

## Original articles

# Evolution of speech-language pathologists supply in Unified Health System (SUS) and in primary healthcare in Brazil

*Evolução da oferta de fonoaudiólogos no SUS e na atenção primária à saúde, no Brasil*

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Conflict of interest: non-existent

## ABSTRACT

**Purpose:** to describe the evolution of speech-language pathologists supply in the Unified Health System (SUS) and in Primary Healthcare (PHC) in Brazil, from 2008 to 2013.

**Methods:** an ecological study in which the analysis units were the 27 federative units of Brazil. Information from the Brazilian Institute of Geography and Statistics (IBGE) and the National Registry of Health Establishments was used as database, regarding the period from 2008 to 2013. This study calculated the indicators of speech-language pathologists supply in SUS and in PHC and the ratio of speech-language pathologists working in PHC among those working on SUS. In addition, the relative evolution of the coefficient of active speech-language pathologists in PHC during the studied period was measured.

**Results:** an increase of the supply of speech-language pathologists both in SUS and in PHC was found in all federative units. In 2013, the supply coefficient of speech-language pathologists in SUS varied from 7.73/10<sup>5</sup> inhabitants, in Amapá, to 2.12/10<sup>5</sup> inhabitants in Amazonas. The same coefficient regarding PHC varied from 2.86/10<sup>5</sup> inhabitants, in Amapá, to 0.19/10<sup>5</sup> inhabitants in the Federal District. The states of Sergipe and Piauí presented the highest increases of the relative evolution of the speech-language pathologists' coefficient in PHC, with increments of 800% and 788%, respectively. The lowest increase was in Mato Grosso do Sul, that is, 1.25%.

**Conclusion:** there was an increase in the supply of speech-language pathologists in the Unified Health System and in Primary Healthcare, however, such supply raise occurred unequally among the federative units of Brazil.

**Keywords:** Speech, Language and Hearing Sciences; Health Services Accessibility; Primary Health Care

## RESUMO

**Objetivo:** descrever a evolução da oferta de Fonoaudiólogos no Sistema Único de Saúde e na atenção primária à saúde no Brasil, entre 2008/2013.

**Métodos:** estudo ecológico, com as 27 Unidades Federativas do Brasil. Foram utilizados os dados do Instituto Brasileiro de Geografia e Estatística e do Cadastro Nacional de Estabelecimentos de Saúde. Calculou-se a oferta de fonoaudiólogo no SUS, na Atenção Primária à Saúde, a proporção de fonoaudiólogo na Atenção Primária à Saúde e a evolução relativa do coeficiente de fonoaudiólogo na Atenção Primária à Saúde.

**Resultados:** registrou-se aumento na oferta de Fonoaudiólogo no Sistema Único de Saúde e na Atenção Primária, em todas as unidades federativas. Em 2013, a oferta de Fonoaudiólogo no Sistema Único de Saúde variou de 7.73/10<sup>5</sup> habitantes no Amapá a 2.12/10<sup>5</sup> habitantes no Amazonas e a oferta na Atenção Primária à Saúde variou de 2.86/10<sup>5</sup> habitantes no Amapá a 0.19/10<sup>5</sup> habitantes no Distrito Federal. Sergipe e Piauí apresentaram os maiores incrementos na evolução relativa do coeficiente de fonoaudiólogo na Atenção Primária, respectivamente, 800% e 788%.

**Conclusão:** houve aumento na oferta de fonoaudiólogo no Sistema Único de Saúde e na Atenção Primária à Saúde, no entanto evidenciaram-se desigualdades nessa ampliação entres as unidades federativas do Brasil.

**Descritores:** Fonoaudiologia; Acesso aos Serviços de Saúde; Atenção Primária à Saúde

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## INTRODUCTION

In Brazil, the Unified Health System (SUS), resembling health systems from many European countries, is guided by the principle of universal and equal access. This is, therefore, the constitutional principle of social justice on health services which can be translated in equity in access<sup>1,2</sup>. Despite the debate over this theme having grown over the last decades and having generated important changes, the challenge of health inequality in Brazil persists. The socioeconomic, demographic, care and financial differences between states and regions of the country generate different profiles of problems, demands and priorities, which end up producing inequalities in SUS' ability to respond to local needs<sup>3</sup>.

The term access is a nomenclature of complex conceptualization, which has motivated many discussions and, sometimes, has been employed in an imprecise way. It is a concept that may vary with time, as societies evolve and new needs appear<sup>4</sup>. However, Barbosa, Elizeu and Penna<sup>5</sup> mention that access is understood on the perspective of entry or way of entrance in health services and may relate to characteristics of the supply of services, referring to the possibility of using health services when necessary.

One of the strategies to guarantee that the principles established by SUS came to happen was the initially-called Family Health Program, which is considered a strategy of reorientation of the assistance model<sup>6</sup>. As a way to reinforce primary healthcare in Brazil, more recently there have been investments in multi-professional actions, and in this scenario, the Ministry of Health created the Center of Support to Family Health (NASF), with the Ministerial Order nº 154, of January 24, 2008, which aims to amplify the scope of actions from the Family Health Team (EqSF) responding to the needs of the population<sup>7</sup>.

The emerged changes on the field of healthcare with the strengthening of primary healthcare in Brazil are decisively impacting on speech-language pathology actuation in SUS<sup>8</sup>. The creation of NASF favored the insertion of the speech-language pathologist (SLP) in the primary healthcare level, amplifying speech-language pathology practices and the population access to the cares of such professional<sup>9</sup>. Besides, in 2005, the multi-professional residencies in health were created in Brazil, considered an important education strategy for SUS, which intensified the insertion of the SLP in the health system<sup>10</sup>. Nevertheless, there is belief that such augmentation did not occur in an equal way;

besides, there are few studies that show the advances on the supply of this professional in primary healthcare in Brazil.

Therefore, the objective of this study was to describe the evolution of SLP supply inside SUS and in primary healthcare (PHC) in Brazil, during the period from 2008 to 2013.

## METHODS

The research complies to the ethic principles on the resolution 466/2012 of the National Health Council, and the databanks are on public domain, with no identification of the subjects, neither exposure to risks or damages.

This is an epidemiological study, population-based, ecological, for which the units of analysis were the 27 federative units (UF) of Brazil. The data was collected from October to December 2014 referring to the years of 2008 and 2013. The databanks used were the ones provided by the National Registry of Health Establishments (CNES) and the Brazilian Institute of Geography and Statistics (IBGE), both available for public domain on the website of the Department of Informatics of SUS (DATASUS).

The indicator of SLP supply on SUS and the indicator of SLP supply working on PHC were measured according to each federative unit. For the formulation of these indicators it was utilized the concept of coefficient-type indicator, and for that the following calculation methods were applied:

$$\text{SLP supply in SUS} = \frac{\text{N of SLP in SUS, in year X in UF X} \times 10^5 \text{ inhabitants}}{\text{Population of UF X in year X}}$$

$$\text{SLP supply in PHC} = \frac{\text{N of SLP in PHC, in year X in UF X} \times 10^5 \text{ inhabitants}}{\text{Population of UF X in year X}}$$

It was also calculated the concentration of SLPs on PHC among those registered as active on SUS. This calculation was found as a percentage.

Later on, it was measured the relative evolution of the supply of speech-language pathologist active on PHC, using the following formula:

$$\frac{((\text{SLP supply in PHC, 2013}) - 1) \times 100}{\text{SLP supply in PHC, 2008}}$$

The data was processed by the TABNET from DATASUS and, finally, the indicators from years 2008 and 2013, as well as the relative evolution of this indicator in the 27 UFs were distributed spatially, using the software Terraview, version 3.4.

## RESULTS

It was observed that in 2008 the UFs with the highest indicator of SLP supply in SUS were Paraná, Mato Grosso do Sul and São Paulo, respectively 6,22/100.000 inhab., 5,99/100.000 inhab. And 5,76/100.000 inhab. The lowest indicators were found in Pará, Maranhão, Amazonas and Sergipe, with respectively 1,54/100.000 inhab., 1,54/100.000 inhab., 0,90/100.000 inhab. and 0,90/100.000 inhab. (Table 1).

In 2013, the highest indicators were found in Amapá, Rio de Janeiro and Paraná, with 7,73/100.000 inhab., 7,62/100.000 inhab., and 7,58/100.000 inhab. The federative units of Maranhão, Pará and Amazonas presented the lowest indicators of SLP supply in SUS, with 3,23/100.000 inhab., 2,83/100.000 inhab. And 2,12/100.000 inhab., respectively.

Regarding the SLP supply in primary healthcare (PHC), it was seen that in 2008, the federative units with the highest coefficients were Mato Grosso do Sul, São Paulo and Santa Catarina, with respectively 1,50/100.000 inhab., 1,33/100.000 inhab. and 1,31/100.000 inhab. The lowest were the Federal District, Sergipe and Bahia, with respectively 0,04/100.000 inhab., 0,10/100.000 inhab. and 0,10/100.000 inhab.

In 2013, the UFs with higher indicator of speech-language pathologist on primary healthcare were Amapá, Piauí and Minas Gerais, with respectively 2,86/100.000 inhab., 2,85/100.000 inhab., and 2,25/100.000 inhab. The lowest indicators were found in the Federal District, Tocantins and Alagoas, with 0,19/100.000 inhab., 0,35/100.000 inhab. and 0,41/100.000 inhab.

In relation to the density of SLPs on PHC, the results point out that in 2008 the federative units of Amapá, Amazonas and Espírito Santo concentrated respectively 34,78%, 33,33% and 33,33% of the speech-language pathologists in PHC. While Bahia, Tocantins and the Federal District concentrated 6,19%, 5,08% and 2,04%. In 2013, Piauí, Maranhão and Amapá came to gather 48,39%, 37,33% and 37,04% of the SLPs working in SUS on the primary level of healthcare. Meanwhile, the Federal District, Tocantins and Alagoas presented 4,20%, 6,02% and 8,07%.

The indicator that measured the relative evolution of the SLP supply on PHC pointed towards an increase of the supply in all of the Brazilian UFs. The units that presented the highest raises were Sergipe, Piauí and Bahia, with respectively 799,82%, 788,82% and 389,62%. And Espírito Santo, Santa Catarina and Mato Grosso do Sul presented the lowest raises, with 12,61%, 4,42% and 1,25%, respectively (Table 1).

In Figure 1 there is the spatial distribution of the coefficients of SLP supply in SUS and in PHC for the two studied years. It is observed that despite the variation on the values found for both indicators, there is a concentration of the highest coefficients among the federative units located in the Southeast and South Regions of Brazil.

The spatial distribution of the relative evolution of speech-language therapists supply in PHC showed that the highest evolution is in the federative units located in the Northeast Region and the lowest are in the UFs from the Southeast and South Regions of the country (Figure 2).

## DISCUSSION

The found results point towards an increase on the SLP supply in SUS and in PHC/SUS in Brazil. However, there are important inequalities in this evolution among the UFs. The highest SLP coefficients in SUS in 2008 were found in Paraná, Mato Grosso do Sul and São Paulo. It is known that São Paulo was the first state in the education process of speech-language pathologists and in the insertion of these professionals on the public sector, in the decades of 1970 and 1980. Therefore, many of these professionals occupied health centers, initiating in this moment the insertion of speech-language pathology in the primary healthcare<sup>11</sup>.

Additionally, the implantation of the speech-language therapy courses in 1960 and 1961, by the University of São Paulo – USP and the Pontifical Catholic University of São Paulo – PUC-SP<sup>12</sup> allowed the expansion for the creation of the course in the other universities in Brazil, among them the Catholic University of Paraná. It is supposed that the higher concentration of professionals in the Southeast and South Regions is due, initially, to the fact that these states were pioneers in the education process.

Still concerning Paraná, it is important to stress that this federative unit is found among those with the highest rates of Human Development Index (HDI), placed sixth in the ranking of the Atlas of Human Development in Brazil<sup>13</sup> and also among the most populated states in

**Table 1.** Indicators of the speech-language pathologists supply in SUS and in primary healthcare/SUS, for each unit of the federation. Brazil, 2008/2013.

UF	2008			2013			Relative evolution PHC
	SLP supply in SUS	SLP supply in PHC	Proportion of SLP in PHC	SLP supply in SUS	SLP supply in PHC	Proportion of SLP in PHC	
Rondônia	1	0.33	9.80	4.59	0.57	12.33	69.08
Acre	2.79	0.74	26.32	3.69	1.05	28.57	43.40
Amazonas	0.90	0.30	33.33	2.12	0.47	22.37	58.17
Roraima	2.91	0.48	16.67	5.11	0.64	12.50	31.87
Pará	1.54	0.23	15.04	2.83	0.58	20.36	147.76
Amapá	3.75	1.30	34.78	7.73	2.86	37.04	119.43
Tocantins	4.61	0.23	5.08	5.85	0.35	6.02	50.54
Maranhão	1.54	0.40	25.77	3.23	1.21	37.33	204.27
Piauí	2.21	0.32	14.49	5.88	2.85	48.39	788.31
Ceará	2.99	0.60	20.16	4.14	1.38	33.43	129.12
Rio Grande do Norte	4.12	0.52	12.50	6.44	1.89	29.33	266.87
Paraíba	3.50	0.51	14.50	6.55	2.02	30.80	297.56
Pernambuco	3.25	0.65	20.07	4.87	1.32	27.13	102.46
Alagoas	3.39	0.26	7.55	5.09	0.41	8.07	60.55
Sergipe	0.90	0.10	11.11	3.41	0.90	26.39	799.82
Bahia	1.56	0.10	6.19	3.37	0.47	14.02	389.62
Minas Gerais	5.29	1.22	23.05	7.43	2.25	30.28	84.66
Espírito Santo	3.65	1.22	33.33	5.03	1.37	27.22	12.61
Rio de Janeiro	5.30	1.01	19.12	7.62	1.32	17.38	30.59
São Paulo	5.76	1.33	23.17	7.46	1.71	22.94	28.30
Paraná	6.22	0.76	12.29	7.58	1.11	14.59	44.61
Santa Catarina	4.39	1.31	29.70	6.64	1.36	20.52	4.42
Rio Grande do Sul	3.19	0.98	30.64	4.94	1.25	25.38	28.36
Mato Grosso do Sul	5.99	1a.50	25.00	6.91	1.52	21.97	1.25
Mato Grosso	3.55	0.27	7.62	4.69	0.61	13.01	125.48
Goiás	4.19	0.87	20.82	5.82	1.32	22.63	50.82
Federal District	1.92	0.04	2.04	4.49	0.19	4.20	382.75
Total	4.12	0.85	20.56	5.93	1.37	23.16	62.13

PHC = Primary healthcare

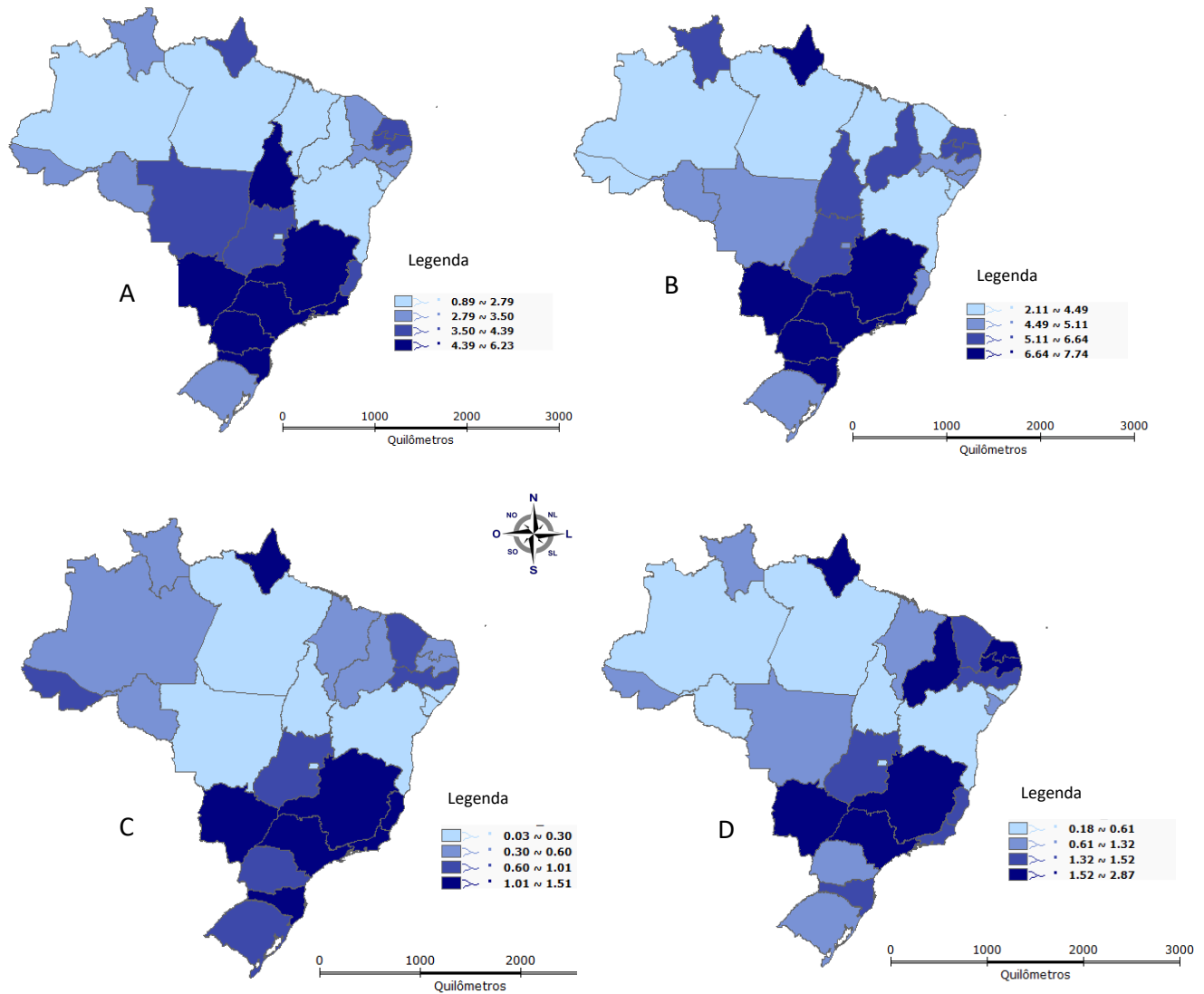
Source: National Registry of Health Establishments/Ministry of Health. Data accessed in August 2014.

Brazil, according to the 2010 Census<sup>13</sup>, maintaining one of the highest supplies and health cares in many areas.

Regarding the advances in this indicator, it was observed that in the year of 2013, only Paraná remained among the UFs that obtained the highest indicator of SLP supply in SUS, which was led by Amapá and Rio de Janeiro. Here it is stressed that Rio de Janeiro occupies the second place of the states that presented the highest GDP, with R\$ 353.878 in the year of 2009, aggregating about 10% of the total domestic product<sup>14</sup>, besides Rio de Janeiro was, also, a pioneer in the creation of the speech-language pathology course, when, in the decade of 1970, it started movements for the recognition of the profession, that led to the creation of courses for primary education teaching<sup>12</sup>.

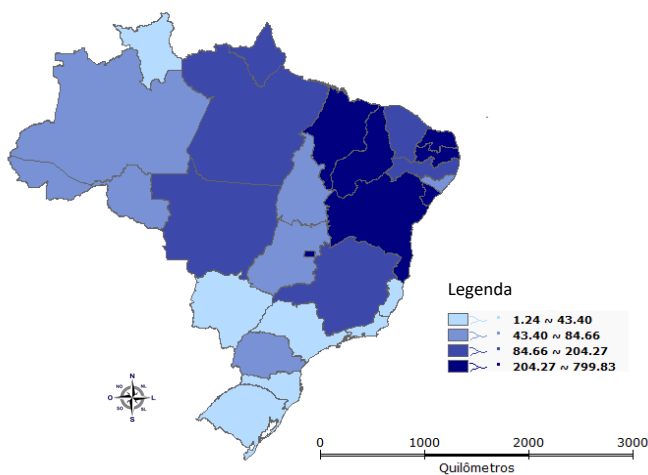
Among the federative units that presented the lowest coefficients of SLP in SUS, it was observed that Amazonas, Sergipe, Pará and Maranhão, in 2008, and, in 2013, Pará, Amazonas and Maranhão held themselves among these UFs. The lowest coefficients of SLP in SUS found in these UFs, both in 2008 and in 2013, are, approximately, three times lower than those observed in the UFs with the highest indicators, evidencing striking differences.

The Northeast and North Regions of the country are those whose federative units have the lowest HDI rates of Brazil, in which none of the municipalities was classified in the category very high human development. Of the municipalities located in Northeast, 61% are set on the low human development level, and



Legend: A) Coefficient of SLP supply in SUS 2008; B) Coefficient of SLP supply in SUS 2013; C) Coefficient of SLP supply in PHC/SUS 2008; D) Coefficient of SLP supply in PHC/SUS 2013.

**Figure 1.** Spatial distribution of the SLP coefficient in SUS and in PHC/SUS by units of the federation. Brazil, 2008/2013.



**Figure 2.** Spatial distribution of the relative evolution of SLPs in PHC/SUS by units of the federation. Brazil, 2008/2013.

in the North Region this percentage is of 40%<sup>15</sup>. These regions occupy the first and the second places in Brazil without access to sanitary installations, with 15,3 million people in the Northeast and 8,8 million in the North Region without sewage system<sup>16</sup>. Additionally, a study shows that for the group of indicators that deals with work, family structure, home infrastructure, income and education, the localities with the lowest development are in the Northeast Region of Brazil<sup>15</sup>. This data ratify the social inequality as a determinant to the access to health services and health professionals.

It is important to highlight that in these regions the instruction of the SLP started still in the 1970s, but with just one course for the entire region<sup>17</sup>, a fact that

collaborates with the understanding of the lower supply and expansion of the professional in the region.

Regarding the SLP supply in PHC, it was observed that the Federal District (DF) was the UF that presented the lowest indicator in both analyzed years, being about 37 times lower than the one found in Mato Grosso do Sul in 2008, UF with the highest indicator that year, and 15 times lower the one found in Amapá, UF with the highest indicator in 2013. Since the Federal District has a high HDI rate, occupying the first place on the ranking<sup>13</sup>, it is believed that the hypothesis for that finding would be the low supply of speech-language pathology courses in the universities of the Brazilian capital.

Concerning the concentration of SLPs in PHC, it is highlighted the presence of Amapá, in both studied years, among the UFs with the highest proportions of this professional in this level of healthcare. And the Federal District among those with the lowest proportions of SLPs in PHC.

Amapá, despite being located in one of the regions where are located the lowest HDI rates of the country, is recognized for being among the states with high HDI factor income<sup>13</sup>. According to the National Commission in Social Determinants in Health<sup>18</sup>, the situation and demographic evolution, social and economical, trace a general panorama of reference of the analysis of the health situation, describing the evolution in each region<sup>18</sup>.

Concerning the relative evolution of SLP supply in PHC, it was evidenced an increase in the supply in all of the UFs, with emphasis to Sergipe and Piauí, which presented a growth of over 700%. Bahia, which is ranked third in the relative evolution of over 300%, had effectively an increase in the supply of speech-language pathology courses. A study performed between 1991 and 2004, about the expansion of the speech-language pathology courses in Brazil, by the National Institution of Educational Researches (INEP), pointed a higher growth of courses in the Northeast Region, when compared to the other regions<sup>19</sup>.

An important highlight is given to the DF, which used to present much lower values than the other UFs in almost all the studied indicators, and presented a relative evolution of SLP supply in PHC of 382,75%, placing fourth on the ranking of those which most proportionally increased.

Still related to the relative evolution, Mato Grosso do Sul, that was among the UFs with the best indicators, was the one that presented the lowest relative evolution.

The increase of the number of SLPs in the health system, in many levels of care, may result from the higher visibility and recognition that the profession is reaching and reflecting on its insertion in many public health policies<sup>20</sup>.

An important policy recently implemented was the creation of Centers of Support to Family Health (NASF), through the Ministerial Order n. 154, of January 24, 2008, republished on March 4, 2008<sup>7</sup>. The implementation of NASF provoked an expressive increase on the number of health professionals (that before were not contemplated on the formation of the minimal team of family healthcare) in primary care. One of the most present professionals is the speech-language pathologist.

The creation and implementation of many health policies that foresee the insertion of the SLP in the population's healthcare is an important conquest to the sector and it has significantly contributed to meet the health needs of the population that before were not recognized in SUS.

Considering the amplified concept of health and the importance of human communication for the full development of the individual, the speech-language pathologist is a professional of great importance in PHC. In this level of care, the work of the SLP is predicted more expressively in NASF, as previously mentioned. Its work in this context involves actions of promotion, protection, recovery and rehabilitation of health in human communication.

There are strong political movements that seek this transformation. The National Policy of Basic Care (PNAB) itself, approved by the Ministerial Order n. 2.488, of October 21, 2011, guides the consolidation of basic care integrated with a health network, gathering new configurations of multi-professional teams, among them the speech-language pathology, with the perspective of amplifying the capacity of action in the territory and together with the communities<sup>6</sup>.

Regardless of the advances, the results found here demonstrate a growing and unequal evolution on the access to the SLP professional in SUS and in PHC/SUS, evidencing that the UFs that presented the best indicators were the ones with the highest HDI rates, economic resources (GDP) and availability of graduation courses of speech-language pathology. The positive effects of the social aspects will manifest in many different forms, including the perception of health problems, which empowers and boosts the improvement of the access.

This study was performed with secondary databanks and, here, it must be assumed the limitations of working with such information, like the coverage problems, which occur heterogeneously in the country. However, it is possible to register the advances in the quality attributes of the SIS, particularly the systems of universal comprehensiveness, which is the case of the data from IBGE and CNES, and it is ratified that the CNES remains the only source of official information in national territory which contains the necessary data for this research. Besides, scientific evidences points out that the SIS that most improved the quality and coverage of its data were those that had their data utilized for scientific purposes<sup>21</sup>.

Therefore, it is believed that the data here presented reflects a national reality and it is expected that it collaborates for the planning and execution of actions that aim for an improvement of the SLP supply in SUS and, specially, in the primary level of healthcare, effecting thus the principles of universality and comprehensiveness in SUS.

## CONCLUSION

The above-described findings showed and increase in the supply of speech-language pathologists both in the Unified Health System in a general way as in the primary healthcare. Nonetheless, this increase did not occur in a homogeneous way throughout the national territory, evidencing inequalities in the improvement of this supply among the federative units of Brazil.

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