

INEQUALITY OF DISTRIBUTION OF NURSING PROFESSIONALS IN THE BRAZILIAN
CONTEXT
DESIGUALDADE DA DISTRIBUIÇÃO DE PROFISSIONAIS DE ENFERMAGEM NO
CONTEXTO BRASILEIRO
DESIGUALDAD EN LA DISTRIBUCIÓN DE PROFESIONALES DE ENFERMERÍA EN EL
CONTEXTO BRASILEÑO

Flávia Aline Carneiro¹, Adriana Aparecida Paz², Graciele Fernanda da Costa Linch³

ABSTRACT

Objective: To identify the distribution of nursing professionals in Brazil, using the coefficient per inhabitant and its possible impact on accessibility to healthcare. **Method:** Retrospective cross-sectional quantitative study, based on secondary data extracted from the Nursing Profile survey carried out by the Federal Nursing Council with the Oswaldo Cruz Foundation in 2014, and crossed with the demographic density in the same period. **Results:** The distribution of nursing professionals across the country proved to be uneven and tended to accompany the regional socio-economic development. The Southeast had the best coefficient (10.04), and the Northeast had the worst (7.15). However, when comparing the coefficient of capitals with that of the countryside, the inequality becomes more noticeable. **Conclusion:** The coefficient used can be considered a valid indicator, as its correlation with other socio-economic development indicators is coherent. In isolation, this coefficient does not reflect accessibility or quality of care, so the quantity must be added to autonomy and professional qualification.

Descriptors: Nursing; Health Services Accessibility; Public Health; Health Policy; Delivery of Health Care; Patient Care.

RESUMO

Objetivo: Identificar a distribuição de profissionais de enfermagem no Brasil, utilizando o coeficiente por habitantes e o seu possível impacto na acessibilidade à saúde. **Método:** Estudo quantitativo transversal retrospectivo, baseado em dados secundários extraídos da pesquisa do Perfil da Enfermagem realizada pelo Conselho Federal de Enfermagem com a Fundação Oswaldo Cruz em 2014 e cruzados com a densidade demográfica do mesmo período. **Resultados:** A distribuição dos profissionais de enfermagem pelo país mostrou-se desigual e tende a acompanhar o desenvolvimento

socioeconômico regional. No Sudeste (10,04), encontra-se o melhor coeficiente, e no Nordeste, (7,15), o pior. Contudo, quando se compara o coeficiente das capitais com o dos municípios do interior dos estados, a desigualdade torna-se mais perceptível. **Conclusão:** Pode-se considerar o coeficiente um indicador válido, pois sua correlação com outros indicadores de desenvolvimento socioeconômico é coerente. Isoladamente, não traduz acessibilidade nem qualidade de assistência, de forma que a quantidade deve ser somada à autonomia e à qualificação profissional.

Descritores: Enfermagem; Acesso aos serviços de saúde; Saúde pública; Política de saúde; Assistência à Saúde; Assistência ao Paciente.

RESUMEN

Objetivo: Identificar la distribución de los profesionales de enfermería en Brasil, utilizando el coeficiente por habitante y su posible impacto en la accesibilidad a la atención de la salud. **Método:** Estudio cuantitativo transversal, retrospectivo, a partir de datos secundarios extraídos de la encuesta Perfil de Enfermería realizada por el Consejo Federal de Enfermería con la Fundación Oswaldo Cruz en 2014, y cruzada con la densidad demográfica en el mismo período. **Resultados:** La distribución de los profesionales de enfermería en el país resultó ser desigual y tendió a acompañar el desarrollo socioeconómico regional. El sureste tuvo el mejor coeficiente (10,04) y el noreste el peor (7,15). Sin embargo, al comparar el coeficiente de capitales con el del país, la desigualdad se hace más notoria. **Conclusión:** El coeficiente utilizado puede considerarse un indicador válido, ya que su correlación con otros indicadores de desarrollo socioeconómico es coherente. De forma aislada, este coeficiente no refleja la accesibilidad ni la calidad de la atención, por lo que la cantidad debe sumarse a la autonomía y la calificación profesional.

Descriptor: Enfermería; Accesibilidad a los Servicios de Salud; Salud Pública; Política de Salud; Prestación de Atención de Salud; Atención al Paciente.

¹Federal University of Health Sciences of Porto Alegre/UFCSPA. Porto Alegre (RS), Brazil. ¹
<https://orcid.org/0000-0002-0637-9248>

²Federal University of Health Sciences of Porto Alegre/UFCSPA. Porto Alegre (RS), Brazil. ²
<http://orcid.org/0000-0002-1932-2144>

³Federal University of Health Sciences of Porto Alegre/UFCSPA. Porto Alegre (RS), Brazil. ³
<https://orcid.org/0000-0002-0637-9248>

How to cite this article

Carneiro FA, Paz AA, Linch GFC. Inequality in the distribution of nursing professionals in the Brazilian context. J Nurs UFPE on line. 2021; 15: e244551 DOI: <https://doi.org/10.5205/1981-8963.2021.244551>

INTRODUCTION

Health is directly related to a country's social and economic development. Worldwide, this is recognized as an inalienable and inherent right to every human being, as it is associated with the quality of life and the dignity of an individual. For this reason, world organizations advocate universal access to health services⁽¹⁾.

However, although global alliances are signed to guarantee health care, at least half of the world's population does not have access to this type of service. Those who have resources choose to pay a significant amount to obtain healthcare⁽²⁾. Some countries have a public health system accessible to all citizens (such as England, Sweden, Portugal, Italy, Canada, Cuba, and Brazil)⁽³⁾.

In Brazil, the structuring of a public health system resulted from popular and professional struggles marked by intense debates led by the Sanitary Reform Movement. This movement came in opposition to the political practices of military governments in the early 1970s. This process had the Eighth National Health Conference (CNS), held in 1986, as a landmark. In 1988, the universality of the right to health became official, being included in the Brazilian Federal Constitution currently in place and through the creation of the Unified Health System (SUS)⁽⁴⁾.

However, thirty years later, access to health has not yet become a reality for all Brazilians. Therefore, more than understanding health as a right and protecting it in the law, it is necessary to develop complementary health policies focusing on population demands to guarantee the execution of the legal text. Furthermore, investments in material resources and the continuous qualification of professionals are important actions to make access to healthcare concrete⁽⁴⁾.

In this challenging context, Brazilian nursing has a lot to contribute to expanding the population's access to healthcare. The profession is regulated by Federal Law No. 7,498 / 86⁽⁵⁾, divided into three categories: nurse (a professional with higher education who coordinates the nursing service, plans the assistance that will be provided to the patients, and has support for performing all activities related to nursing); nursing technician (a mid-level professional, who can work in scenarios that require greater care complexity, under the supervision of a nurse); and nursing assistant (a mid-level professional whose duties are related to low-complexity procedures, provided the nurse supervises them).

The training of nursing professionals is comprehensive, as it enables them to carry out several medical procedures that range from simple care to highly-complex advanced life support actions⁽⁶⁾. Providing humanized and holistic care to patients, families, or communities is the essence of the nursing profession. Nursing work encompasses curative, preventive, and health promotion actions in several sectors, including teaching and research. Furthermore, these professionals usually establish the first contact with patients and remain with them for the entire period of their treatment, 24 hours a day⁽⁶⁻⁷⁾.

Professional versatility is the reason that makes nursing a key for expanding access to health. In this sense, it is possible to observe that, in Brazil, the National Primary Care Policy (PNAB) has extended the attributions of nursing professionals, especially nurses. The Pan American Health Organization (PAHO) recommends that nurses' autonomy and qualification be expanded⁽⁸⁾.

The recognition of the social importance and the valorization of nursing have been a trend in the world. Entities such as the International Nursing Council, the World Health Organization (WHO), and the United Nations (UN) attest that strengthening nursing professionals is an alternative to reducing inequality in health access. To that end, campaigns have been promoted in defense of qualified professional training, better pay, and increment of the number of professionals available to the population^(2,9).

Quantity represents a fundamental element to provide greater assistance coverage and to maintain basic quality and safety levels. The number of nursing professionals available from a health service is an indicator of quality. Periodically, the WHO assesses the population's access to health services in their countries and the quality of the assistance they receive. One of the indicators used is the average number of nurses and midwives per thousand inhabitants⁽¹⁰⁾.

OBJECTIVE

To identify the distribution of nursing professionals in Brazil, using the coefficient per inhabitant and its possible impact on accessibility to healthcare.

METHOD

This is a retrospective cross-sectional quantitative study, as it aims to observe, describe and investigate aspects of a population or a specific phenomenon based on the analysis of data from a single cut in time⁽¹¹⁾. For this purpose, secondary public domain data were used, referring to the frequency of nursing professionals in Brazil and data on demographic density in the Brazilian regions and federative units.

Secondary data on nursing professionals were extracted from the survey by the Federal Nursing Council (COFEN), in partnership with the Fundação Instituto Oswaldo Cruz (Fiocruz), carried out in 2014, published and made available in 2016, entitled "Nursing profile in Brazil"⁽¹²⁾.

The research database is available on COFEN's website, divided into country data and Regional data. Each of the sections is divided into five blocks, according to the corresponding subject. For this study, the absolute value of the number of nursing professionals by category (nurse, technician/assistants, and team) was used, as described in Block 1 - Socioeconomic identification, the first variable presented⁽¹²⁾.

From the reports in Block 1, the following tables were considered both for the "Country data" section and the "Regional data" section: 1.1 (Nursing team according to professional category - Brazil), 1.7 (Nursing team according to location of residence - Federation Unit), 1.7a (Nurses according to the place of residence - Federation Unit), 1.7b (Nursing Assistants and Technicians according to the location of residence - Federation Unit); 1.7.1 (Nursing team according to the place of residence - Capital or Countryside), 1.7.1a (Nurses according to the location of residence - Capital or Countryside) and 1.7.1b (Nursing Assistants and Technicians according to the place of residence - Capital or Countryside)⁽¹²⁾.

The population estimates, by region and by State, used in this research, were obtained on the DATASUS website, following the path: Access to information> Health information (TABNET)> Demographic and socio-economic data> Brazil by Region and Federation Unit> line: Region / Federation Unit, column: Year⁽¹³⁾.

The data collection took place according to the selected variables, from which a simple ratio calculation was performed, in which the numerator was the number of nursing professionals and the denominator was the size of the population. The result of the division was multiplied by a thousand to obtain the coefficient.

The collected data were organized in Microsoft Excel to favor the calculations of the coefficients. The analysis was carried out concerning the national, regional, state, and capital's coefficients compared to those of the countryside cities.

The ethical aspects were respected following the Brazilian Resolution 466/12 of the National Health Council⁽¹⁴⁾. However, as this study was based on secondary data, approval from a Research Ethics Committee was waived.

RESULTS

In absolute numbers, according to the 2014 data published by COFEN in 2016, the nursing class is formed by 1,804,535 professionals, comprising 414,712 (23%) nurses and 1,389,823 (77%) assistants and technicians. The calculation of the coefficient of nursing professionals for every thousand inhabitants makes it possible to assess the availability of these professionals at national, regional, and state levels. At the federal level, the coefficients found are 2.04 nurses per thousand inhabitants and 6.85 nursing technicians and assistants per thousand inhabitants, which summarizes 8.89 nursing professionals per thousand inhabitants.

The coefficients obtained by region indicate that the population's access to nursing professionals occurs differently. Comparing the regional coefficients, the biggest difference is 0.77 nurses per thousand inhabitants (2.38-1.61), 2.63 mid-level professionals (technicians and assistants) per thousand inhabitants (8.02-5.39), and 3.25 nursing professionals per thousand inhabitants (10.4-7.15).

Regarding the category of nurses, only the Midwest and Southeast regions surpass the national index. Only the Southeast region had a high coefficient regarding nursing assistants/technicians and nursing professionals (nurses + assistants/technicians) (Figure 1).

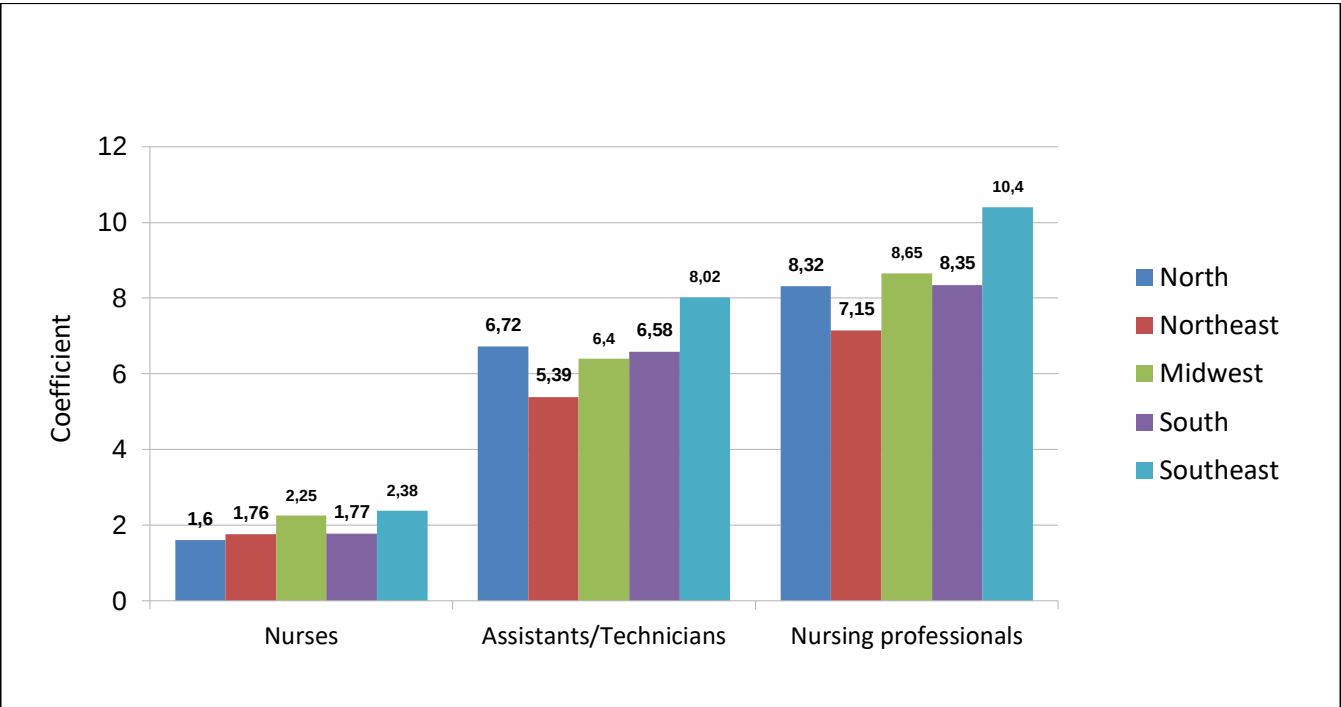


Figure 1 - Coefficient of professionals by number of inhabitants, by category and region, Brazil, 2014.

As regions are stratified by States (Table 1), inequality becomes more evident. Only six States (AM, DF, ES, RJ, SP, and TO) maintained coefficients above the country's indices in all categories. In percentage, 55.5% of the States are below the national standard in the category of nurses. Concerning the categories of mid-level professionals and nursing professionals, 70.4% of the federative units did not reach the Brazilian level.

When contrasting the highest coefficients with the lowest, the coefficients for nurses ranged from 3.98 per thousand inhabitants (DF) to 1.09 per thousand inhabitants (PA); for technicians and assistants, it ranged from 11.69 per thousand inhabitants (AP) to 3.8 per thousand inhabitants (RR); and for the nursing professionals it ranged from 15.38 per thousand inhabitants (DF) to 4.97 per thousand inhabitants (RR).

Table 1 - Distribution of nursing professionals, by category and State, Brazil, 2014.

Federative Units	Nurses		Technicians/Assistants		Nursing professionals	
	N	n / h	N	n / h	N	n / h
Acre	1709	2.16	4604	5.83	6313	7.99
Alagoas	4078	1.23	14945	4.5	19023	5.73
Amapá	1350	1.80	8778	11.69	10128	13.49
Amazonas	8502	2.19	32621	8.42	41123	10.62
Bahia	27489	1.82	77412	5.12	104901	6.93
Ceará	14308	1.62	42016	4.75	56324	6.37
Distrito Federal	11345	3.98	32532	11.41	43877	15.38
Espírito Santo	9607	2.47	33033	8.5	42640	10.98
Goiás	11801	1.81	3493	0.54	15294	7.17
Maranhão	10685	1.56	32221	4.7	42906	6.26
Mato Grosso	6408	1.99	16227	5.03	22635	7.02
Mato Grosso do Sul	4627	1.77	13773	5.26	18400	7.02
Minas Gerais	42498	2.05	121544	5.86	164042	7.91
Pará	8828	1.09	46163	5.7	54991	6.78
Paraíba	9232	2.34	22563	5.72	31795	8.06
Paraná	19224	1.73	60843	5.49	80067	7.23
Pernambuco	16624	1.79	56910	6.13	73534	7.93
Piauí	6847	2.14	21301	6.67	28148	8.81
Rio de Janeiro	44977	2.73	179769	10.92	224746	13.65

Rio Grande do Norte	6490	1.90	21235	6.23	27725	8.13
Rio Grande do Sul	20629	1.84	91591	8.17	112220	10.01
Rondônia	2850	1.63	10924	6.25	13774	7.88
Roraima	584	1.18	1887	3.8	2471	4.97
Santa Catarina	11523	1.71	38588	5.74	50111	7.45
São Paulo	105438	2.39	348227	7.91	453665	10.3
Sergipe	3228	1.45	14184	6.39	17412	7.84
Tocantins	3822	2.55	10989	7.34	14811	9.89

Source: The authors (Coefficient = number of professionals/number of inhabitants x one thousand)

The data relating to the distribution of nursing professionals in the capitals and the countryside (all cities in the State, except the capital) demonstrate a clear concentration of these professionals in the capitals and their scarcity in the countryside cities. The analysis of the situation from this perspective highlights inequality more clearly. In Figure 2, it is possible to see that the coefficient of nursing professionals in the capitals ranges from 29.89 per thousand inhabitants (South) to 15.88 per thousand inhabitants (Midwest). In contrast, in the countryside, it ranges from 5.69 per thousand inhabitants (Southeast) to 3.04 per thousand inhabitants (Northeast).

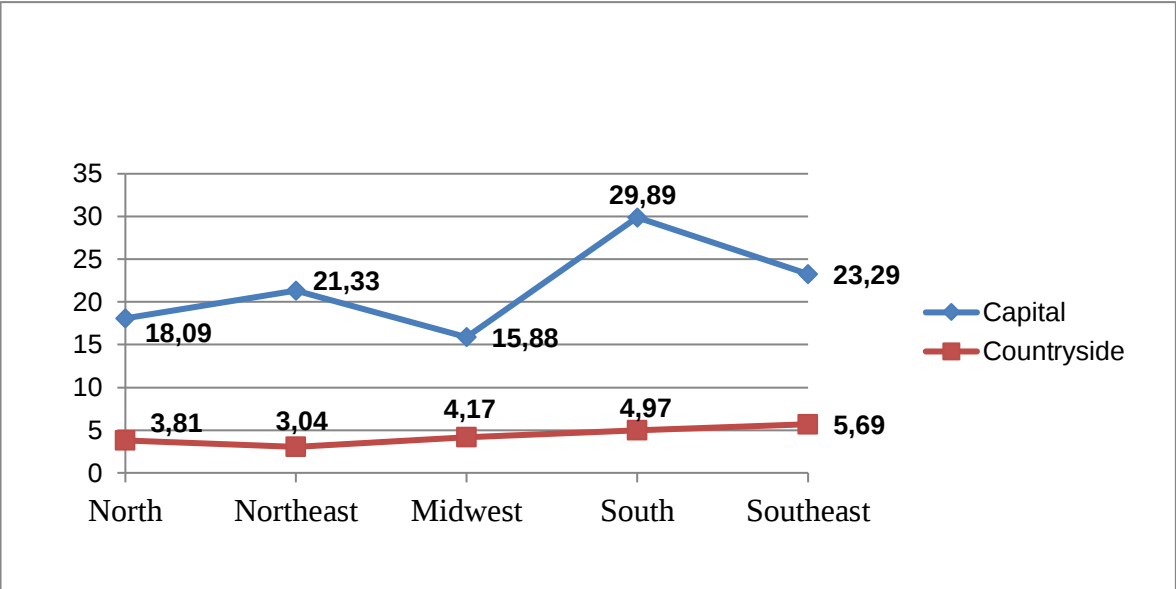


Figure 2 - Distribution of nursing professionals, without specifying the categories, in the capitals and countryside, by regions, Brazil, 2014.

In the Midwest region, which has the most egalitarian staff, there is one professional in the countryside for every 3.8 professionals available in the capital. In the other areas, this proportion increases, being of 4.1 professionals in the Southeast, 4.75 in the North 4.75, 6.01 in the South, and 7.01 in the Northeast for 1 professional in the countryside.

Table 2 presents a state classification according to the number of nurses and mid-level professionals in the capitals and the countryside. With respect to nurses, Belo Horizonte (MG) is the capital that has the best coefficient (9.21 per thousand inhabitants), while Boa Vista (RR) has the lowest (1.64 per thousand inhabitants), being the only capital that does not reach the national index. For this category, only the countryside of Rio de Janeiro State has a coefficient above the national index (2.09 per thousand inhabitants), with 62% of the States having a coefficient below 1.

For mid-level nursing professionals, Porto Alegre (RS) is the capital with the highest coefficient (30.60 per thousand inhabitants). In contrast, Boa Vista (RR) has the lowest coefficient (5.09 per thousand inhabitants), being the only one with a coefficient below the national index. Regarding the countryside, only Rio de Janeiro (RJ), with a coefficient of 7.86 per thousand inhabitants, and Espirito Santo (ES), with 7.04 per thousand inhabitants, are above the national standard. As the Federal District does not have cities, it does not fit this analysis.

Table 2 - National ranking of nurses and mid-level nursing professionals (assistants and technicians), in the capitals and the countryside, by State, Brazil, 2014.

	Nurse Capital		- Nurse Countryside		- Assistant/Technician - Capital		Assistant/Technician - Countryside	
	FU	Ratio	FU	Ratio	FU	Ratio	FU	Ratio
1st	MG	9.21	RJ	2.09	RS	30.60	RJ	7.86
2nd	PB	8.10	ES	1.94	SC	29.28	ES	7.04
3rd	RS	7.95	TO	1.80	MG	26.14	AP	6.82
4th	ES	7.77	RO	1.37	ES	20.47	RO	5.31
5th	SC	7.70	MS	1.26	BA	20.05	TO	5.14
6th	MT	6.97	SP	1.26	PA	19.60	RS	4.63
7th	PE	6.75	PR	1.26	PB	19.03	SC	3.9
8th	MA	6.24	SC	1.23	SP	18.47	SP	3.73

9th	BA	6.23	MG	1.05	PE	18.46	GO	3.55
10th	TO	6.00	RN	0.96	MA	18.25	MS	3.55
11th	PI	5.45	PI	0.95	PR	17.24	PI	3.50
12th	SP	5.33	RS	0.90	TO	17.03	PE	3.39
13th	GO	5.05	GO	0.89	MT	16.61	SE	3.05
14th	SE	4.67	MT	0.88	RN	15.76	PR	3.03
15th	RN	4.64	PB	0.88	PI	15.28	RN	2.95
16th	PA	4.30	AC	0.77	AP	14.85	MG	2.91
17th	CE	4.10	AM	0.75	SE	14.58	AC	2.62
18th	PR	4.08	BA	0.75	AM	14.46	PA	2.61
19th	DF	3.98	PE	0.73	RJ	13.90	AL	2.37
20th	AC	3.75	MA	0.68	DF	11.41	MT	2.35
21st	RJ	3.52	CE	0.57	GO	11.31	PB	2.29
22nd	AM	3.50	AP	0.50	CE	10.81	MA	2.12
23rd	AL	2.92	AL	0.48	AC	9.32	CE	2.08
24th	MS	2.79	PA	0.39	AL	9.15	AM	1.71
25th	AP	2.65	RR	0.34	MS	8.72	RR	1.52
26th	RO	2.21	SE	0.20	RO	8.40	BA	1.48
27th	RR	1.64	DF	-	RR	5.09	DF	-

Source: The authors. (Coefficient = number of professionals/number of inhabitants x one thousand)
- Numeric data equal to zero not resulting from rounding

DISCUSSION

The calculation of the coefficient of nursing professionals per thousand inhabitants in Brazil pointed to an uneven distribution in the Brazilian territory, both of nurses and mid-level professionals, including the total sum of the categories of this profession. The highest coefficient was found in the Southeast region, the region with the highest population density. Another important data found on the respective Federative Units, when dividing the capitals 'coefficient by the averages

of the countryside, reveals a discrepancy in the human resources of the nursing area between the different locations of residence.

In 2017, the WHO published on its official page a list of coefficients of nurses and midwives for every thousand inhabitants, from different countries, based on the most recent data collected in the countries mentioned⁽¹⁰⁾. In this WHO ranking⁽¹⁰⁾, the reference data for Brazil are for the year 2013, and its average is 7.44, diverging by 1.45 points from the result obtained in the present study. It is worth mentioning that the term "nurse" used in this list includes nurses and mid-level professionals; however, segregating the nursing profession into categories is not a standard across all countries compared. Thus, the validity of this coefficient for comparison purposes can be contested since nurses, technicians, and assistants have different duties according to the legislation of each country.

According to the WHO classification⁽¹⁰⁾, Brazil is the 32nd country globally with the best coefficient of nursing professionals for every thousand inhabitants. Regarding the American countries, the United States of America (USA) has the best coefficient (9.88 per thousand inhabitants), followed by Canada (9.5 per thousand inhabitants) and Cuba (7.97 per thousand inhabitants). Brazil is ranked fourth (7.44 per thousand inhabitants).

The isolated analysis of this coefficient suggests that the greater the number of nurses, the greater the community's access to health services. However, it is important to note that this coefficient reflects only the availability of nursing professionals in each of these countries, without revealing whether these professionals are necessarily active in the labor market or whether the population is satisfied with the services provided by them.

In the United States, government-funded health policies cover only the elderly (Medicare) and the low-income and limited resource population (Medicaid)⁽¹⁵⁾; that is, access is not guaranteed for all citizens. Opposite to this, Canada, Cuba, and Brazil have health as a universal right and an obligation of the State towards the population. In this way, these countries have a public health system structured to assist their inhabitants' demands. Another similarity between these countries is the focus on primary care that prioritizes disease prevention and health promotion actions aimed at family groups and based on the principles of universality and equity. However, due to socio-economic, cultural, and political peculiarities, the organization and execution of programs are different as well as the outcomes reached in these countries⁽¹⁶⁾.

A differentiating factor is the autonomy of the nurse's work conferred by health policies. In Canada, the generalist nurse (nurses earning at least a master's degree) has the support to perform

the entire process of caring for a patient (diagnosing, hospitalizing, prescribing medications and exams, including hospital discharge). In Brazil and Cuba, nurses have more limited actions. According to formalized institutional protocols, they only prescribe drugs and tests, a portrait of a health practice centered on the physician. In this case, as the dependence is greater, the number of physicians available in healthcare services directly impacts the resolution that the performance of nursing professionals. In Cuba, the coefficient of physicians is in the range of 7 to 8 per thousand inhabitants, while in Brazil, it ranges from 2 to 3 per thousand inhabitants⁽¹⁶⁻¹⁸⁾.

Another characteristic to be considered is professional qualification. In Canada, there are three categories of nurses and all have a high level of education: generalist nurse (owners of at least a master's degree), bachelor nurse (nurses earning a 4-years undergraduate degree) and practical nurse (nurses earning a 2-years undergraduate degree). Professional training in Canada is based on prevention and health promotion. In Brazil and Cuba, nursing is divided into two categories, nurses (higher education level), and nursing technicians/assistants (secondary education level). In Brazil, undergraduate courses tend to the hospital perspective and are standardized by the Ministry of Education and Culture, while in Cuba, the focus is on primary care and multidisciplinary action, with guidelines defined by the agency that corresponds to the Ministry of Health in Brazil⁽¹⁶⁻¹⁷⁾.

According to the COFEN/Fiocruz survey⁽¹²⁾, 72.8% of nurses have a specialization degree, 14.5% have a master's degree, 4.7% have a doctorate degree, and 0.4% have a post-doctorate degree. Such numbers refer to the difficulty that Brazilian nurses have to improve their knowledge. Low wages and multiple jobs contribute to this reality. Besides, many nurses do not work in their areas of specialization, which means that only a small part of the knowledge produced in nursing (in educational and research projects) reaches bedside assistance⁽¹⁹⁻²⁰⁾.

Canada and Cuba have their public health systems recognized worldwide. Both invested in nurses' professional qualifications to favor the population's access to healthcare services. Brazil is in the process of growing and maturing in this aspect, but it also has the recognition of WHO regarding the advances in accessibility to healthcare⁽¹⁶⁻¹⁷⁾.

The inequality of access to healthcare services was already known and widely debated in the Brazilian political environment. In 2011, to assist the populations of poorer municipalities, remote areas and location difficult to access, the Federal Government launched the "Program for the Valorization of Primary Care Professionals" (PROVAB) as a strategy to stimulate the transfer of highly educated professionals (doctors, nurses, and dentists) for these disadvantaged locations and, in 2013, promoted the "More Doctors" program⁽²¹⁾.

The Getúlio Vargas Foundation (FGV) created the Social Index for the Development of Municipalities (ISDM), calculated from the assessment of five main points: housing, income, work, education, and health and safety. The national ISDM average is 5. According to FGV, only ten states have a high index, with the Federal District considered the most developed with an index of 5.71 and Maranhão with the lowest index of 3.35⁽²²⁾.

This indicates that the coefficient of nursing professionals tends to follow the ISDM index, which makes it valid as an indicator. According to Table 1 presented in this study, the Federal District has the highest average coefficient of nurses (3.98 per thousand inhabitants), it is in 2nd place concerning the number of mid-level nursing professionals (11.41 per thousand inhabitants), and it is also the State with the highest number of nursing professionals (15.38 per thousand inhabitants). Maranhão is among the States with the lowest ratios (1.6, 4.7, and 6.26 per thousand inhabitants, respectively).

According to the United Nations Development Program⁽²⁾, capitals tend to be more developed than municipalities in the countryside and concentrate the greatest amount of resources. Besides, according to the present study, most nursing professionals live and work in the capitals. This fact justifies the results presented in Figure 2 and Table 2 since the national population residing in the capitals represents 23.4% of Brazilians, that is, the smallest portion. This means that the access to nursing professionals that an individual has at his disposal in the capital is, at least, approximately four times greater than the access that an individual would have within the Federative Unit.

In Brazil, we are currently experiencing a time of economic crisis, as it has occurred in other countries (Canada and Cuba, for example); this situation can be the driving force for implementing services focused on prevention and health promotion. The Program defended by the Ministry of Health has expanded the skills of nurses and has given them greater autonomy, which can be considered an opportunity for nurses to strengthen themselves as qualified professionals capable of performing advanced care, as advocated by the Pan American Health Organization.

Thus, the partnership between official bodies, such as COFEN, the Regional Councils of Nursing, and the Ministry of Health, in favor of the development and execution of projects aimed at the qualification of nursing professionals, is fundamental for the advancement and improvement of these indicators. The notice 27/2016 of CAPES/COFEN⁽²³⁾ is an example of a strategic program that made 140 Professional Master's paid leaves available throughout the country, with a view to safe and effective assistance to the population, to reduce costs and, also, to value and improve the visibility of nursing professionals. It is worth adding that, individually, each nursing professional has a decisive

role in this desired change, especially concerning the application of scientific evidence in clinical practice.

The limitations of this research are related to publications, due to the method used. The first limitation concerns the lack of recent official data published on the topic addressed. The second is the scarcity of articles published on the object of the study in the last five years.

CONCLUSION

This study identified that the coefficient of nursing professionals per thousand inhabitants is consistent when correlated with other Brazilian indicators of socio-economic development. Thus, it is believed that the objective of this study was achieved and that this coefficient is valid as an indicator. It is worth mentioning that an isolated analysis is insufficient to generate effective conclusions, as the coefficient itself does not lead to accessibility and/or quality of healthcare. The national coefficient of nurses per inhabitants is low, but when med-level professionals are added, it reaches a level of worldwide prominence.

Besides, it is possible to conclude that nursing is a profession with the potential to expand the population access to health services. Professional qualification is a mandatory requirement for achieving autonomy in professional practice and effective problem-solving of community demands.

The establishment of partnerships between bodies representing the nursing class (COFEN/COREN), together with official bodies linked to health and education (ministries, state and municipal secretariats), favors this objective's achievement, culminating in health benefits for Brazilians and promotion and visibility for the profession of nursing.

CONTRIBUTIONS

All authors contributed equally to the design of the research project, collection, analysis, discussion of the data, writing and critical review of the content with intellectual contribution, and approval of the final version of the study.

CONFLICT OF INTERESTS

None to declare.

REFERENCES

1. Gadelha CAG, Costa LS. A saúde na política nacional de desenvolvimento: um novo olhar sobre os desafios da saúde. Rio de Janeiro (RJ): Fiocruz/Ipea/Ministério da Saúde/Secretaria de Assuntos Estratégicos da Presidência da República, 2013.

2. United Nations Development Programme (USA). Human Development Report 2014. Sustaining Human Progress: Reducing vulnerabilities and building resilience [Internet]. New York, 2014 [cited 2019 Jan 29]. Available from: <http://hdr.undp.org/sites/default/files/hdr14-report-en-1.pdf>
3. Santos JC, Melo W. Estudo de Saúde Comparada: Os Modelos de Atenção Primária em Saúde no Brasil, Canadá e Cuba. Gerais: Rev Interinstitucional de Psicologia. 2018; 11(1):79-98. Available from: <http://pepsic.bvsalud.org/pdf/gerais/v11n1/07.pdf>
4. Paiva CHA, Teixeira LA. Reforma sanitária e a criação do Sistema Único de Saúde: notas sobre contextos e autores. Hist Cienc Saude-Manguinhos [online]. 2014; 21(1):15-36. Available from: <http://www.scielo.br/pdf/hcsm/v21n1/0104-5970-hcsm-21-1-00015.pdf>
5. Brasil. Leis e Decretos. Lei 7.498, de 25 de junho de 1986. Dispõe sobre a Regulamentação do Exercício da Enfermagem e dá outras providências. Diário Oficial da União [da] República Federativa do Brasil, 1986 jun 25 (seção I):9.273-9275.
6. Nomura ATG, Barragan MS, Almeida MA. Quality of nursing documentation before and after the Hospital Accreditation in a university hospital. Rev Latino-Am Enfermagem. 2016; 24:e2813. Available from: <http://www.scielo.br/pdf/rlae/v24/0104-1169-rlae-24-02813.pdf> DOI: 10.1590/1518-8345.0686.2813
7. Freitas GM, Santos NSS. Atuação do enfermeiro na atenção básica de saúde: revisão integrativa de literatura. Rev Enferm Cent O Min. 2014; 4(2):1194-1203. Available from: <http://www.seer.ufsj.edu.br/index.php/recom/article/view/443/754>
8. Ministério da Saúde (BR), Gabinete do Ministro. Portaria 2.436, de 21 de setembro de 2017. Aprova a Política Nacional de Atenção Básica, estabelecendo a revisão de diretrizes para a organização da Atenção Básica, no âmbito do Sistema Único de Saúde (SUS). Diário Oficial da União [da] República Federativa do Brasil. 2017 set 21; 183(Seção 1):68-95.
9. Organização Pan-Americana de Saúde. Expanding the Roles of Nurses in Primary Health Care. Washington (DC): PAHO; 2018. Available from: <http://iris.paho.org/xmlui/handle/123456789/34960>
10. World Health Organization (WHO) [Internet]. Density of nursing and midwifery personnel (total number per 1000 population, latest available year). Genebra, 2017 [Cited 2018 Nov 10]. Available from: http://www.who.int/gho/health_workforce/nursing_midwifery_density/en/
11. Hulley SB, Cummings SR, Browner WS, Grady DG. Delineando a pesquisa clínica. 4ª Edição. Porto Alegre: Artmed; 2015.

12. Conselho Federal de Enfermagem (BR). Pesquisa: o perfil da enfermagem no Brasil. COFEN/Fundação Oswaldo Cruz. 2014 [internet]. Brasília (DF): COFEN, 2016. Available from: <http://www.cofen.gov.br/perfilenfermagem/>
13. Ministério da Saúde (BR). DATASUS. Tecnologia da Informação a Serviço do SUS. População residente - Estimativas para o TCU [internet]. Brasília (DF): 2014. Available from: <http://datasus.saude.gov.br/informacoes-de-saude/tabnet/demograficas-e-socioeconomicas>
14. Ministério da Saúde (BR), Conselho Nacional de Saúde, Comissão Nacional de Ética em Pesquisa. Resolução n 466 de 12 de dezembro de 2012: diretrizes e normas regulamentadoras de pesquisa envolvendo seres humanos. Brasília (DF): MS; 2012.
15. Moiti CH, Mesquita JA, Banton L. O sistema de saúde Norte-Americano em uma perspectiva da gestão em saúde no Brasil. Arch Health Invest 2013; 2 (Supl.3 - Proceedings of the Congresso Médico Universitário São Camilo - COMUSC/Annual Meeting). Available from: <https://slidex.tips/download/official-journal-of-the-congresso-medico-universitario-sao-camilo-comusc>
16. Bellaguarda MLR, Nelson S, Padilha MI, Caravaca-Morera JA. Autoridade Prescritiva e Enfermagem: uma análise comparativa no Brasil e no Canadá. Rev Latino-Am Enfermagem. 2015; 23(6):1065-73. Available from: http://www.scielo.br/pdf/rlae/v23n6/pt_0104-1169-rlae-23-06-01065.pdf DOI: 10.1590/0104-1169.0418.2650
17. Toso BRGO, Reichert APS, Maia EBS, Cabral IE, Esperón JMT, Schultz LF, et al. A saúde pública e a enfermagem cubana: relato de experiência. Rev Soc Bras Enferm Ped. 2016; 16(2):85-95. Available from: https://sobep.org.br/revista/images/stories/pdf-revista/vol16-n2/vol_16_n_2-relato_de_experiencia_3.pdf
18. Index Mundi. Available from: <https://www.indexmundi.com/>
19. Freire NP, Fagundes MCM. Acesso à informação na enfermagem e aprimoramento profissional: contribuições da pesquisa Perfil da Enfermagem no Brasil. Ver. Divulgação em Saúde para Debate. 2016; 56(4): 90-97. Available from: http://cebes.org.br/site/wp-content/uploads/2016/12/Divulga%C3%A7%C3%A3o_56_Cofen.pdf
20. Marinho Gerson Luiz, Paz Elisabete Pimenta Araújo, Jomar Rafael Tavares, Abreu Ângela Maria Mendes. Enfermeiros no Brasil: transformações socioeconômicas no início do século XXI. Esc Anna Nery [Internet]. 2019 [cited 2019 Maio 01]; 3(1):e20180198. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S1414-81452019000100215&lng=pt. Epub

24-Jan-2019. <http://dx.doi.org/10.1590/2177-9465-ean-2018-0198>. DOI: 10.1590/2177-9465-EAN-2018-0198

21. Oliveira CM et al. Evaluability of the Program to Value Primary Healthcare Professionals (PROVAB): management challenges. *Ciência e Saúde Coletiva*. 2015; 20(10):2999-3010. Available from: <http://www.scielo.br/pdf/csc/v20n10/1413-8123-csc-20-10-2999.pdf> DOI: 10.1590/1413-812320152010.13322014

22. Fundação Getúlio Vargas. Indicador Social de Desenvolvimento dos Municípios - ISDM Sumário Executivo. São Paulo (SP): Escola de Economia de São Paulo; 2012 [Cited 2018 Nov 10]. Available from: [http://cmicro.fgv.br/sites/cmicro.fgv.br/files/file/Sumário%20Executivo\(1\).pdf](http://cmicro.fgv.br/sites/cmicro.fgv.br/files/file/Sumário%20Executivo(1).pdf)

23. Coordenação de Aperfeiçoamento de Nível Pessoal de Ensino Superior (Capes). Apoio a programas de pós-graduação da área de enfermagem - modalidade mestrado profissional. [cited 2019 Maio 01]. Available from: <https://www.capes.gov.br/images/stories/download/editais/05122016-Edital-27-Capes-COFEN.pdf>

Correspondence

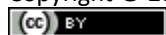
Flávia Aline Carneiro

E-mail: flavialinne@hotmail.com

Submission: 03/17/2020

Accepted: 02/16/2021

Copyright © 2021 Journal of Nursing UFPE on line/JNUOL.



This is an open access article distributed under the CC BY 4.0 assignment [Creative Commons Attribution-ShareAlike 4.0 International License](https://creativecommons.org/licenses/by/4.0/), which allows others to distribute, remix, adapt and create from their work, even for commercial purposes, as long as they give it due credit for the original creation. It is recommended to maximize the dissemination and use of licensed materials.