	51.87	
Age range group							0.014
18 to 29 years	27.66	23.88	31.79	26.40	22.90	30.24	
30 to 39 years	18.81	15.84	22.19	22.38	19.30	25.80	
40 to 59 years	30.76	27.38	34.37	34.84	31.45	38.39	
60 years or more	22.77	20.07	25.71	16.38	14.28	18.70	
Education (years of study)							0.000
12 years or more	21.43	18.40	24.80	36.39	32.94	39.98	
9 to 11	38.73	34.97	42.64	36.57	33.05	40.23	
0 to 8	39.84	36.03	43.77	27.04	23.65	30.72	
Race/skin color							0.068
White	34.10	30.47	37.92	42.29	38.65	46.01	
Black	12.49	9.98	15.52	11.57	9.22	14.41	
Yellow	2.88	1.83	4.50	2.44	1.47	4.03	
Brown	49.31	45.33	53.30	42.34	38.60	46.16	
Indigenous	1.22	0.59	2.51	1.36	0.63	2.90	
Marital status							0.427
With a partner	45.95	42.06	49.90	48.16	44.41	51.94	
Without a partner	54.05	50.10	57.94	51.84	48.06	55.59	
Private health insurance							0.000
Yes	45.22	41.34	49.15	74.63	71.05	77.90	
No	54.78	50.85	58.66	25.37	22.10	28.95	

(a) n = 914 (b) n = 1,049 (c) Weighted percentage to adjust the sociodemographic distribution of the Vigitel sample to the distribution of the adult population of BH (d) p value of  $\chi^2$  Test of Independence (users and non-users of the APS).

Note: Categorization of Vigitel 2015 respondents who answered questions about the use of health services (n = 1,963).

Vigitel, through the PHC pilot evaluation module in 2015, enabled the analysis and identification of the population that used PHC, thus showing how PHC contributes to expanding access to SUS for populations with low education, brown skin and without access to private health insurances.<sup>15,17</sup> The study also shows the importance of PHC and SUS in reducing inequities, as the ESF expands access to health care in the most vulnerable population. Other research also reported that PHC coverage is higher in the population with these characteristics, which indicates the importance of the ESF in social inclusion and in the reduction and inequities and social determination of the disease.<sup>14</sup>

The study also identified the greater use of PHC by women, which has already been described by other authors.<sup>14,18-20</sup> Factors such as more perception of women about diseases and symptoms

and more demand for preventive actions result in greater demand for health services.<sup>14,18,20</sup>

Another very evident issue is that users with private health insurance use PHC services less, which corroborates the PNS data, which showed that ESF coverage is higher among populations with low education.<sup>7</sup> However, the study records that 45.22% of users with private health insurance also used the PHC services, which reinforces the scope of these services.

It should be noted that the search for medical consultation in the last 12 months is considered an indicator of accessibility to health services, widely used in studies that analyze and compare the different health systems.<sup>2</sup> This indicator can also be seen in the studies that analyze the data from National Household Sample Survey - PNAD 2008 and National Health Survey – PNS 2013 documenting that people with a private health insurance

Table 2 - Characterization of the use of Primary Health Care services in the last 12 months by adults, according to behavioral risk factors for Chronic Non-Communicable Diseases and self-reported health conditions. *Vigitel, Belo Horizonte, Brazil, 2015.*

Variables	PHC <sup>a</sup> Users			Non-PHC <sup>b</sup> Users			p value <sup>d</sup>
	% <sup>c</sup>	95% CI		% <sup>c</sup>	95% CI		
Tobacco use							0.718
Yes	9.20	7.05	11.91	8.60	6.69	11.11	
No	90.80	88.09	92.95	91.40	89.00	93.31	
Alcohol abuse							0.001
Yes	15.23	12.46	18.49	22.73	19.56	26.24	
No	84.77	81.51	87.54	77.27	73.76	80.44	
Hypertension							0.000
Yes	32.48	29.08	36.07	23.19	20.29	26.37	
No	67.52	63.93	70.92	76.81	73.63	79.71	
Diabetes							0.027
Yes	8.98	7.20	11.15	6.12	4.69	7.95	
No	91.02	88.85	92.80	93.88	92.05	95.32	
Obesity							0.081
Yes	19.00	16.27	22.07	15.44	12.88	18.39	
No	81.00	77.93	83.73	84.56	81.61	87.12	

(a) n = 914 (b) n = 1,049 (c) Weighted percentage to adjust the sociodemographic distribution of the *Vigitel* sample to the distribution of the adult population of BH (d) p value of  $\chi^2$  Test of Independence (users and non-users of the APS).

Note: Categorization of *Vigitel* 2015 respondents who answered questions about the use of health services (n = 1,963).

have higher frequencies of medical consultation, hospitalization in the last 12 months and use of services in the last two weeks, compared to the social segment that does not have a private health insurance.<sup>21,22</sup> These data reinforce the importance of PHC as a gateway for the population with low education and income, which has the strategy from SUS of reducing inequities and entering the health system.<sup>18</sup> On the other hand, Hone *et al.*<sup>23</sup> highlight the tendency to increase child mortality with the increase in austerity measures and reduction in PHC coverage.

With regard to the behavioral risk factors for the NCDs analyzed, tobacco use was not associated with greater demand for PHC, however, alcohol abuse was associated with less demand for PHC. This indicator refers to the use in excessive episode, that is, to use five doses or more in a single occasion, in the case of men, or four doses in the case of women. Machado *et al.*<sup>24</sup> found in their study with PNS data that this indicator (alcohol abuse) was more frequent among men, young people with high education, who do not correspond to the public that attends PHC services.

The study found higher PR in the use of PHC among patients who report a diagnosis of arterial hypertension, which is in line with the literature, which refers that people seeking previous health services seek more health services in search of an answer to their health problems.<sup>13,14</sup>

A limitation of this study is its cross-sectional nature, which, although advantageous due to its speed and low cost, makes it impossible to assess the temporal relationship between the variables studied. Another aspect to be considered is the selected outcome variable, the use of health services in the last year (12 months), which despite the short period, a possible memory bias should be taken into account. A last aspect refers to a possible selection bias, originated in the use of the landline telephone record that was minimized with the use of the weighting method and post-stratification weights, adjusting the sample composition to the demographic characteristics of the population of the municipality (according to demographic census data and inter-census projections).

The study innovates when using the telephone survey to assess PHC from the perspective of the service user<sup>9</sup>, which allows establishing a set of factors associated with the use of PHC in *Belo Horizonte*.

There are still great challenges in the consolidation of PHC in the country, especially in the quality of services. The important role in reducing inequities is highlighted, constituting the gateway for vulnerable populations using SUS. Concerning measures to reduce investment in health, in particular the Constitutional Amendment 95, which could bring great losses in the efficiency of the system, in

Table 3 - Factors associated with the demand for Primary Health Care services by adults. Vigitel, *Belo Horizonte*, Brazil, 2015

Variables	PR <sub>raw</sub>				PR <sub>adjusted</sub>			
	RP <sup>a</sup>	CI <sup>b</sup> (95%)	p <sup>c</sup> value	PR <sup>d</sup>	CI <sup>b</sup> (95%)	p <sup>c</sup> value		
Gender								
Male	1.00			1.00				
Female	1.31	1.16	1.48	0.000	1.34	1.19	1.51	0.000
Age range group								
18 to 29 years	1.00			1.00				
30 to 39 years	0.89	0.73	1.07	0.222	0.89	0.73	1.08	0.228
40 to 59 years	0.97	0.92	1.02	0.265	0.93	0.88	0.99	0.014
60 years or more	1.03	1.00	1.07	0.081	0.99	0.94	1.03	0.579
Education (years of study) <sup>e</sup>								
12 years or more	1.00			1.00				
9 to 11	1.41	1.20	1.65	0.000	1.37	1.16	1.61	0.000
0 to 8	1.64	1.40	1.92	0.000	1.59	1.35	1.87	0.000
Race/color <sup>f</sup>								
White	1.00			1.00				
Black	1.16	0.96	1.41	0.132	1.08	0.88	1.31	0.463
Yellow	1.21	0.86	1.71	0.269	1.17	0.81	1.70	0.491
Brown	1.21	1.06	1.37	0.003	1.14	1.00	1.29	0.046
Indigenous	1.05	0.58	1.90	0.865	0.98	0.51	1.87	0.940
Marital status								
With a partner	1.00			1.00				
With no partner	1.06	0.95	1.19	0.315	1.12	1.00	1.25	0.047
Private health insurance								
Yes	1.00			1.00				
No	1.86	1.67	2.09	0.000	1.76	1.55	1.99	0.000
Tobacco use								
Yes	1.00			1.00				
No	1.04	0.85	1.27	0.714	0.97	0.78	1.18	0.742
Alcohol abuse								
Yes	1.00			1.00				
No	0.76	0.63	0.91	0.003	0.79	0.66	0.95	0.013
Hypertension								
Yes	1.00			1.00				
No	1.26	1.13	1.41	0.000	1.13	1.00	1.28	0.046
Diabetes								
Yes	1.00			1.00				
No	1.22	1.04	1.44	0.017	1.10	0.92	1.30	0.289
Obesity								
Yes	1.00			1.00				
No	1.13	0.99	1.30	0.070	1.07	0.93	1.23	0.350

a) PR: Raw Prevalence Ratio. b) 95% CI: 95% confidence interval. c) p value considered statistically significant: p < 0.05.

d) Adjusted R = Prevalence ratio adjusted for education and skin color.

e) Prevalence ratio adjusted by skin color. f) Prevalence ratio adjusted for education.

Note: Raw Prevalence Ratio, their respective 95% CI and statistical significance (p-value) were estimated using the Poisson regression model with robust variance estimator.



the expansion of PHC, in the quality of services, affecting precisely the poorest population. Thus, it is recommended, on the contrary, to invest and strengthen PHC in order to improve the quality of life and reduce health inequities.

## CONCLUSION

The study emphasizes the use of PHC services are greater among vulnerable populations, with low education, brown skin, without private health insurances, women and with previous diseases. It also shows the importance of carrying out health surveys that enable the population to know information about their health condition, risk factors, sociodemographic characteristics, related to the health-disease process. Health surveys can allow knowledge of the reality of use and access to health services, enabling the understanding of the social inequalities related to this access.

This study presents a new possibility of analyzing the profile of use of health services, especially of PHC, through the telephone survey, which can be a good strategy for evaluating the services offered with the view of the user, of low cost and speed.

## REFERENCES

1. Travassos C, Castro MSM. Determinantes e desigualdades sociais no acesso e na utilização dos serviços de saúde. In: Giovanella L, Escorel S, Lobato LVC, Noronha JC, Carvalho AI, editores. Políticas e sistema de saúde no Brasil. Rio de Janeiro: Fiocruz; 2008. p. 183-206.
2. Macinko J, Mendonça CS. Estratégia Saúde da Família, um forte modelo de Atenção Primária à Saúde que traz resultados. *Saúde Debate*. 2018[cited 2019 Aug 11];42(n. spe1):18-37. Available from: <http://www.scielo.br/pdf/sdeb/v42nspe1/0103-1104-sdeb-42-spe01-0018.pdf>
3. Ministério da Saúde (BR). Portaria n 221, de 17 de abril de 2008. Publica, na forma do Anexo desta Portaria, a Lista Brasileira de Internações por Condições Sensíveis à Atenção Primária. *Diário Oficial da União*. Brasília: MS; 2008[cited 2019 Aug 30]. Available from: [http://bvsms.saude.gov.br/bvs/saudelegis/sas/2008/prt0221\\_17\\_04\\_2008.html](http://bvsms.saude.gov.br/bvs/saudelegis/sas/2008/prt0221_17_04_2008.html)
4. Starfield B. Avaliação Primária: uma visão da população. In: Starfield B. Atenção Primária: equilíbrio entre necessidades de saúde, serviços e tecnologia. Brasília: UNESCO/Ministério da Saúde; 2002. p. 481-532.
5. Ministério da Saúde (BR). Portaria n. 339, de 04 de março de 2013. Redefine o Componente Ampliação do Programa de Requalificação de Unidades Básicas de Saúde (UBS). *Diário Oficial da União*. Brasília: Ministério da Saúde; 2013[cited 2019 Aug 30]. Available from: [http://bvsms.saude.gov.br/bvs/saudelegis/gm/2013/prt0339\\_04\\_03\\_2013.html](http://bvsms.saude.gov.br/bvs/saudelegis/gm/2013/prt0339_04_03_2013.html)
6. Ministério da Saúde (BR). Secretaria de Atenção à Saúde. Departamento de Atenção Básica. Política Nacional de Atenção Básica. Brasília: Ministério da Saúde; 2012[cited 2019 Aug 28]. 110 p. Available from: <http://189.28.128.100/dab/docs/publicacoes/geral/pnab.pdf>
7. Malta DC, Santos MAS, Stopa SR, Vieira JEB, Melo EA, Reis AAC. A Cobertura da Estratégia de Saúde da Família (ESF) no Brasil, segundo a Pesquisa Nacional de Saúde, 2013. *Ciênc Saúde Colet*. 2016[cited 2019 Aug 28];21(2):327-38. Available from: <http://www.scielo.br/pdf/csc/v21n2/1413-8123-csc-21-02-0327.pdf>
8. Ministério da Saúde (BR). Vigitel Brasil 2015: vigilância de fatores de risco e proteção para doenças crônicas por inquérito telefônico: estimativas sobre frequência e distribuição sociodemográfica de fatores de risco e proteção para doenças crônicas nas capitais dos 26 estados brasileiros e no Distrito

- Federal em 2015 [recurso eletrônico]. Brasília: Ministério da Saúde; 2016. 160p.: il.
9. Poças KC, Perillo RD, Bernal RTI, Malta DC, Duarte EC. Primeira escolha para utilização de serviços de saúde pela população adulta do Distrito Federal, 2015: um inquérito de base populacional. *Epidemiol Serv Saúde*. 2019[cited 2019 Aug 29];28(2):e2018124. Available from: <http://www.scielo.br/pdf/ress/v28n2/2237-9622-ress-28-02-e2018124.pdf>
10. Bernal RTI, Iser BPM, Malta DC, Claro RM. Sistema de Vigilância de Fatores de Risco e Proteção para Doenças Crônicas por Inquérito Telefônico (Vigitel): mudança na metodologia de ponderação. *Epidemiol Serv Saúde*. 2017[cited 2019 Aug 29];26(4):701-12. Available from: <http://www.scielo.br/pdf/ress/v26n4/2237-9622-ress-26-04-00701.pdf>
11. Cesar CLG, Goldbaum M. Usos de serviços de saúde. In: Cesar CLG, Carandina L, Alves MCGP, Azevedo MB, Goldbaum M. Saúde e condição de vida em São Paulo: inquérito multicêntrico de saúde no Estado de São Paulo: ISA-SP. São Paulo: Faculdade de Saúde Pública da USP; 2005. p. 185-98.
12. Iser BPM, Malta DC, Duncan BB, Moura L, Vigo A, Schmidt MI. Prevalence, correlates, and description of self-reported diabetes in Brazilian capitals: results from a telephone survey. *PLOS ONE*. 2014[cited 2019 Aug 29];9(9):e108044. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4177870/pdf/pone.0108044.pdf>
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[cited 2019 Aug 29];51(Suppl 1):3s. Available from: [http://www.scielo.br/pdf/rsp/v51s1/pt\\_0034-8910-rsp-51s18-87872017051000074.pdf](http://www.scielo.br/pdf/rsp/v51s1/pt_0034-8910-rsp-51s18-87872017051000074.pdf)
14. 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[cited 2019 Aug 29];51(Suppl 1):4s. Available from: [http://www.scielo.br/scielo.php?pid=S003489102017000200306&script=sci\\_arttext&tlng=pt](http://www.scielo.br/scielo.php?pid=S003489102017000200306&script=sci_arttext&tlng=pt)
15. Poças KC, Freitas LRS, Duarte EC. Censo de estrutura da Atenção Primária à Saúde no Brasil (2012): estimativas de coberturas potenciais. *Epidemiol Serv Saúde*. 2017[cited 2019 Aug 12];26(2):275-84. Available from: <http://www.scielo.br/pdf/ress/v26n2/2237-9622-ress-26-02-00275.pdf>
16. Ministério da Saúde (BR). Lei nº 8.080, de 19 de setembro de 1990. Dispõe sobre as condições para a promoção, proteção e recuperação da saúde, a organização e o funcionamento dos serviços correspondentes e dá outras providências. Brasília; 1990. Brasília: MS; 1990[cited 2019 Aug 29]. Available from: [http://www.planalto.gov.br/ccivil\\_03/leis/l8080.htm](http://www.planalto.gov.br/ccivil_03/leis/l8080.htm)
17. Malta DC, Santos MAS, Stopa SR, Vieira JEB, Melo EA, Reis AAC. A Cobertura da Estratégia de Saúde da Família (ESF) no Brasil, segundo a Pesquisa Nacional de Saúde, 2013. *Ciênc Saúde Colet*. 2016[cited 2019 Aug 29];21(2):327-38. Available from: <http://www.scielo.br/pdf/csc/v21n2/1413-8123-csc-21-02-0327.pdf>
18. Travassos C, Martins M. Uma revisão sobre os conceitos de acesso e utilização de serviços de saúde. *Cad Saúde Pública*. 2004[cited 2019 Aug 29];20(Supl 2):S190-8. Available from: <http://www.scielo.br/pdf/csp/v20s2/14.pdf>
19. Vidal TB, Tesser CD, Harzheim E, Fontanive PVN. Avaliação do desempenho da Atenção Primária à Saúde em Florianópolis, Santa Catarina, 2012: estudo transversal de base populacional. *Epidemiol Serv Saúde*. 2018[cited 2019 Aug 29];27(4):e2017504. Available from: <http://www.scielo.br/pdf/ress/v27n4/2237-9622-ress-27-04-e2017504.pdf>
20. Barros MBA, Cesar CLG, Carandina L, Torre GD. Desigualdades sociais na prevalência de doenças crônicas no Brasil, PNAD-2003. *Ciênc Saúde Colet*. 2006[cited 2019 Aug 29];11(4):911-26. Available from: <http://www.scielo.br/pdf/csc/v11n4/32329.pdf>
21. Viacava F, Bellido JG. Condições de saúde, acesso a serviços e fontes de pagamento, segundo inquéritos domiciliares. *Ciênc Saúde Colet*. 2016[cited 2019 Aug 29];21(2):351-70. Available from: <http://www.scielo.br/pdf/csc/v21n2/1413-8123-csc-21-02-0351.pdf>
22. Nunes BP, Flores TR, Garcia LP, Chiavegatto Filho ADP, Thumé E, Facchini LA. Tendência temporal da falta de acesso aos serviços de saúde no Brasil, 1998-

2013. *Epidemiol Serv Saúde*. 2016[cited 2019 Aug 12]; 25(4):777-87. Available from: <http://www.scielo.br/pdf/ress/v25n4/2237-9622-ress-25-04-00777.pdf>
23. Hone T, Rasella D, Barreto ML, Majeed A, Millett C. Association between expansion of primary healthcare and racial inequalities in mortality amenable to primary care in Brazil: a national longitudinal analysis. *PLoS Med*. 2017[cited 2019 Aug 29];14(5):e1002306. Available from: <https://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1002306>
24. Machado IE, Monteiro MG, Malta DC, Lana FCF. Pesquisa Nacional de Saúde 2013: relação entre uso de álcool e características sociodemográficas segundo o sexo no Brasil. *Rev Bras Epidemiol*. 2017 [cited 2019 Aug 29];20(3):408-22. Available from: <http://www.scielo.br/pdf/rbepid/v20n3/1980-5497-rbepid-20-03-408.pdf>
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