The scope of practice of primary health care physicians in rural and urban areas in Brazil

O escopo da prática de médicos na atenção primária nas áreas rural e urbana do Brasil

Alcance de las consultas médicas en la atención primaria en salud en áreas rurales y urbanas brasileñas

Abstract

This study aimed to identify differences in the scope of practice of primary care physicians and find the main factors associated with expanded practice in rural and urban areas of Brazil. Data from an online survey with 2,277 primary care physicians, conducted between January and March 2016, were used. Differences regarding activities and procedures performed by physicians per area were verified using Kruskal-Wallis/Dunn’s post hoc and chi-square tests. Multivariate linear regression analyses were done using a bootstrap technique to identify the main factors associated with an expanded scope of practice. Regardless of the location, the results showed that the practices of the primary care physicians are below their competences. Rural physicians performed a higher number of procedures and activities compared with their peers from intermediate and urban municipalities. Within the overall sample, the variables related to a broader scope of practice included: male gender, work in rural municipalities, participation in training and continuing education programs and consultation of clinical protocols, articles and books. This study contributes with evidence that the medical scope of practice varies according to location. Recognizing and understanding the differences and associated factors for an expanded scope of practice is necessary to determine the skills and resources required for practice in rural and urban areas, collaborating in proposals of strategies to improve quality and access of health care services.

Scope of Practice; Physicians; Health Services Accessibility; Primary Health Care

doi: 10.1590/0102-311X00211520

Correspondence

Ana Cristina van Stralen
Universidade Federal de Minas Gerais.
Av. Alfredo Balena 190, 7º andar, Belo Horizonte, MG 30310-100, Brasil.
anastralen@gmail.com

Cristiana Leite Carvalho
Pontifícia Universidade Católica de Minas Gerais, Belo Horizonte, Brasil.

Sábado Nicolau Girardi
Instituto de Medicina Social, Universidade do Estado do Rio de Janeiro, Rio de Janeiro, Brasil.

Celia Regina Pierantoni
Ilka Afonso Reis
Mariangela Leal Cherchiglia
Introduction

Primary healthcare (PHC) in Brazil is crucial to the Unified National Health System (SUS) 1. The consolidation of PHC over the past decades is one of the major advances made by SUS as a public policy and universal system. Different policies and programs contributed to the expansion of PHC. The adoption of the Family Health Program in 1994 can be highlighted as responsible for changing and reorganizing the model of care. In 2006, it became known as the Family Health Strategy (FHS) after the publication of the National Policy on Primary Care (PNAP, in Portuguese). Although under strong recent threats (some reported in the discussion), FHS is considered the main PHC model in Brazil. Composed by a multiprofessional team of physicians, nurses, nurse technicians and community health agents, it has reached more than 40,000 teams 1,2,3. Physicians play an important role in this team, however, attracting and retaining them in PHC to rural, remote and unsafe areas of urban centers is a continuous challenge 4.

Access to PHC is strongly related to health policies, geographic location of the place of residence, and workforce availability 5. Shortage and maldistribution of health professionals are among the main barriers. Providing enough professionals, at the right time, in the right places, and with the right skills is essential to ensure health access to the population 5,6. The difficulty in reducing inequality of access to care in large countries, such as Brazil, is well known. Policymakers worldwide are under constant pressure to ensure health access to the population and find innovative ways to deliver services with less cost and without compromising the quality 4,5,6.

In Brazil, the latest, and one of the most impactful strategies adopted is the More Doctors Program (PMM, in Portuguese) implemented in 2013 to reduce physician shortage and health inequalities in underserved areas. It is a multidimensional program with three main components: (1) investments to improve the infrastructure of health units; (2) reforms and expansion of medical undergraduate courses and residency programs focused on PHC; and (3) emergency provision of physicians in most needed areas 7. Concerning the third component, one of its boldest initiatives was the recruitment of over 10,000 foreign physicians, mostly from a cooperation agreement established with Cuba via the Pan American Health Organization (PAHO) 8. However, at the end of 2018, the newly elected Federal Government ended the agreement, leading Cuban physicians to return to their country and, consequently, leaving behind a large and vulnerable population, mainly in rural, remote and peripheral urban areas, unassisted. This sudden departure caused a shortage of physicians and a change in the professional profile in several places, left the program with no investment 8. In 2019, the government launched the Doctors Through Brazil program, with the expectation to replace the PMM. The new program focuses on providing physicians to rural and remote areas and does not include urban and peripheral areas; components 1 and 2 of the original program were also removed 8.

To address the shortage of health professionals, amendments in the legislation that regulates their scope of practice have been carried out since the early 1970s in countries such as Canada and the United States 9,10. The scope of practice defines the parameters of a profession; in practical terms, it describes the set of activities and functions that a professional is qualified to perform based on education, training, competence and regulation 11,12. Many of these regulatory amendments include a comprehensive review of the health professionals’ scope of practice, seeking to expand and optimize their practice by balancing professional competences and practice with population and health system needs 9,10.

In health care, the profession scope of practice is determined and restricted by law. In Brazil, the physician’s legal scope of practice is defined by Act n. 12,842/2013, which attributes to physicians a set of exclusive diagnostic, prescriptive and therapeutic activities 13. The definition of scope of practice, however, goes beyond the legal field. Several other key determinants for a health professional’s scope of practice exist, such as their education/training credentials and competencies, which can differ in levels, standards, and duration, impacting on scope of practice 12,14,15. In Brazil, the educational component of PMM was responsible for the implementation of curricular guidelines, which included at least 30% of medical undergraduate courses in PHC 7,8. The Brazilian Society of Family and Community Medicine also launched a new competency-based curriculum for graduate programs to help as a guide for better preparing physicians for practice in PHC 16. Higher education institutions have, however, autonomy over their curriculum, leading to high heterogeneity in approaches to PHC contents, consequently leading to different practice patterns. In addition to formal education, the avail-
ability of other modalities of training is also considered important in determining scope of practice. Continuing education programs are a good example due to bringing knowledge closer to practice. Sociodemographic factors such as age may also play an important role in scope of practice. Older physicians tend to have more practice experience, whereas younger physicians can be more up to date on new drugs, technologies and procedures. Personal factors such as lifestyle, background, and personal interests, are also known to influence practice. Finally, scope of practice is also strongly determined by the location of practice, being driven by population size, demands, characteristics, geographic factors, isolation, socioeconomic status, availability of health services, supplies, professionals, among others.

Expanded scope of practice among PHC physicians working in rural and remote areas has been observed in international literature. Physicians working in these areas often develop a broader range of skills in response to population needs, a lack of professionals, services and referral opportunities. Unlike in urban areas, general practitioners and family physicians are often the only medical professionals available in rural municipalities.

Understanding the differences between rural and urban physicians’ scope of practice is an essential step in searching for ways to ensure universal access to healthcare. Comprehension of practice in different locations enables policymakers to offer better support to physicians and provide targeted resources and training for enhancing competencies in medical practice. Besides, promoting an expanded scope of practice is expected to contribute to better retention of physicians in most needed areas, reducing costs, referral rates and inequalities in access to healthcare.

In Brazil, few studies focus on this topic. The purpose of this study was to identify differences in PHC physicians’ scope of practice and identify the main factors associated with expanded practice in rural and urban areas in Brazil.

Methods

Study design

Data from a major exploratory cross-sectional study on the regulation of health professionals in Brazil were; the survey was carried out by Human Resources for Health Observatories from the Federal University of Minas Gerais (UFMG) and the State University of Rio de Janeiro (UERJ). The collection took place between January and March 2016, through a self-administered questionnaire since this type of instrument is widely used in studies that aim to measure the scope of practice.

The sample was reached through convenience from a list of physicians enrolled in the Family Health Specialization Program and other short-term courses focused on PHC offered by the Open University System of SUS (UNA-SUS, Portuguese). The choice of this database was based on the large number of physicians registered and the availability of email addresses, which are essential for making the research feasible. The questionnaire was mailed to all 17,536 physicians registered. In total, 4,218 physicians consented to participate, of which 2,277 responses were considered for the present analysis (physicians who reported working in PHC facilities at the time and answered the question concerning their scope of practice).

Definition of practice location

To meet the objectives of this article, respondents were stratified according to their practice location, considering the classification and characterization of rural and urban spaces, proposed by the Brazilian Institute of Geography and Statistics (IBGE). This proposal defines a rural-urban typology that considers first the demographic density and population sizes to classify the municipalities into rural, intermediate, and urban. This study then considers the location of the municipalities in relation to major urban centers to classify rural and intermediate municipalities adjacent to urban centers of higher hierarchy from those that are remote (or further away from these centers). IBGE defines a final classification of five categories: (1) rural remote, (2) rural adjacent, (3) intermediate remote, (4)
intermediate adjacent, (5) urban. For analysis purposes, the categories intermediate adjacent and intermediate remote were aggregated into intermediate. The choice for this aggregation was due to the low number of respondents in these categories (n = 25 physicians).

**Instrument**

The development of the instrument involved different steps: interviews with key informants, literature review, and consultation of PHC standards and technical manuals – Procedures – from the Brazilian Ministry of Health. The survey included sociodemographic variables (gender, age, nationality, year and country of graduation); work-related variables (workplace and experience in PHC); and support resources for practice (use of telehealth, participating in training and continuing education programs and consulting clinical protocols, articles and books).

To identify scope of practice, a list of 49 activities/procedures was presented to the respondents, for which they were asked to indicate if they practiced the procedure or activity in their work unit, and if not, if they knew how to perform them. The number of procedures/activities performed was considered as a proxy of an enhanced scope of practice of PHC physicians. The 49-items list was classified into (i) invasive/surgical procedures, and (ii) clinical activities, considering the appropriate Medical Act.

**Data analysis**

Sociodemographic variables and scope of practice items were stratified according to the rural-urban typology. Calculation of absolute and relative frequencies was done for categorical variables and measures of central tendency (mean, standard deviation, and median) for continuous variables. Nonparametric Kruskal-Wallis/Dunn’s post hoc test was used to verify the differences regarding the groups of activities/procedures (invasive/surgical procedures and clinical activities) that respondents performed and knew how to perform since the data did not present a normal distribution (Shapiro-Wilk test). Differences regarding the 49-items by location category (rural remote, rural adjacent, intermediate, and urban) were calculated by the chi-square test.

Nonparametric bootstrap linear regression model with 4,000 repetitions was used to investigate the factors associated with an expanded scope of practice by category. At this stage, the rural remote and rural adjacent categories were aggregated into rural, resulting in four models, general (overall sample), rural, intermediate, and urban. First, we performed univariate analyses using the total of activities and procedures performed as a dependent variable and sociodemographic and support resources as independent variables. Variables with a p-value < 0.2 were included for the subsequent multivariate analysis. From the initial models of multivariate analysis, the variables whose p-values were not significant were removed one by one until all variables were within the desired significance level. We used 95% confidence intervals (95% CI) and 0.05 as the level of significance. All analyses were done using R statistical software (http://www.r-project.org).

In accordance with Resolution n. 466/2012, of the Brazilian National Health Council, due to the participation of human subjects, this study was submitted to the Ethics Research Committee of UERJ, and approved under the number 46779115.5.0000.5260, on September 29, 2015.

**Results**

Table 1 describes the study population according to the four municipality categories. Most respondents (63.9%) were working in Urban municipalities, followed by 24.4% in rural adjacent, 9.1% in intermediate, and 2.6% in rural remote municipalities. This distribution approaches the proportion of physicians working in PHC facilities in the same year of the survey, according to data from the National Register of Health Facilities (CNES). Concerning the geographic regions of the respondents, except for urban physicians, most were from the Northeast of the country, especially rural adjacent physicians (57.2%). Regarding urban physicians, 41.9% were from Southeastern Brazil.
Box 1

List of the activities and procedures included in the study (N = 49).

| CLINICAL ACTIVITIES                                                                 | INVASIVE/SURGICAL PROCEDURES                                      |
|------------------------------------------------------------------------------------|-------------------------------------------------------------------|
| Skin scraping for fungal identification                                            | Abscess incision and drainage                                     |
| Cryotherapy (cold treatment) of skin lesions                                       | Sutures                                                           |
| Cryotherapy or chemical therapy for genital wart                                   | Skin lesion removal                                               |
| Superficial wounds treatment                                                       | Paronychia drainage                                               |
| Immobilization of injured extremities                                             | Callus removal                                                    |
| Subungual hematomata treatment                                                     | Foreign body removal (upper, lower limbs, and extremities)        |
| Venous puncture                                                                    | Ingrown toenail removal                                           |
| Intramuscular injection                                                            | Molluscum contagiosum removal                                     |
| Subcutaneous injection                                                             | Cysts, lipomas, and nevi removal                                  |
| Acupuncture                                                                        | Ear wax removal                                                   |
| Fracture immobilization                                                            | Airway foreign bodies removal                                     |
| Low-risk prenatal care                                                             | Ear foreign body removal                                          |
| High-risk prenatal care                                                            | Corneal or conjunctival foreign body removal                      |
| Normal low-risk delivery                                                           | Cauterização de epistaxe (sangramento nasal)                     |
| High-risk delivery                                                                 | Local anesthetic infiltration                                     |
| Fecal occult blood test request                                                    | Nasogastric tube insertion / Gastric lavage                      |
| Electrocardiogram (perform)                                                        | Ureteral catheter insertion                                       |
| Oxygen therapy                                                                     | Pap test                                                          |
| Visual acuity screening                                                            |                                                                   |
| Addressing decreased visual acuity                                                 |                                                                   |
| Addressing red eye complaints                                                      |                                                                   |
| Low back pain treatment                                                            |                                                                   |
| Recurrent urinary tract infection treatment                                        |                                                                   |
| Allergic rhizopathies treatment                                                    |                                                                   |
| Recurrent sinusitis treatment                                                      |                                                                   |
| Recurrent otitis treatment                                                         |                                                                   |
| Asthma treatment                                                                   |                                                                   |
| Anemia treatment                                                                   |                                                                   |
| Epigastric pain/peptic ulcer treatment                                             |                                                                   |
| Mycoses treatment                                                                  |                                                                   |
| Dermatitis treatment                                                               |                                                                   |

Source: prepared by the authors, from the Health Professional Regulation 25.

More than half of the respondents were foreigners (55.4%), mostly from Cuba (89%). 61% graduated outside Brazil, from which 82.5% in Cuba. There was a higher concentration of foreigners in rural remote (97.7%) and rural adjacent (74.7%), with a predominance of Brazilian physicians only in urban municipalities (55.5%). The proportion of physicians according to gender was well distributed for all categories, except for rural remote physicians, where 64.6% were female. This same category had a slightly higher mean age than others (44.9). The mean time of graduation in years was 16.3 between urban physicians and 20.2 for rural remote physicians. The years of experience in PHC ranged from 10.4 to 12.6 years between urban and rural remote physicians.
Table 1

Physician's sociodemographic characteristics according to rural-urban typology (Brazil, 2017).

| Sociodemographic characteristics | Total          | Rural remote | Rural adjacent | Intermediate | Urban         |
|----------------------------------|----------------|--------------|---------------|--------------|---------------|
|                                  | n   | %    | n   | %    | n   | %    | n   | %    | n   | %    |
| Population                       | 190,747,731 | 100.0 | 3,524,597 | 1.9 | 28,689,820 | 15.0 | 13,767,814 | 7.2 | 144,765,500 | 75.9 |
| PHC physicians *                 | 107,620 | 100.0 | 1,762 | 1.6 | 21,029 | 19.5 | 8,535 | 7.9 | 76,294 | 70.9 |
| Respondents                      | 2,277 | 100.0 | 60   | 2.6 | 556   | 24.4 | 207   | 9.1 | 1,454 | 63.9 |
| Geographic region                |      |      |      |      |      |      |      |      |      |      |
| North                            | 206  | 9.0  | 20   | 33.3 | 39    | 7.0  | 43    | 20.8 | 104   | 7.2  |
| Northeast                        | 819  | 36.0 | 24   | 40.0 | 318   | 57.2 | 97    | 17.9 | 609   | 41.9 |
| Southeast                        | 752  | 33.0 | 7    | 11.7 | 99    | 17.8 | 37    | 17.9 | 609   | 41.9 |
| South                            | 360  | 15.8 | 1    | 1.7  | 82    | 14.7 | 21    | 10.1 | 256   | 17.6 |
| Central West                     | 140  | 6.1  | 8    | 13.3 | 18    | 3.2  | 9     | 4.3  | 105   | 7.2  |
| Nationality                      |      |      |      |      |      |      |      |      |      |      |
| Brazilian                        | 840  | 44.6 | 1    | 2.1  | 115   | 25.3 | 57    | 31.5 | 667   | 55.5 |
| Foreign **                       | 1,044 | 55.4 | 46   | 97.9 | 339   | 74.7 | 124   | 68.5 | 535   | 44.5 |
| Country of graduation            |      |      |      |      |      |      |      |      |      |      |
| Brazil                           | 729  | 39.0 | 1    | 2.1  | 102   | 22.6 | 44    | 24.7 | 582   | 48.8 |
| Other ***                        | 1,140 | 61.0 | 46   | 97.9 | 349   | 77.4 | 134   | 75.3 | 611   | 51.2 |
| Gender                           |      |      |      |      |      |      |      |      |      |      |
| Female                           | 1,009 | 53.3 | 31   | 64.6 | 228   | 49.8 | 90    | 49.2 | 660   | 54.8 |
| Male                             | 884  | 46.7 | 17   | 35.4 | 230   | 50.2 | 93    | 50.8 | 544   | 45.2 |
| Telehealth                       |      |      |      |      |      |      |      |      |      |      |
| Yes                              | 720  | 31.6 | 19   | 31.7 | 183   | 32.9 | 74    | 35.7 | 444   | 69.5 |
| No                               | 1,557 | 68.4 | 41   | 68.3 | 373   | 67.1 | 133   | 64.3 | 1,010 | 30.5 |
| Training and continuing          |      |      |      |      |      |      |      |      |      |      |
| education programs               |      |      |      |      |      |      |      |      |      |      |
| Yes                              | 1,305 | 57.3 | 27   | 45.0 | 307   | 55.2 | 118   | 57.0 | 853   | 58.7 |
| No                               | 972  | 42.7 | 33   | 55.0 | 249   | 44.8 | 89    | 43.0 | 601   | 41.3 |
| Clinical protocols, articles, and |      |      |      |      |      |      |      |      |      |      |
| books                            |      |      |      |      |      |      |      |      |      |      |
| Yes                              | 1,624 | 71.3 | 40   | 66.7 | 401   | 72.1 | 160   | 77.3 | 1,023 | 70.4 |
| No                               | 653  | 28.7 | 20   | 33.3 | 155   | 27.9 | 47    | 22.7 | 431   | 29.6 |
| Age (years) [n = 1,884]          |      |      |      |      |      |      |      |      |      |      |
| Mean                             | 23.0 | 44.9 | 43.3 | 42.9 | 42.8 |
| SD                               | 9.7  | 7.8  | 8.9  | 9.3  | 10.2 |
| Median                           | 43   | 47   | 44   | 44   | 42   |
| Time since graduation (years)    |      |      |      |      |      |      |      |      |      |      |
| [n = 1,987]                      |      |      |      |      |      |      |      |      |      |      |
| Mean                             | 16.8 | 20.2 | 17.6 | 17.2 | 16.3 |
| SD                               | 10.3 | 8.5  | 9.1  | 9.7  | 10.7 |
| Median                           | 17   | 23   | 19   | 19   | 15   |
| Experience in PHC (years)        |      |      |      |      |      |      |      |      |      |      |
| [n = 2,261]                      |      |      |      |      |      |      |      |      |      |      |
| Mean                             | 10.8 | 12.6 | 11.5 | 11.5 | 10.4 |
| SD                               | 9.1  | 9.5  | 9.1  | 9.8  | 8.9  |
| Median                           | 8    | 12   | 10   | 8    | 7    |

PHC: primary healthcare; SD: standard deviation.

* Total physicians with work bond in primary care facilities according to the National Register of Health Facilities (CNES);

** 89% was Cubans;

*** 82.5% graduated in Cuba.

Source: prepared by the authors, with data from the survey and Brazilian Institute of Geography and Statistics.
Rural remote, rural adjacent, and intermediate physicians had lower rates of telehealth usage (31.7%, 32.95%, 35.7%) when compared to urban physicians (69.5%). As for participating in training and continuing education programs, the proportion of respondents ranged from 45% to 58.8% between rural remote and urban physicians. Finally, consultation of clinical protocols, articles, and books presented a smaller variation between the categories, with the highest proportion among rural remote physicians (33%).

Table 2 presents the mean, standard deviation (SD) and median of the number of activities and procedures that the respondents claimed to perform and know how to perform, considering the total items, and the groups invasive/surgical procedures and clinical activities. Respondents from all locations informed to know how to perform a higher mean number of procedures and activities (35.9, SD = 10.9) than they actually performed in the health facility (20.7, SD = 9.1). The same was observed concerning invasive/surgical procedures and clinical activities, for which respondents declared practicing a lower number of items, compared with the total they declared to know how to practice.

The mean of the total of procedures and activities that the respondents declared to perform and know how to perform was significantly lower among urban physicians compared to the other three categories (p < 0.001). The same was observed for clinical activities.

### Table 2

Mean, standard deviation (SD) and median of activities and procedures that respondents declared to practice and know how to practice, according to the groups and the rural-urban typology (Brazil, 2017).

| Activities and procedures | Practiced Total (N = 49) | Clinical Total (n = 31) | Known Total (N = 49) | Clinical Total (n = 31) |
|---------------------------|-------------------------|------------------------|----------------------|------------------------|
|                           |                         |                         |                      |                        |
|                           | Invasive/Surgical       | Clinical               | Invasive/Surgical    | Clinical               |
| Rural remote              |                         |                         |                      |                        |
| Mean                      | 24.9                    | 17.7                   | 39.9                 | 14.8                   |
| SD                        | 8.8                     | 5.6                    | 10.9                 | 4.3                    |
| Median                    | 26.0<sup>a</sup>        | 19.0<sup>a</sup>       | 44.0<sup>a</sup>     | 16.5<sup>a</sup>       |
| Rural adjacent            |                         |                         |                      |                        |
| Mean                      | 23.1                    | 16.7                   | 38.0                 | 14.0                   |
| SD                        | 9.4                     | 5.8                    | 10.7                 | 4.5                    |
| Median                    | 22.5<sup>a</sup>        | 18.0<sup>a</sup>       | 42.0<sup>a</sup>     | 15.0<sup>a</sup>       |
| Intermediate              |                         |                         |                      |                        |
| Mean                      | 21.9                    | 16.6                   | 38.3                 | 13.9                   |
| SD                        | 9.4                     | 5.6                    | 10.0                 | 4.5                    |
| Median                    | 21.0<sup>a</sup>        | 17.0<sup>a</sup>       | 41.0<sup>a</sup>     | 14.0<sup>a</sup>       |
| Urban                     |                         |                         |                      |                        |
| Mean                      | 19.5                    | 15.2                   | 34.7                 | 12.3                   |
| SD                        | 8.7                     | 5.9                    | 10.8                 | 4.7                    |
| Median                    | 9.5<sup>b</sup>         | 16.0<sup>b</sup>       | 38.0<sup>b</sup>     | 14.0<sup>b</sup>       |

Note: test Kruskal Wallis/Dunn's post hoc. For each variable, equal letters indicate statistically equal groups, and different letters indicate statistically different groups (p < 0.001).

Source: prepared by the authors, with data from the survey 24 and Brazilian Institute of Geography and Statistics 26.
Regarding invasive/surgical procedures, rural remote and adjacent physicians reported performing a higher mean than their peers from urban and intermediate municipalities (p < 0.001). The practice of these types of procedures showed, however, to be low in all categories. The highest mean was observed among physicians working in rural remote municipalities, whose reported mean was 7.2 (SD = 4.8) out of 18 procedures (Table 2).

Table 3 illustrates the proportion of the 49 procedures and activities listed by practice location. The results showed a significant variation in the proportion of rural and urban physicians. Respondents from rural remote and adjacent municipalities showed a higher proportion for most of the items, especially when compared with urban physicians, presenting significant differences for 34 of the items listed.

### Table 3

Proportion of physicians who performed the activities and procedures (N = 49), according to the rural-urban typology (Brazil, 2017).

| Activities and procedures | Total | Rural remote | Rural adjacent | Intermediate | Urban | p-value |
|---------------------------|-------|--------------|---------------|--------------|-------|---------|
|                           | n     | %            | n             | %            | n     | %       |
| **Invasive/Surgical**     |       |              |               |              |       |         |
| Abscess incision and drainage | 2,122 | 42.8         | 56            | 53.6         | 518   | 53.3    | 193     | 43.0    | 1,355   | 38.0    | < 0.001 |
| Sutures                   | 2,133 | 41.9         | 57            | 61.4         | 525   | 62.1    | 192     | 40.6    | 1,359   | 33.5    | < 0.001 |
| Skin lesion removal       | 2,071 | 26.8         | 54            | 35.2         | 495   | 37.3    | 190     | 24.7    | 1,332   | 22.8    | < 0.000 |
| Paronychia drainage       | 2,071 | 31.1         | 54            | 46.3         | 496   | 39.4    | 186     | 33.3    | 1,326   | 27.1    | < 0.001 |
| Callus removal            | 2,041 | 12.0         | 53            | 17.0         | 498   | 15.9    | 188     | 15.4    | 1,302   | 9.8     | < 0.001 |
| Foreign body removal (upper, lower limbs and extremities) | 2,071 | 32.4         | 56            | 57.1         | 508   | 41.9    | 191     | 31.4    | 1,316   | 27.7    | < 0.001 |
| Ingrown toenail removal   | 2,064 | 26.7         | 54            | 40.7         | 506   | 39.3    | 189     | 27.5    | 1,315   | 21.2    | < 0.001 |
| Molluscum contagiosum removal | 2,049 | 19.1         | 53            | 17            | 503   | 21.5    | 186     | 19.9    | 1,307   | 18.2    | 0.435   |
| Cysts, lipomas and nevi removal | 2,047 | 12.2         | 53            | 13.2         | 499   | 16.2    | 188     | 11.2    | 1,307   | 10.7    | 0.014   |
| Ear wax removal           | 2,094 | 59.1         | 54            | 68.5         | 515   | 68.5    | 193     | 60.6    | 1,332   | 54.8    | < 0.001 |
| Airway foreign bodies removal | 2,068 | 26.2         | 55            | 47.3         | 504   | 32.7    | 189     | 32.8    | 1,320   | 21.9    | < 0.001 |
| Ear foreign body removal  | 2,093 | 40.4         | 56            | 69.6         | 513   | 51.7    | 190     | 41.1    | 1,334   | 34.8    | < 0.001 |
| Corneal or conjunctival foreign body removal | 2,078 | 24.3         | 56            | 42.9         | 505   | 36.8    | 189     | 33.9    | 1,328   | 17.3    | < 0.001 |
| Cauterization of epistaxis (nosebleeds) | 2,048 | 17.2         | 54            | 31.5         | 499   | 20.6    | 188     | 19.1    | 1,307   | 15.0    | < 0.001 |
| Local anesthetic infiltration | 2,079 | 45.6         | 56            | 67.9         | 505   | 61.4    | 190     | 48.9    | 1,328   | 38.3    | < 0.001 |
| Nasogastric tube insertion/Gastric lavage | 1,918 | 17.5         | 50            | 24.0         | 473   | 22.0    | 183     | 20.8    | 1,212   | 14.9    | 0.002   |
| Ureteral catheter insertion | 1,904 | 26.6         | 48            | 33.3         | 468   | 35.0    | 182     | 29.7    | 1,206   | 22.6    | < 0.001 |
| Pap test                  | 1,942 | 45.0         | 52            | 69.1         | 476   | 43.1    | 182     | 39.0    | 1,232   | 45.5    | < 0.001 |
| **Clinical**              |       |              |               |              |       |         |
| Skin scraping for fungal identification | 2,054 | 5.1          | 53            | 13.2         | 494   | 4.9     | 188     | 5.9     | 1,319   | 4.8     | 0.052   |
| Cryotherapy (cold treatment) of skin lesions | 2,060 | 2.9          | 53            | 3.8          | 496   | 3.8     | 188     | 3.2     | 1,323   | 2.5     | 0.478   |
| Cryotherapy or chemical therapy for genital wart | 2,057 | 13.4         | 51            | 9.8          | 499   | 11.0    | 188     | 11.7    | 1,319   | 14.6    | 0.157   |
| Superficial wounds treatment | 2,152 | 79.7         | 59            | 79.7         | 524   | 84.5    | 199     | 82.9    | 1,370   | 77.4    | 0.004   |
| Immobilization of injured extremities | 2,079 | 29.5         | 56            | 57.1         | 508   | 38.8    | 189     | 26.6    | 1,326   | 24.8    | < 0.001 |
| Subungual hematoma treatment | 2,053 | 25.9         | 53            | 32.1         | 501   | 29.9    | 190     | 32.1    | 1,309   | 23.2    | 0.003   |

(continues)
Invasive/surgical procedures presented the lowest proportions. The only item performed by over 50% of the total of respondents was "ear wax removal". Even between rural remote and adjacent physicians who presented the highest proportions, less than 60% practiced procedures such as "cyst, lipoma and nevus removal", "corneal or conjunctival foreign body removal" and "epistaxis cauterization (nasal bleeding)". The highest proportions (over 60% up to 69.6%) for both rural remote and rural adjacent physicians were "suture", "ear wax removal" and "local anesthetics infiltration". Concerning only rural remote, we can also highlight "ear foreign body removal", performed by 69.6%, and "pap test" by 69.1%. Regarding urban physicians, the only procedure performed by over 50% was "ear wax removal" (54.8%).

Regarding the clinical activities, about half of the activities were performed by over 50% of the physicians. The lowest proportions included "cryotherapy (cold treatment) of skin lesions" (2.9%), "high risk delivery" (3%), "scraping for fungus identification" (5.1%), "acupuncture" (6%), "low normal delivery" (11%), "cryotherapy or chemical therapy for genital wart" (13.4%). In all categories, over 90% declared to perform activities related to the treatment of most common diseases (Table 3).

Given the results described above, we sought to verify which explanatory variables were associated with practicing a higher number of procedures and activities by category. Table 4 presents the results of four final regression models. Considering all respondents, we found that the variables associated with an expanded scope of practice were: work in rural municipalities, male gender, participation in intermediate medical schools, and the Brazilian Institute of Geography and Statistics. For urban physicians, the only variable associated was "work in rural municipalities".
tion in training and continuing education programs, and consultation of clinical protocols, articles, and books. Among the rural respondents, the factors associated with an expanded practice were: being graduated outside Brazil, male gender, less time since graduation, more experience in PHC, and consultation of clinical protocols, articles, and books. For the intermediate model, the only variables that explained a higher practice were male gender and consultation of clinical protocols, articles, and books. Finally, considering the urban physicians, the factors associated with an expanded SOP were: male gender, telehealth usage, and participation in training and continuing education programs (Table 4).

**Discussion**

This study sought to identify the variation of PHC physicians’ scope of practice in Brazil, according to the municipality’s rural-urban typology and the main factors associated with an expanded practice. The results showed that the variables related to a broader practice included: work in rural municipalities, male gender, participation in training and continuing education programs, and consultation of clinical protocols, articles, and books.

The large proportion of foreign physicians is notable in the sociodemographic characteristics of the respondents and can be explained by the period when the survey was conducted. At that time, over 10,000 PHC physicians participating in the PMM were from Cuba. This scenario, however, has changed; at the end of 2018, with a newly elected federal government, approximately 8,000 Cuban physicians left the country, leaving behind a large and mostly vulnerable population, mainly

**Table 4**

Multivariate linear regression models for the total number of activities and procedures.

| Variables                              | Final model – total respondents | Final model – rural | Final model – intermediate |
|----------------------------------------|---------------------------------|--------------------|---------------------------|
|                                        | Coefficient β                   | 95%CI              | p-value                   | Coefficient β                   | 95%CI              | p-value                   | Coefficient β                   | 95%CI              | p-value                   |
| Intercept                              | 23.14                           | 21.94; 24.33       | < 0.001                   | 23.18                           | 20.86; 25.51       | < 0.001                   | 20.41                           | 17.91; 23.03       | < 0.001                   |
| Rural                                  | Ref.                            |                    |                           | Ref.                            |                    |                           | Ref.                            |                    |                           |
| Intermediate                           | -2.18                           | -3.57; -0.76       | 0.003                     | -                               | -                  | -                         | -                               | -                  | -                         |
| Urban                                  | -3.89                           | -4.72; -3.05       | < 0.001                   | -                               | -                  | -                         | -                               | -                  | -                         |
| Country of graduation                  |                                 |                    |                           |                                 |                    |                           |                                 |                    |                           |
| Brazil                                 | -                               | -                  | -                         | Ref.                            | -                  | -                         | -                               | -                  | -                         |
| Other                                  | -                               | -                  | -                         | 2.73                            | 0.79; 4.64         | 0.005                     | -                               | -                  | -                         |
| Gender                                 |                                 |                    |                           |                                 |                    |                           |                                 |                    |                           |
| Female                                 | -1.85                           | -2.56; -1.13       | < 0.001                   | -2.2                            | -3.70; 0.69        | 0.005                     | -2.76                           | -5.13; -0.45       | 0.025                     |
| Male                                   | Ref.                            |                    |                           | Ref.                            |                    |                           | Ref.                            |                    |                           |
| Age (years)                            | -                               | -                  | -                         | -                               | -                  | -                         | -                               | -                  | -                         |
| Time since graduation (years)          | -                               | -                  | -                         | -0.16                           | -0.25; -0.07       | 0.001                     | -                               | -                  | -                         |
| Experience in PHC                      | -                               | -                  | -                         | 0.13                            | 0.04; 0.20         | 0.004                     | -                               | -                  | -                         |
| Telehealth                              | -                               | -                  | -                         | -                               | -                  | -                         | -                               | -                  | -                         |
| Training, continuing education programs| 1.43                            | 0.69; 2.20         | < 0.001                   | -                               | -                  | -                         | -                               | -                  | -                         |
| Clinical protocols, articles, and books| 2.20                            | 1.25; 3.14         | < 0.001                   | 2.66                            | 0.82; 4.49         | 0.004                     | 4.41                            | 1.87; 7.06         | 0.002                     |

95%CI: 95% confidence interval; PHC: primary healthcare; Ref.: reference.

Source: prepared by the authors, with data from the survey and Brazilian Institute of Geography and Statistics.
from rural and remote areas without medical assistance. The government, since then, attempted to provide physicians in these areas. At first, they sought to attract only physicians who were certified in Brazil. However, with the difficulty in replacing the Cuban physicians, continuous shortage and high turnover rates, the government recently considered the inclusion of about 1,900 of Cubans that remained in the country.

The results suggest that physicians were practicing below their competencies since they reported to know how to perform more activities and procedures than they performed in their work unit. The same tendency was observed in a similar study with physicians from the PMM. International studies have been reporting the decline of PHC physicians' scope of practice. These phenomena go against the principle of the integrality of PHC, which reinforces that comprehensive care and a broader practice are fundamental to achieve better health outcomes.

Physicians from all categories practiced a low number of invasive/surgical procedures. Experiences of minor surgeries in PHC reported in previous studies point up several benefits, such as greater comprehensive care, better pre- and post-procedure follow-up, greater patient satisfaction, better cost-effectiveness, reduced waiting for lines in secondary care, good results and fewer complications. Bousquat et al. found that the shortness of equipment and material observed in PHC units in Brazil limits health professionals’ scope of actions and capacity to respond to population health problems.

In the present study, similar to others, rural physicians reported having a broader scope of practice, especially when compared to urban ones. The development of a higher number of skills and an expanded scope in rural and remote areas can be explained due to the lack of health services and professionals to refer and share functions when needed. Also, rural areas tend to have fewer PHC physicians. In Brazil, a Primary Healthcare Physicians Shortage Index shows that among municipalities identified as suffering due to physician shortage, the ones with up to 10,000 inhabitants are the most affected. Consequently, they may require a broader scope of practice, than their urban peers.

The persistence of strong inequalities in living conditions and access to health services associated with the high concentration of professionals and services in urban areas is well known. However, we also must consider the specificities of urban health. The access to health services can differ not only from city to city, but also among the population due to socioeconomic disparities, existence or not of services, and due to conditions of accessibility of services dependent on the location. Living conditions arising from urban dynamics have a big influence on the functioning of the health system, especially concerning PHC. Cities with more than 100,000 inhabitants are considered to have the greatest social and economic disparities and challenges concerning the consolidation and effectiveness of PHC. It is still important to consider the different urban profiles of these cities that show differences in the degree of PHC expansion. Concerning the health workforce, urban areas are not immune to PHC physician shortage. Violent and peripheral urban areas are usually the most affected. The shortage and the high turnover rates of physicians in these areas can have an important effect on their practice.

Factors associated with an expanded scope of practice are still poorly understood. The present study made it possible to identify different factors of PHC physicians. Male gender was the only significant in all models tested, consistent with other studies. None of them, however, has deepened this issue. The feminization trend of the medical profession is a topic that deserves some questioning.

Less time since graduation was associated with a broader practice within rural and urban physicians. Similar studies attest that younger and newly graduated are more willing to practice an expanded scope of practice. Only among physicians from rural municipalities, more experience in PHC had a positive association, indicating that experience is an essential attribute for rural practice. Still considering the rural model, being graduated abroad showed to be associated with practicing a more significant number of procedures and activities. This can be explained by the number of foreign physicians in this category, mostly Cuban. Medical education in Cuba is well known to have an essential emphasis on primary care, and study has shown that their performance encompasses a wide range of actions and services, consistent with the principle of comprehensiveness.
The access to support resources for practicing in PHC showed an important impact on scope of practice. Regarding the three resources tested, participation in training and continuing education programs and telehealth usage showed a positive association for an expanded practice among urban physicians, and consultation of clinical protocols, articles, and books among rural and intermediate. These results suggest that the use of support resources can be related to financial and infrastructure issues. The offer of telehealth and promotion of education activities is more feasible in more developed urban municipalities.

Encouraging and enabling the provision of telehealth and education activities in a non-urban area could favor an expanded practice between physicians and better health outcomes. Telehealth in PHC has well-known benefits, being an important strategy to the decentralization of care, reducing referral rates, improving access to specialized services in remote areas, reducing health costs and patients’ travel time. However, the results indicate that the reach of this resource, especially in rural municipalities, is insufficient. Similarly, the benefits of continuing educational programs are also consolidated, including the improvement of professional qualification and practice, an increase in quality of care, and a decrease in incorrect diagnoses and prescriptions.

Ensuring the population’s access to health services in Brazil has always been challenging. Since 2016, SUS has undergone several changes having the PHC as the main target. The publication of the new Brazilian National Basic Health Care Policy (PNAB, in Portuguese) in 2017, introduces, with concern, new forms of the service organization, team composition, work process, and scope of practice. The priority given to the FHS is put in check, evidenced by federal funding for the traditional primary care models, admitting teams composed of only physicians and nurses, with reduced hours and flexibility of the population coverage by each team.

Concerning possible changes in scope of practice, in 2019 the ministry of health presented a Primary Health Care Service Portfolio, establishing a list of basic and essential services to be delivered in PHC. The municipality has authority to add or remove items. The list of services has a predominance of clinical practices of individual nature, with emphasis on pathologies and procedures, in a biomedical approach. While some institutions showed to be favorable to the list, such as the Brazilian Society of Family Medicine, claiming it can contribute to a greater resolution and efficiency of services, others, as the National Health Council, argue that the list can, on the contrary, impair resolution, reduce scope of practice and favor a segmentation of minimal standards, typical of a selective primary health care.

The present study provides important information on physicians’ scope of practice, identifying regional differences in PHC practice, for rural and urban areas. Pointing out these differences in practice is important since there is a tendency by policymakers to create health strategies without recognizing the variability between practices. Our findings are relevant for policymakers on healthcare professionals to develop educational and training programs and provide resources necessary to allow physicians to practice at their best level. Regarding attracting and retaining physicians in rural and remote areas – an ongoing challenge in Brazil, was aggravated now by the departure of Cuban physicians located mainly in these areas. The comprehension of the extent of rural practice can enable to discern the clinical competencies required for practice, allowing more informed target planning of recruitment. Besides, it can contribute to incoming physicians to know what is expected from a practice perspective. Some studies indicate that expanded scope of practice is considered an essential factor in physicians’ choice for the workplace.

A positive association between a broader scope of practice of health professionals, better health outcomes, lower cost and impact on retention of physicians in rural and remote areas has been observed in several studies. It is undeniable that policymakers should pay attention to this subject. Despite not being the focus of the present study, it is important to emphasize that studies on practice should cover all health professionals. Especially by recognizing some procedures and activities that can, and should be, shared among them, for example between physicians and nurses. Scope of practice’s law and regulations have been an active and growing area of debate within human resource for health planners. Flexibilizing and enhancing the scope of practice of health professionals flexible and enhancing it, and not only physicians, have shown to be effective in improving access to care and reducing health costs. Further research including all professionals in the FHS team must be carried out in Brazil, seeking innovative ways to maximize and optimize the skills and competencies.
of the entire PHC team. Teamwork presumes shared responsibilities that should be regulated in Brazil, as it has been regulated worldwide.

This study has limitations. The first, at the time of the survey, Cuban physicians represented a significant part of the PHC workforce in Brazil, especially in rural and remote municipalities. With the recent ending of the cooperation between Cuba and Brazil, this scenario has changed. Future research should evaluate the chance of scope of practice considering the differences in professional profiles. Second, we recognize that there are differences in medical training and post-graduation of all respondents, which are important determinants for scope of practice, reflecting also differences in professional skills and views on health. However, this variable was not suitable for analysis due to data quality issues. In this sense, the lack of this information could have affected the accuracy differences in scope of practice measured. Third, being an exploratory study, the findings should be complemented by other studies, such as explanatory and qualitative studies. Fourth, the unit of analysis was the municipality, which does not permit to measure of internal differences regarding scope of practice. This is a limitation, especially when considering the urban municipalities, where there is certainly variation in practice (e.g., center x peripheral areas). Finally, we should consider the limitations of the instrument itself, as it did not include the main barriers and obstacles for performing the activities and procedures per item, which could contribute to a more accurate analysis per location.

**Conclusion**

The present study corroborates with evidence that medical scope of practice varies according to location. Recognizing and detailing these differences and the factors associated with an expanded practice is relevant to determine the skills and resources required for professional practice in different areas, thus improving access to and quality of health care services. Considering that, in Brazil, primary care provided by SUS is the main contact of most of the population and a broader scope of practice of health professionals is known for its benefits, health and education policies that favor an expanded practice among PHC physicians should be encouraged.

**Contributors**

A. C. van Stralen contributed on the conception and design of the article, statistical analysis, data analysis, interpretation, and writing of the manuscript. C. L. Carvalho and M. L. Cherchiglia participated on the conception and design of the article, data analysis and interpretation, and critical review of the manuscript. S. N. Girardi and C. R. Pierantoni contributed on the conception and design of the article and critical review of the manuscript. I. A. Reis contributed on the statistical analysis and critical review of the manuscript.

**Additional informations**

ORCID: Ana Cristina van Stralen (0000-0003-4751-7595); Cristiana Leite Carvalho (0000-0003-1045-2759); Sábado Nicolau Girardi (0000-0003-0817-0533); Celia Regina Pierantoni (0000-0001-7481-6350); Ilka Afonso Reis (0000-0001-7199-8590); Mariangela Leal Cherchiglia (0000-0001-5622-567X).

**Acknowledgments**

To Pan American Health Organization/World Health Organization (PAHO/WHO) for the financial support.
References

1. Starfield B. Atenção primária: equilíbrio entre necessidades de saúde, serviços e tecnologia. Brasília: Organização das Nações Unidas para a Educação, a Ciência e a Cultura/Ministério da Saúde; 2002.

2. Facchini LA, Tomasi E, Dilêlio AS. Qualidade da atenção primária à saúde no Brasil: avanços, desafios e perspectivas. Saúde Debate 2018; 42(spe 1):208-23.

3. Pinto LF, Giovannella L. Do Programa à Estratégia Saúde da Família: expansão do acesso e redução das internações por condições sensíveis à atenção básica (ICSAB). Ciênc Saúde Colet 2018; 23:1903-14.

4. Campos FE, Machado MH, Girardi SN. A fixação de profissionais de saúde em regiões de necessidades. Divulg Saúde Debate 2009; (44):13-24.

5. World Health Organization. Increasing access to health workers in remote and rural areas through improved retention. Global recommendations. Geneva: World Health Organization; 2010.

6. Dussault G, Franceschini MC. Not enough there, too many here: understanding geographical imbalances in the distribution of the health workforce. Hum Resour Health 2006; 4:12.

7. Brasil. Lei nº 12.871, de 22 de outubro de 2013. Institui o Programa Mais Médicos, altera as Leis nº 8.745, de 9 de dezembro de 1993, e nº 6.932, de 7 de julho de 1981, e dá outras providências. Diário Oficial da União 2013; 23 oct.

8. Anderson MIP. Médicos pelo Brasil e as políticas de saúde para a Estratégia Saúde da Família de 1994 a 2019: caminhos e descaminhos da atenção primária no Brasil. Rev Bras Med Fam Comunidade 2019; 14:2180.

9. Health Professionals Legislation Review. Striking a new balance: a blueprint for the regulation of Ontario’s health professions: recommendations of the Health Professionals Legislation Review. Toronto: Health Professions Legislation Review; 1989.

10. Dower C, Moore J, Langelier M. Is time to restructure health professions scope-of-practice regulations to remove barriers to care. Health Aff (Millwood) 2013; 32:1971-6.

11. Girardi SN. Dilemmas of professional regulation in health: issues for a democratic and inclusionist government. Revista Latinoamericana de Estudios del Trabalho 2002; 15:67-85.

12. Baranek PM. A review of scopes of practice of health professions in Canada: a balancing act. Toronto: Health Council of Canada; 2005.

13. Brasil. Lei nº 12.842, de 10 de julho de 2013. Dispõe sobre o exercício da medicina. Diário Oficial da União 2013; 11 jul.

14. Wong E, Stewart M Predicting the scope of practice of family physicians. Can Fam Physician 2010; 56:219-25.

15. Wenghofer EF, Williams AP, Klass DJ. Factors affecting physician performance: implications for performance improvement and governance. Healthc Policy 2009; 5:e141-60.

16. Sociedade Brasileira de Medicina de Família e Comunidade. Currículo baseado em competências para medicina de família e comunidade. Rio de Janeiro: Sociedade Brasileira de Medicina de Família e Comunidade; 2014.

17. Ferreira L, Barbosa JSA, Esposti CDD, Cruz MM. Educação permanente em saúde na atenção primária: uma revisão integrativa da literatura. Saúde Debate 2019; 43:223-39.

18. Wenghofer EF, Kam SM, Timony PE, Strasser R, Sutinen J. Geographic variation in FP and GP scope of practice in Ontario. Can Fam Physician 2018; 64:274-82.

19. Pashen D, Chater A, Murray R, Sheedy V. The expanding role of the rural generalist in Australia: a systematic review. Canberra: Australian Primary Health Care Research Institute; 2007.

20. O’Neill T, Peabody MR, Blackburn BE, Peterson LE. Creating the Individual Scope of Practice (I-SOP) Scale. J Appl Meas 2014; 15:227-39.

21. Le K, Ichikawa S, Takeyama YC. Development of a questionnaire to measure primary care physicians’ scope of practice. BMC Family Practice 2015; 16:161.

22. Strasser R, Neusy AJ. Context counts: training health workers in and for rural and remote areas. Bull World Health Organ 2010; 88:777-82.

23. Wasko K, Jenkins J, Meili R. Medical practice in rural Saskatchewan: factors in physician recruitment and retention. Can J Rural Med 2014; 19:93-8.

24. Estação de Pesquisa de Sinais de Mercado. Regulação do trabalho e das profissões em saúde. Belo Horizonte: Estação de Pesquisa de Sinais de Mercado; 2017.

25. Coutinho AJ, Cochrane A, Stelker K. Comparison of intended scope of practice for family medicine residents with reported scope of practice among practicing family physicians. JAMA 2015; 314:2364-72.

26. Instituto Brasileiro de Geografia e Estatística. Classificação e caracterização dos espaços rurais e urbanos do Brasil: uma primeira aproximação. Rio de Janeiro: Instituto Brasileiro de Geografia e Estatística; 2017.

27. Canadian Medical Association. The 2007 National Physician Survey. http://www.nationalphysiciansurvey.ca (accessed on 03/ Oct/2020).

28. Ministério da Saúde. Procedimentos. Brasília: Ministério da Saúde; 2011. (Série A. Normas e Manuais Técnicos). (Cadernos de Atenção Primária, 30).
29. Secretaria de Gestão e Educação do Trabalho em Saúde, Ministério da Saúde. Programa Mais Médicos – dois anos: mais saúde para os brasileiros. Brasília: Ministério da Saúde; 2015.

30. Jucá B. Municípios perdem um quinto dos médicos financiados pelo Governo Federal após saída de cubanos. El País 2020; 17 fev. https://brasil.elpais.com/brasil/2020-02-17/municipios-brasileiros-perdem-um-quinto-dos-medicos-financiados-pelo-governo-federal-apos-saida-de-cubanos.html.

31. Ministério da Saúde lança três editais do projeto Mais Médicos para o Brasil. http://maismedicos.gov.br/noticias/303-ministerioda-saude-lanca-tres-editais-do-projeto-maismedicos-para-o-brasil (accessed on em 03/ Oct/2020).

32. Girardi SN, Carvalho CL, Pierantoni CR, Costa JO, Stralen ACS, Lauar TV, et al. Avaliação do escopo de prática de médicos participantes do Programa Mais Médicos e fatores associados. Ciênc Saúde Colet 2016; 21:2739-48.

33. Bazemore A, Petterson S, Peterson LE, Phillips Jr. RL. More comprehensive care among family physicians is associated with lower costs and fewer hospitalizations. Ann Fam Med 2015; 13:206-13.

34. Starfield B, Shi L, Macinko J. Contribution of primary care to health systems and health. Milbank Q 2005; 83:457-502.

35. Serra M, Arévale A, Ortega C, Ripoll A, Giménez N. Minor surgery activity in primary care. JRSM Short Rep 2010; 1:36.

36. Bousquat A, Giovanella L, Fausto MCR, Fusaro ER, Mendonça MHM, Gagno J, et al. Tipologia da estrutura das unidades básicas de saúde brasileiras: os 5 R. Cad Saúde Pública 2017; 33:e00037316.

37. Girardi SN, Stralen ACS, Cella JN, Wan Der Maas L, Carvalho CL, Faria EO. Impacto do programa mais médicos na redução da escassez de médicos em atenção primária à saúde. Ciênc Saúde Colet 2016; 21:2675-84.

38. Viana ALA, Rocha JSY, Elias PE, Ibañez N, Bousquat A. Atenção básica e dinâmica urbana nos grandes municípios paulistas, Brasil. Cad Saúde Pública 2008; 24:79-90.
Resumo

O estudo buscou identificar diferenças no escopo da prática de médicos na atenção primária e os principais fatores associados com a ampliação dessa prática nas áreas rural e urbana do Brasil. Foram usados dados de um inquérito online com 2.277 médicos de atenção primária, realizado entre janeiro e março de 2016. Foram utilizados os testes de Kruskal-Wallis/post hoc de Dunn e qui-quadrado para verificar as diferenças em relação às atividades e procedimentos realizados pelos médicos, de acordo com os resultados que os médicos de atenção primária estão praticando abaixo de seus níveis de competências. Os médicos rurais realizavam mais procedimentos e atividades quando comparados aos colegas de municípios intermediários e urbanos. Na amostra, as variáveis relacionadas ao escopo ampliado incluíram: sexo masculino, trabalho em municípios rurais, participação em programas de capacitação e de educação continuada, além de consultas a protocolos clínicos, artigos e livros. O estudo corrobora evidências de que o escopo de prática médica varia de acordo com a localização. O reconhecimento e compreensão das diferenças e fatores associados à ampliação do escopo de prática são relevantes para determinar as competências e recursos necessários para a prática médica nas áreas rural e urbana, contribuindo para propostas de estratégias para melhorar a qualidade e acesso a serviços de saúde.

Âmbito da Prática: Médicos; Acesso aos Serviços de Saúde; Atenção Primária à Saúde

Resumen

El objetivo de este estudio fue identificar las diferencias en el alcance de las consultas médicas en atención primaria, así como averiguar los principales factores asociados con las consultas practicadas en áreas rurales y urbanas de Brasil. Los datos que se usaron provenían de una encuesta en línea a 2.277 médicos de asistencia primaria, llevada a cabo entre enero y marzo de 2016. Las diferencias, respecto a las actividades y procedimientos realizados por médicos según su localización, fueron verificadas por los test post hoc de Kruskal-Wallis/Dunn y chi-cuadrados. Los análisis de regresión lineal multivariada se realizaron usando una técnica bootstrap para identificar los factores principales, asociados con un alcance extendido de la consulta. Independientemente de la localización, los resultados mostraron que los médicos de atención primaria están realizando su trabajo por debajo de sus competencias. Los médicos rurales realizaron un número más alto de procedimientos y actividades, comparado con sus pares en municipios de tamaño medio y urbanos. En la muestra global, las variables relacionadas con un alcance más amplio de las consultas incluyeron: género masculino, trabajo en municipalidades rurales, participar en el entrenamiento y programas de educación continua y protocolos de consulta clínica, artículos, y libros. Este estudio corrobora con evidencias que el alcance de las consultas médicas varía según la localización. Reconocer y comprender las diferencias y factores asociados para un alcance extendido de las consultas, son relevantes para determinar las habilidades y recursos requeridos para realizar consultas en áreas rurales y urbanas, así como para colaborar con propuestas de estrategias en la mejora de la calidad y acceso a los servicios de salud.

Alcance de la Práctica: Médicos; Accesibilidad a los Servicios de Salud; Atención Primaria de Salud