User evaluation of public pharmacy services in Brazil

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Abstract Objective of this article is to evaluate aspects related to the services provided in SUS pharmacies in Brazil, according to users’ perception. Data from the National Survey of Access, Use and Promotion of Rational Use of Medicines carried out between 2013 and 2014 were used. Individuals who obtained drugs from public pharmacies were analyzed. To calculate prevalence estimates, the total number of users of drugs with 95%CI was used as denominator. From the age group of 20 to 24 years up to 60 to 64 years, there were significant differences between men and women in terms of use of public pharmacies. More than 30% of people from all socioeconomic classes who did not obtain drugs from SUS pharmacies never thought about this possibility. Not having to wait much time to obtain the medication and a positive evaluation of the opening hours had a strong association with the positive evaluation of users of SUS pharmacies. Opening hours and waiting time are potential barriers in SUS pharmacies. The evaluation of users of SUS was positive, but it pointed to regional differences, and the identification of the magnitude of such differences can contribute to the planning of more effective and equitable policies.

Keywords Pharmaceutical Policies, Pharmaceutical Services, Epidemiological Surveys
Introduction

The Unified Health System (SUS) is an advanced public policy, and in addition to the right to health, it has universality, equity and comprehensiveness as principles. Since 1988, according to the Federal Constitution and Federal Law 8,080 of 1990, the Brazilian State assumed the responsibility for the provision and financing of all health services. Since then, several policies have been implemented and operationalized in order to guarantee a more efficient and equitable offer.

One of the challenges of the different health system models in the world is the promotion of public policies that guarantee the access of its population to quality medication and the promotion of rational use thereof. In Brazil, the guarantee of comprehensive Pharmaceutical Care is among the rights of the population and the duty of the State.

A Brazilian research showed the users had high acceptability of SUS pharmacies (> 92%), but regional differences indicate the need to direct efforts to improve the quality of care, especially in the North and Northeast regions of the country.

The majority of municipalities started to assume the steps of selection, scheduling, acquisition, storage, distribution and dispensing of drugs after the decentralization of Pharmaceutical Services. However, the municipalities face different problems, several of them linked population size, which limit and/or hinder the exercise of their managerial and executive role in the System regarding the guarantee of access to drugs for the population.

The problems encountered involve the low availability of drugs, which is inversely associated with the organization of the health care unit in general and the pharmaceutical care in particular and the absence of guidance to users regarding the correct use of these products.

This study aimed to evaluate aspects related to services provided in public pharmacies in Brazil according to the perception of users living in different regions of the country.

Method

The National Survey of Access, Use and Promotion of Rational Use of Medicines (PNAUM) was a cross-sectional population-based study conducted with a probabilistic sample. Data collection took place between September 2013 and February 2014. Interviews were carried out face-to-face in the households, and data were recorded on tablets which had a software tool developed specifically for the application of the questionnaires.

The data collection instrument consisted of a set of questionnaires developed by a group of researchers from Brazilian Universities and can be consulted on the website of the PNAUM survey component (http://www.ufrrgs.br/pnaum).

The sample was drawn from 8 defined domains of sex and age (including all ages of the population) which were replicated for the 5 greater regions of the country. The sample was drawn by clusters in three levels: municipalities (systematic sampling with probability proportional to size - primary sampling unit), census tracts (two sectors per municipality selected with probability proportional to size), and households (drawn from the National Registry of Addresses of the 2010 Census of the Brazilian Institute of Geography and Statistics (IBGE), considering only individual permanent addresses in the urban area of the Brazilian territory).

For the sample size estimate obtained from the National Household Sample Survey - PNAD 2008 (IBGE), prevalence values of 34.0% of totally free access to drugs, 44.0% of paid access, and 22% of mixed access were considered for the study. The value of 0.05 was adopted as the maximum value for the variation coefficients of the estimates of interest.

At the end, 41,433 people from 245 cities in the country were interviewed. After adjusting for region, sex and age, they represented the approximately 171 million Brazilians living in the country’s urban areas. Further details on sampling and data collection logistics can be found in the methodological article of PNAUM.

People who reported using any medication in the 15 days prior to the interview, regardless of the reason for use, were considered to participate in the study. Of these, 44.9% obtained some of these drugs through SUS, and 38.4% of them were aged 20 or over.

The question asked to identify the people who obtained some of these drugs through SUS was: “Do the interviewees obtain any of the drugs they use in the SUS? Yes or no”.

The sociodemographic characteristics of users of SUS pharmacies analyzed were: sex, age group (0-9, 10-19, 20-29, 30-39, 40-49, 50-59, 60-69, 70- or more), region of Brazil (North, Northeast, Southeast, South, Midwest), years of
schooling (no schooling, 1 to 8 years, 8 years or more), and economic classes determined according to the criteria for economic classification of the Brazilian Association of Research Companies (ABEP), which emphasizes the estimation of the purchasing power of urban people and families.

The variables related to the evaluation of SUS pharmacies (supply of drugs, relation of users with services and time) and of individuals who did not obtain drugs from these services used in the analysis are described in Chart 1 of this article. All analyses considered the complex plan and the sample weight.

Poisson regression with robust variance was performed to assess which factors influenced the users’ decision to positively evaluate the pharmacy service. In the regression, the following question with a dichotomized outcome was used as dependent variable: “The service in this place to obtain the medication is: Good/Very good, or Regular/Bad/Very Bad”. The reference category used corresponds to the answers “Very Good/


<table>
<thead>
<tr>
<th>Questions answered by individuals who obtained some medication in SUS</th>
<th>Alternatives</th>
</tr>
</thead>
</table>
| Is this the same place where you are attended to treat your health problems? | ( ) Yes  
( ) No |
| In this place do you get all the drugs you need? | ( ) Yes  
( ) No |
| Have drugs ever been unavailable? | ( ) Yes  
( ) No |
| How often? | ( ) Always  
( ) Sometimes  
( ) Almost always |
| Does this place accept a prescription from a private physician or from the health insurance plan to obtain the medication? | ( ) Yes  
( ) No |
| To obtain the medication do you need to participate in any group or meeting? | ( ) Yes  
( ) No |
| Can the drugs be obtained any day of the week? | ( ) Yes  
( ) No |
| Arriving at this place is: | ( ) Very difficult  
( ) Little difficult  
( ) Not difficult |
| Is this place far? | ( ) Yes  
( ) More or less  
( ) No |
| How long do you usually wait for attendance? | ( ) No waiting  
( ) A little  
( ) A long time |
| The opening hours are: | ( ) Very good  
( ) Good  
( ) Regular  
( ) Bad  
( ) Very bad |
| The service in this place to obtain the medication is: | ( ) Very good  
( ) Good  
( ) Regular  
( ) Bad  
( ) Very bad |
| Reasons for not using public pharmacies | |
| Why didn’t you try to get it from SUS? | ( ) Because I never thought about that  
( ) Because I have health insurance plan  
( ) Because it is far  
( ) Because it takes time  
( ) Because the service is bad |
Good" with 95% confidence intervals (95%CI). The model was adjusted by the different regions of households, sex and age.

The research was approved by the National Research Ethics Commission (CONEP) and by the Research Ethics Committee of the Federal University of Rio Grande do Sul. The interviews were carried out after the reading and signing of the consent form by the interviewees or their legal guardians (in the case of the disabled individuals). Confidentiality and anonymity of the interviewees was guaranteed.

Results

Women use public pharmacies more often than men, except in the age group 0-9 years. From the age group of 20 to 24 up to 60 to 64, there were statistically significant differences in the use of these services between men and women. These differences between the sexes were not statistically significant in the North region. The regions where users most used SUS pharmacies were the South (26.3%) and Southeast (25.9%). There were no differences in the use of SUS pharmacies according to the years of schooling of the individuals (Table 1).

Table 2 shows the evaluation of shows the evaluation of services provides in public pharmacies by its users. Acquisition of all the drugs needed by the user in SUS pharmacies was lower in the North (44.1%) and higher in the Southeast (63.1%). The eventual absence of drugs at these services was less frequent in the Southeast (37.9%) and more frequent in the Northeast.
Table 2. User evaluation of services provided in SUS pharmacies in Brazil, by region. PNAUM, Brazil, 2014.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Brazilian Regions</th>
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<th></th>
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<tbody>
<tr>
<td></td>
<td>North</td>
<td>North</td>
<td>Midwest</td>
<td>Southeast</td>
<td>South</td>
<td></td>
</tr>
<tr>
<td></td>
<td>%</td>
<td>95%CI</td>
<td>%</td>
<td>95%CI</td>
<td>%</td>
<td>95%CI</td>
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<td>36.4-52</td>
<td>50.2</td>
<td>45.7-54.8</td>
<td>46.1</td>
<td>42.1-50.2</td>
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<td>29.7-44.1</td>
<td>33.4</td>
<td>29.4-37.5</td>
<td>33.4</td>
<td>29.1-37.9</td>
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<tr>
<td>Sometimes</td>
<td>19.3</td>
<td>15.5-23.7</td>
<td>16.4</td>
<td>12.9-20.7</td>
<td>20.5</td>
<td>16.9-24.7</td>
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<td>Have drugs ever been unavailable?</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>52.0</td>
<td>42.8-61</td>
<td>56.3</td>
<td>51.8-60.7</td>
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<td>39.0-57.2</td>
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<td>Frequency of drug shortage</td>
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<td></td>
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<td></td>
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<td></td>
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<tr>
<td>Always</td>
<td>36.3</td>
<td>30.3-42.9</td>
<td>25</td>
<td>21.2-29.3</td>
<td>30.9</td>
<td>26.9-35.1</td>
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<tr>
<td>Sometimes</td>
<td>53.1</td>
<td>46.7-59.5</td>
<td>67.1</td>
<td>61.2-72.5</td>
<td>60.4</td>
<td>56.5-64.3</td>
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<tr>
<td>Almost always</td>
<td>10.5</td>
<td>7.2-15.3</td>
<td>7.9</td>
<td>5.5-11.1</td>
<td>8.7</td>
<td>6.6-11.5</td>
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<td>Acquisition of drugs in the same place of health care</td>
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<td></td>
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<tr>
<td>Yes</td>
<td>80.4</td>
<td>74.7-85.0</td>
<td>69.4</td>
<td>64.1-74.2</td>
<td>63.7</td>
<td>57.5-69.4</td>
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<td>13.2</td>
<td>10.0-17.3</td>
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<td>21.0-31.0</td>
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<td>26.9-39.4</td>
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<td>Sometimes</td>
<td>6.4</td>
<td>3.6-11.1</td>
<td>4.9</td>
<td>3.4-7.0</td>
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<td>2.5-4.8</td>
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<td>SUS pharmacies accept prescription from private physician or health insurance plan to provide medication</td>
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<td></td>
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<td></td>
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<td>Yes</td>
<td>19.8</td>
<td>12.6-29.8</td>
<td>32.3</td>
<td>25.7-39.7</td>
<td>25.3</td>
<td>21.5-29.5</td>
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<td>70.2-87.4</td>
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<td>74.7</td>
<td>70.5-78.5</td>
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<td>Acquisition of drugs conditioned to participation in groups or meetings</td>
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<td>Yes</td>
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<td>2.7-5</td>
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<td>2.2-4.9</td>
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<td>5.4-9.3</td>
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<td>90.7-94.6</td>
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it continues
<table>
<thead>
<tr>
<th>Variables^b</th>
<th>Brazilian Regions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>North</td>
</tr>
<tr>
<td></td>
<td>%*</td>
</tr>
<tr>
<td>Evaluation of care in SUS pharmacies</td>
<td></td>
</tr>
<tr>
<td>Very good</td>
<td>8.6</td>
</tr>
<tr>
<td>Good</td>
<td>61.5</td>
</tr>
<tr>
<td>Regular</td>
<td>25.7</td>
</tr>
<tr>
<td>Bad</td>
<td>3.7</td>
</tr>
<tr>
<td>Very bad</td>
<td>0.5</td>
</tr>
<tr>
<td>Dispensing of drugs on any day of the week</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>73.3</td>
</tr>
<tr>
<td>No</td>
<td>26.7</td>
</tr>
<tr>
<td>Difficulty arriving at SUS Pharmacies</td>
<td></td>
</tr>
<tr>
<td>Very difficult</td>
<td>2.0</td>
</tr>
<tr>
<td>Little difficult</td>
<td>11.9</td>
</tr>
<tr>
<td>Not difficult</td>
<td>86.1</td>
</tr>
<tr>
<td>SUS pharmacies are far</td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>7.7</td>
</tr>
<tr>
<td>More or less</td>
<td>26.7</td>
</tr>
<tr>
<td>No</td>
<td>65.6</td>
</tr>
<tr>
<td>Need to wait to get drugs from SUS</td>
<td></td>
</tr>
<tr>
<td>No waiting</td>
<td>28.4</td>
</tr>
<tr>
<td>A little</td>
<td>53.6</td>
</tr>
<tr>
<td>A long time</td>
<td>17.1</td>
</tr>
<tr>
<td>Evaluation of opening hours in SUS pharmacies</td>
<td></td>
</tr>
<tr>
<td>Very good</td>
<td>7.9</td>
</tr>
<tr>
<td>Good</td>
<td>67.6</td>
</tr>
<tr>
<td>Regular</td>
<td>22.2</td>
</tr>
<tr>
<td>Bad</td>
<td>2.2</td>
</tr>
<tr>
<td>Very bad</td>
<td>0.2</td>
</tr>
</tbody>
</table>

^b: Variables: ^b^ Percentages weighted by sample weights and post-stratification according to age and sex; ^b^ Population aged 20 or over.

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**Table 2. User evaluation of services provided in SUS pharmacies in Brazil, by region. PNAUM, Brazil, 2014.**

- **Evaluation of care in SUS pharmacies:**
  - **Very good:** 8.6% (5.1-14%)
  - **Good:** 61.5% (56.3-66.4%)
  - **Regular:** 25.7% (21.3-30.7%)
  - **Bad:** 3.7% (2.4-5.7%)
  - **Very bad:** 0.5% (0-3.10%

- **Dispensing of drugs on any day of the week:**
  - **Yes:** 73.3% (59.4-83.7%)
  - **No:** 26.7% (16.3-40.6%)

- **Difficulty arriving at SUS Pharmacies:**
  - **Very difficult:** 2.0% (1.3-2.9%)
  - **Little difficult:** 11.9% (8.9-15.8%)
  - **Not difficult:** 86.1% (82.0-89.4%)

- **SUS pharmacies are far:**
  - **Yes:** 7.7% (5.4-10.9%)
  - **More or less:** 26.7% (21.8-32.3%)
  - **No:** 65.6% (59.7-71%)

- **Need to wait to get drugs from SUS:**
  - **No waiting:** 28.4% (23.2-34.3%)
  - **A little:** 53.6% (47.0-60.1%)
  - **A long time:** 17.1% (13.3-21.6%)

- **Evaluation of opening hours in SUS pharmacies:**
  - **Very good:** 7.9% (4.7-13%)
  - **Good:** 67.6% (61.3-73.3%)
  - **Regular:** 22.2% (18.0-26.9%)
  - **Bad:** 2.2% (1.4-3.4%)
  - **Very bad:** 0.2% (0.1-0.5%)

SUS: Unified Health System.
(56.3%), and constant absence of drugs at these services was found more frequently in the North (36.3%).

Acquisition of drugs in the same place where the users received health care was more frequent in the North region (80.4%) and least frequent in the Midwest (63.7%). In the Southeast region, 50.2% of the places where the drugs were obtained accepted prescriptions from the private sector. Acquisition of drugs conditioned to participation in groups or meetings was not observed in a significant way in the majority of the regions of the country. Most users rated the service in SUS pharmacies as good, and the best scores were seen in the Southern (78.9%).

The dispensing of drugs on any day of the week is more frequent in the Southeast (90%). Arriving at the place where drugs were obtained from SUS was more difficult (4.9%) and the distance was greater (12.8%) for people in the Midwest compared to other regions. People usually waited less for obtaining drugs in the Northeast (44.2%) and waited longer in the North (17.1%). The opening hours of SUS pharmacies were generally considered very good by 9.3% of people in the Southern.

The Poisson regression model was chosen to assess which factors influence the users’ decision to positively evaluate the pharmacy service. According to the model, the prevalence ratio adjusted for sex, age and region of residence, the variables waiting time for obtaining the drugs (PR 1.31) and evaluation of opening hours (PR 2.65) had a strong association with a positive evaluation of SUS pharmacies. Obtaining medications from SUS, being able to use prescriptions from private services or health insurance plans, and being conditioned to participate in groups to obtain the medications showed a positive, although small, statistically significant association with satisfaction (PRs of 1.03; 1.03 and 1.03, respectively) (Table 3).

Among the reasons given by individuals who did not obtain medication from SUS pharmacies, more than 30% from all socioeconomic classes never thought of this possibility because they do not need/want it (14.6%) and because they have health insurance plan (7.3%), with a higher frequency among those in A/B classes. Other reasons were because SUS pharmacies are far (1.3%) of people in C class, because it delays (more than 10% of people C, D/E in classes), and because the service is bad (8.4% of people in classes D/E) (Figure 1).

Discussion

The study indicates differences in users of public pharmacies in Brazil according to sex, age groups and regions of the country. In general, women use public pharmacies more often than men, which is consistent with other studies that found a higher proportion of health services use and greater use of drugs among women. In early childhood and after adulthood, medication use is higher and tends to gradually increase with age in both sexes, as found in national and international studies, resulting in greater demand for drugs in pharmacies.

The differences observed in the use of public pharmacy services may reflect the inequalities present in the use of health services in the country’s macro-regions. Studies by Travassos et al. analyzed disparities between regions in Brazil, which are striking in the Northeast and Southeast. People living in the Northeast and South regions had greater access to services when compared to residents of other regions, as reported by Stopa and collaborators according to the 2013 National Health Survey. The data found in the present study showed that individuals from the more social and economically developed regions use public pharmacies more frequently. These data suggest that the SUS network in these regions is more organized to provide better services in public pharmacies, corroborating with other national studies.

Regions that are considered poorer and/or less developed may have greater dependence and inefficiency of the SUS for access to drugs, less medical diagnoses generated by difficulties in accessing services, and a probably smaller number of places to obtain drugs in the private sector than in other regions of the country.

There was no difference in the use of public pharmacies between the least educated and the most educated segments. To some extent, it appears that there was no inequality with regard to education level to obtain the drugs that the users need in public pharmacies in Brazil. This result reinforces the assumption that SUS is promoting equity in the access to drugs, contributing to the reduction of inequalities between socioeconomic groups.

The acquisition of all the drugs that users need in SUS pharmacies, on the other hand, was unequal between regions of the country, with a better situation in the more developed regions. Similarly, the lack of drugs and the frequency of shortages were more frequent in the less favored
Table 3. Estimates of the prevalence rates of positive evaluation of care at the place of acquisition of drugs in SUS. PNAUM, Brazil, 2014.

<table>
<thead>
<tr>
<th>Variables</th>
<th>Gross analysis</th>
<th>Adjusted analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>**RP 95%CI</td>
<td>*p</td>
</tr>
<tr>
<td>Acquisition of all the drugs that the user needs in SUS pharmacies</td>
<td>1.13 1.08-1.17</td>
<td>0.000</td>
</tr>
<tr>
<td>The place for obtaining drugs in SUS is far</td>
<td>0.93 0.89-0.98</td>
<td>0.012</td>
</tr>
<tr>
<td>Normally, no waiting much to receive drugs in SUS</td>
<td>1.79 1.61-1.99</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Positive evaluation of opening hours of the place where the drugs are obtained from SUS</td>
<td>2.94 2.58-3.35</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>SUS pharmacy accepts prescription from private physicians or health insurance plans to release medication</td>
<td>1.07 1.03-1.12</td>
<td>&lt;0.001</td>
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<tr>
<td>Obtaining medication in SUS conditioned to participation in groups or meetings</td>
<td>1.12 1.08-1.16</td>
<td>&lt;0.001</td>
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</table>

95%CI: 95% confidence interval. * Wald test; ** PR: prevalence ratio; *** PR adjusted by sex, age and region of residence of the respondent.

Figure 1. Distribution of the reasons given by the population for not using public pharmacies in Brazil, according to socioeconomic classification. PNAUM, Brazil, 2014.

Note: Percentages weighted by sample weights and by post-stratification according to age and sex. Population over 20 years old.
regions, with the North region presenting the lowest percentage of acquisition of all the drugs that individuals need in SUS pharmacies. A national study showed that 38% of users of Primary Health Care (PHC) pharmacies reported that shortages of drugs always occur and 35.6% said that they sometimes occur.

Acquisition of drugs in the same place where the users received health care was predominant in all regions of the country. In general, in the scope of PHC, it is observed that health units have spaces for the storage and dispensing of drugs. In Brazil, 58.8% of pharmacies were located in health centers/units, 14.6% in health posts, and 13.4% in independent pharmacy facilities. Regardless of whether the pharmacies are located in health units or in exclusive buildings, they must have physical infrastructure and human and material resources that allow better integration between health services and the development of pharmaceutical care activities.

A medical prescription can be considered a barrier to obtaining medications. Public pharmacies in the North region accept less frequently prescriptions from private physicians or health insurance companies, while the opposite was seen in the Southeast.

Acquisition of drugs conditioned to participation in groups or meetings in health units was more frequent in the Southern region. In a household survey carried out in the Southern region, Paniz et al. found that participation in groups in Basic Health Units (BHUs) was associated with greater access among adults in that region, while there is no statistical significance among adults in the Northeast region, which can be influenced by the model of care adopted and the different procedures used by the units regarding participation in groups and prescription and supply of drugs for continuous use.

Among the people who obtained drugs in SUS pharmacies, most evaluated the service in these places as good and very good in all regions. This finding is in line with a study by Soeiro et al., where it was identified that users’ satisfaction with the service in PHC pharmacies was presented as a relevant factor in the users’ general satisfaction. Satisfied users tend to adhere to the prescribed treatment, give important information to the provider and continue using health services, and tend to be more likely to have a better quality of life.

In all regions of the country, people often mentioned no difficulty to get to SUS pharmacies and said they are not far. A national study that assessed the access to drugs in PHC in Brazil showed that the majority of users stated that it was easy or very easy to reach the BHU and, on the other hand, almost a quarter of the users reported that the BHU was far from their homes. Another national study found regional inequalities in the geographic accessibility of public pharmacies, pointing out that the geographic distribution of public pharmacies can be improved, especially in the North and Midwest regions of the country.

The population’s positive assessment of public pharmacies in Brazil is related to the greater proportion of people who say they do not wait or wait little time to obtain drugs in SUS pharmacies in all regions of the country. According to a publication by the Ministry of Health, the waiting time in pharmacies until assistance among users of pharmaceutical services in PHC is a problem for 33.1% of the users.

Similarly, in the present study, users who obtained drugs from SUS made a positive evaluation of the opening hours of public pharmacies. In PHC, 84.7% of users evaluated the opening hours of the BHU as very good/good, with a greater proportion of this opinion in the Southeast (88.4%) and the lowest in the North (79.4%), with statistically significant differences between regions; moreover, for 28.3% of users, the opening hours was one of the items that could be improved in public pharmacies.

In short, public pharmacies are better evaluated by users when they do not wait to obtain the drugs they need and when they positively evaluate the opening hours of pharmacies.

Despite the relevance of pharmaceutical policies in the country, the majority of individuals who did not obtain drugs from public pharmacies never considered this source as an option to obtain medication. In addition to this main reason, people with greater purchasing power and who had health insurance more frequently reported that they do not need or want to use this source, as expected. This fact may suggest that a portion of the Brazilian population does not know the policies for access to drugs in the country and/or has no interest in obtaining drugs through the provision in public pharmacies.

It was also found that distance and quality of care is not considered an important barrier for Brazilians who do not obtain drugs from public pharmacies, regardless of the economic class.

One of the limitations of this study is the fact that the number of times users searched public pharmacies and the period of use was not sur-
veyed, and this may have influenced the results. The data presented here may be underestimated due to memory constraints, because they are self-reported by users. Also, due to the type of study, the temporality of the associated factors cannot be established.

In short, the results of this work corroborate Hart's definition of the reverse care law “[…] that the availability of good medical care tends to vary inversely with the needs of the population served”.

Collaborations

KS Costa, A Zaccolo, NUL Tavares and SS Mengué participated in the design of the communication, analysis and interpretation of the data, writing and revision of the content. MA Oliveira, PSD Arrais and VL Luiza participated in the analysis and interpretation of data and content review. All authors approved the version to be published.

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