



# Profile of speech therapists researchers with scientific productivity grants from the National Council for Scientific and Technological Development (CNPq)

Perfil dos fonoaudiólogos bolsistas de produtividade científica do Conselho Nacional de Desenvolvimento Científico e Tecnológico (CNPq)

Perfil de los fonoaudiólogos bolsistas de productividad científica del Consejo Nacional de Desarrollo Científico y Tecnológico (CNPq)

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## Abstract

**Introduction:** investments in scientific research influence Brazilian scientific production. Studies aim to characterize the researchers benefited by this aid. **Objective:** to describe the profile of speech

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therapists pathologists with scientific productivity grants from the National Council for Scientific and Technological Development. **Method:** a simple search was performed on Lattes Platform, on the basis of Brazilian doctors, using the filters: productivity and professional training fellows. Speech therapists with suspended grants were excluded. The Bioestat 5.3 Program was used for descriptive analysis. **Results:** of the 58 researchers, 65.5% are at level 2, female (98.5%) and have had training between 30 and 40 years (32.8%). 60.3% have post-doctorate degrees, 65.7% of which are carried out in Brazil. 48.5% are linked to state public institutions working in Audiology (36.2%) and 74.1% are registered in Crefono 2<sup>a</sup> region. 83.33% are from level 2 and have less than 20 years of training. The prevailing supervisions were: graduate level 1A, master level 1B and scientific initiation for other levels. The publication of books was more frequent, with emphasis on levels 1C-1D, abstracts in annals and articles more prevalent in 1A-1B. The number of citations in Scopus was the most prevalent. **Conclusion:** prevalence of level 2 scholarship holders, female, post-doctorate with a degree obtained in Brazil, training time over 30 years and less than 20 years after completing the doctorate. Public universities concentrate a greater number of scholarships and in the area of Audiology. There are more scientific contributions in books, scientific initiation supervisions and citations in Scopus database.

**Keywords:** Scientific Research and Technological Development; Curriculum; Scientific Publication Indicators; Publications for Science Diffusion; Brazil; Speech, Language and Hearing Sciences.

### Resumo

**Introdução:** investimentos em pesquisas científicas influenciam diretamente a produção científica brasileira. Estudos visam caracterizar os pesquisadores beneficiados por esse auxílio. **Objetivo:** descrever o perfil dos pesquisadores fonoaudiólogos bolsistas de produtividade científica no Conselho Nacional de Desenvolvimento Científico e Tecnológico. **Método:** realizou-se busca simples na Plataforma Lattes, na base doutores brasileiros, utilizando os filtros: bolsistas de produtividade e formação profissional. Foram excluídos fonoaudiólogos com bolsas suspensas. Utilizou-se o Programa Bioestat 5.3 para a análise descritiva. **Resultados:** dos 58 pesquisadores, 65,5% estão no nível 2, sexo feminino (98,5%) e com tempo de formação entre 30 e 40 anos (32,8%). 60,3% possuem pós-doutorado, sendo 65,7% realizados no Brasil. 48,5% são vinculados a instituições públicas estaduais com atuação na Audiologia (36,2%) e 74,1% estão registrados no Crefono 2<sup>a</sup> região. 83,33% são do nível 2 e possuem menos de 20 anos de formação. As orientações prevalentes foram: pós-graduação no nível 1A, mestrado nível 1B e iniciação científica nos demais níveis. A publicação de livros foi mais frequente, com destaque para os níveis 1C-1D, trabalhos/resumos em anais e artigos mais predominantes em 1A-1B. O número de citações na Scopus foi a mais prevalente. **Conclusão:** prevalência de bolsistas nível 2, sexo feminino, pós-doutores com obtenção de titulação no Brasil, tempo de formação acima dos 30 anos e menos de 20 anos de conclusão do doutorado. As universidades públicas concentram maior número de bolsistas e na área de Audiologia. Há mais contribuições científicas em livros, orientações de iniciação científica e citações na base de dados Scopus.

**Palavras-chave:** Pesquisa Científica e Desenvolvimento Tecnológico; Indicadores de Produção Científica; Publicações de Divulgação Científica; Brasil; Fonoaudiologia.

### Resumen

**Introducción:** inversiones en investigaciones científicas influyen directamente sobre la producción científica brasileña, y algunos estudios caracterizan a los investigadores beneficiados **Objetivo:** describir perfil de investigadores fonoaudiólogos de productividad científica del Congreso Nacional de Desarrollo Científico y Tecnológico (CNPq). **Método:** Se utilizó la plataforma Lattes con búsquedas simples en bases de doctores brasileños, utilizando los filtros: becarios de productividad y formación profesional. Fueron excluidos fonoaudiólogos con becas suspendidas. Las variables se analizaron con Biostat 5.3, utilizando método analítico descriptivo. **Resultados:** de 58 investigadores, predominó el nivel 2 (65,5%), sexo femenino (98,5%), y tiempo de formación entre 30-40 años (32,8%). 60,3% poseen postdoctorado, siendo 65,7% realizados en Brasil. 48,5% son vinculados a instituciones públicas estatales con actuación

en audiología (36,2%) y 74,1% están registrados en Crefono 2ª Región. Al tiempo de conclusión del doctorado, 83,33% son nivel 2 y poseen menos de 20 años de formación. Las orientaciones prevalentes fueron posgraduación en el nivel 1A, maestría nivel 1B e iniciación científica en los demás niveles. La publicación de libros fue más frecuente, destacándose los niveles 1C-1D, los trabajos/resúmenes anales y artículos fueron más predominantes en 1A-1B. El N.º de citaciones en Scopus fue más prevalente. **Conclusión:** prevalencia de becarios nivel dos, sexo femenino, doctores titulados en Brasil, tiempo de formación sobre los 30 años y menos de 20 años de conclusión del doctorado. Las universidades públicas concentran más becarios, y dentro del área de audiología. Hay mayores contribuciones científicas a través de libros, orientaciones de iniciación científica y citaciones en Scopus.

**Palabras clave:** Investigación Científica y Desarrollo Tecnológico; Indicadores de Producción Científica; Publicaciones de Divulgación Científica; Brasil; Fonoaudiología.

## Introduction

Over the years, Brazilian scientific production has achieved a prominent role, being directly influenced by investments in research and human resources<sup>1</sup>. A portion of these resources comes from the Brazilian Ministry of Science, Technology and Innovation (MCTI), through its development agencies: the Financier of Studies and Projects (FINEP) and the National Council for Scientific and Technological Development (CNPq)<sup>1</sup>.

CNPq was created in 1951 with the purpose of promoting science, technology and innovation. This entity provides various types of scholarships to high school, undergraduate, graduate students, recent doctors and experienced researchers<sup>2</sup>. Its performance has contributed to the formation and recognition of Brazilian research institutions and researchers, in addition to training professionals in all areas of human knowledge to develop studies that can contribute to people's lives and to the country's scientific development<sup>3</sup>.

The Research Productivity Scholarship (PQ), offered by CNPq, is designated to researchers who have stood out among their peers, aiming at valuing their scientific production, with the grant based on criteria established by the advisory body and committees<sup>4</sup>. PQ grants follow a hierarchical order organized in three levels: Senior PQ, PQ-1 (subdivided into 1A, 1B, 1C and 1D) and PQ-2. The PQ Senior scholarships can be applied for by researchers who have remained for, at least, 15 years as scholarship holders 1A and/or 1B, and it is awarded by the CNPq Deliberative Council<sup>5</sup>.

Level 1 is aimed at researchers with a doctorate degree for at least 8 years, with excellence and significant scientific production, responsible for

leading consolidated research groups, in addition to contributing to the training of new researchers, resulting from completed supervision of Masters and Doctors<sup>4,5</sup>. Level 2 is considered to be the entrance to reach the PQ scholarship, in which the request is applied by researchers who obtained the title of doctor, at least, 3 years ago, with significant scientific production and with, at least, guidance in graduate programs<sup>4</sup>. Likewise, CNPq provides productivity grants related to specific projects (PQ-2F) and technological development and innovative extension<sup>6</sup>.

In 2018, according to the journals indexed by Scopus, Brazilian researchers were responsible for 139,739 publications, with the areas of medicine, biological and agrarian sciences, engineering and biochemistry, genetics and molecular biology presenting the most publications. In addition, Brazil is responsible for 51.76% of scientific publications in Latin America. In the health area, the national scientific production had a significant increase due to the search for investment and funding resources from CNPq for research and for the productivity grant. Individual scholarships are offered in the country and abroad. In these, Productivity in research and per quota are inserted, with the purpose of encouraging research regularly and continuously, as well as generating knowledge and promoting the training of researchers<sup>1</sup>.

In recent years, national studies have characterized the profile of CNPq research productivity scholarship researchers in several areas of knowledge, such as: Veterinary Medicine<sup>6</sup>, Tourism<sup>7</sup>, Education<sup>8</sup>, Information Science<sup>9</sup>, Pediatrics<sup>10</sup>, Psychology<sup>11</sup>, Medicine<sup>12</sup>, among others. In the field of Speech, Language and Hearing Sciences, a study<sup>1</sup> identified the profile of PQ scholarship

holders; however it focused more on the production of articles linked to publishing magazines, Qualis and nationality.

Due to the increasing of national scientific production in the health area and since Speech, Language and Hearing Sciences is a recent field in Brazil, it is worth highlighting the characteristics of the researchers with scientific productivity grants from CNPq in this area, aiming to present the collaboration in scientific production and the training of new researchers. In view of this, the objective of the present study was to describe the profile of speech therapists researchers with scientific productivity grants from CNPq.

## Methods

### Search strategy

It is a descriptive study with a quantitative approach. Because it is a bibliometric analysis, it was not necessary the submission to the Research Ethics Committee (CEP). The study was carried out from March to May 2020. Two researchers were selected to collect the data.

The search strategy was carried out by consulting the CNPq Lattes Platform, which hosts the curricula of all registered Brazilian researchers. In the search, some platform mechanisms were used, such as: “simple search” mechanism; search mode by “name”; in the “Doctors” database with “Brazilian” nationality. The following filters were used: “CNPq Productivity Fellows”, marking levels 1A, 1B, 1C, 1D and 2; and “Professional Performance” selecting the major area “Health Sciences” and the area “Speech, Language and Hearing Sciences”.

In order to confirm the exact number of productivity researchers in the field of Speech, Language and Hearing Sciences, the access to the CNPq link was carried out following the flow: “scholarships in progress”, “search for the knowledge area of the scholarships in progress”, it was selected “Speech, Language and Hearing Sciences”, thus, the search was performed. The names were compared with the resumes found in the Lattes Platform. Then, the inclusion and exclusion criteria were applied.

### Selection criteria

The curriculum selection criteria were basically based on professional training. Curricula of speech therapists of Brazilian nationality, with identification of the scholarship level by CNPq in

the Lattes Platform and current scholarship were included. Any professional from another area who appeared during the search was excluded, as well as speech therapists of foreign nationality or with suspended scholarships due to the performance of postdoctoral studies abroad. Individual analysis was performed to extract the variables.

### Data analysis

For data analysis, two researchers, individually, carried out the extraction of the variables necessary for the characterization of the profile of the researchers included. A contingency table was prepared using Microsoft Office Excel 2016 software and constituted the database for this study. The selected variables were: scholarship level (1A, 1B, 1C, 1D and 2), gender, time since graduation, degree level (doctorate and postdoctoral), postdoctoral place (Brazil or abroad), category of linked institution (federal, state or private), practice area (the area assigned by the researcher in the abstract or line of research available in the lattes curriculum), journal reviewer, Crefono (Regional Council of Speech, Language and Hearing Sciences) region (according to the Brazilian state that the researcher maintains a teaching link), period of validity of the scholarship, time of doctorate conclusion, types of supervision (post-doctorate, doctorate, master’s, specialization, undergraduate and scientific initiation), scientific production (books, chapters of books, scientific articles, papers/abstracts in annals, awards and titles), number of citations per database (Scopus, SciELO (Scientific Electronic Library Online) and Web of Science). The data were analyzed on the Bioestat 5.3 program using the descriptive analytical method (survey of frequencies, means and standard deviation). The data presentation was made using five tables.

## Results

The search on the Lattes Platform resulted in 64 resumes. 58 curricula were analyzed and included in this study.

Table 1 shows the profile characteristics of speech therapists with research productivity grants by CNPq. Of the 58 researchers, 38 (65.5%) were at level 2. Levels 1A and 1C had only four fellows, with two (3.4%) for each level. No senior scholarship holder was identified in the field of Speech, Language and Hearing Sciences.

**Table 1.** Characterization of the profile of speech therapists with research productivity scholarships by CNPq

Characteristics		N	%
Research productivity scholarship level	1A	2	3.4
	1B	4	6.9
	1C	2	3.4
	1D	12	20.7
	2	38	65.5
Gender	Male	3	5.2
	Female	55	94.8
Time since graduation	18 to 25 years	12	20.7
	26 to 30 years	15	25.9
	31 to 40 years	19	32.8
	41 to 49 years	12	20.7
Degree level	Postdoctoral	35	60.3
	Doctorate	23	39.7
Postdoctoral place	Brazil	23	65.7
	Abroad	12	34.3
Doctoral conclusion time	≤20 years	36	62.07
	>20 years	22	37.93
Category of linked institution	Private	10	17.2
	State Public	28	48.3
	Federal Public	20	34.5
Practice area	Audiology	21	36.2
	Orofacial Motricity	5	8.6
	Language	15	25.9
	Voice	10	17.2
	Collective health	4	6.9
	Dysphagia	2	3.4
	Educational Speech-Language Pathology	1	1.7
	Neuropsychology	1	1.7
Regional Council	Crefono 2	43	74.1
	Crefono 3	3	5.2
	Crefono 4	4	6.9
	Crefono 6	4	6.9
	Crefono 7	4	6.9
Period of validity of the scholarship	2015-2023	1	1.7
	2017-2021	5	8.6
	2017-2022	1	1.7
	2018-2021	8	13.8
	2018-2022	3	5.2
	2019-2022	14	24.1
	2019-2023	3	5.2
	2019-2024	1	1.7
2020-2023	16	27.6	
2020-2024	6	10.3	

Subtitles: N: absolute value; %: relative value; Crefono: Regional Council of Speech, Language and Hearing Sciences.



As for the profile characterization of these scholarship speech therapists, 55 (94.8%) were female. 32.8% of the researchers had between 31 and 40 years of training, with 60.3% post-doctorate, and the predominance of obtaining the title was in Brazil (65.7%) (Table 1). It was observed that 62.07% (n = 36) of the scholarship researchers obtained the doctorate degree less than 20 years ago. Taking into account the type of higher education institution to which they were affiliated, 48.3% were professors at state public universities and only 17.2% were affiliated to private institutions (Table 1).

Based on the information available in the abstracts and lines of research in the analyzed curricula, the researchers were characterized in the Speech, Language and Hearing Sciences areas. There is a predominance of speech therapists who work in Audiology (36.2%), followed by those who work in the area of Language (25.9%) and Voice (17.2%). Specialties such as Educational Speech-Language Pathology and Neuropsychology have only one researcher (1.7%) (Table 1).

With regard to the region of the Regional Council of Speech, Language and Hearing Sciences (Crefono), it is noticed that 74.1% are in Crefono 2, Council corresponding to the state of São Paulo. When stratified by the duration of the scholarship, 27.6% of the scholarship holders have a current scholarship for the 2020-2023 period and 24.1% correspond to the 2019-2022 period (Table 1).

Productivity fellows are distributed in 16 Brazilian institutions. Table 2 describes the distribution of scholarship researchers by university according to the level of the scholarship. The University of São Paulo (USP) concentrates 20.7% of research productivity grants in the field, followed by the Federal University of São Paulo (UNIFESP) (12.1%), Federal University of Minas Gerais (UFMG) and São Paulo State University (UNESP) with 8.6%, all of them are public higher education institutions; the Pontifical Catholic University of São Paulo (PUC-SP), among private universities, is the one with the largest number of fellows (8.6%).

**Table 2.** Description of the institutions according to the stratification of speech therapists with research productivity scholarships in CNPq

Institution	Number of scholarship holders		Scholarship level				
	N	%	1A	1B	1C	1D	2
FOB-USP	9	15.5	--	--	--	1	8
PUC-RS	1	1.7	--	--	--	1	--
PUC-SP	5	8.6	1	1	--	--	3
UFMG	5	8.6	--	--	--	1	4
UFPB	2	3.4	--	--	--	--	2
UFPE	1	1.7	--	--	--	1	--
UFRGS	2	3.4	--	--	1	--	1
UFSC	1	1.7	--	--	--	--	1
UFSCAR	1	1.7	--	--	--	1	--
UFSM	1	1.7	--	--	--	--	1
UNCISAL	1	1.7	--	--	--	--	1
UNESP	5	8.6	--	--	--	1	4
UNICAMP	1	1.7	--	--	--	--	1
UNIFESP	7	12.1	--	1	1	2	3
USP	12	20.7	1	2	--	4	5
UTP	4	6.9	--	--	--	--	4
<b>Total</b>	<b>58</b>	<b>100</b>	<b>2</b>	<b>4</b>	<b>2</b>	<b>12</b>	<b>38</b>

Subtitles: N: number; FOB-USP: Bauru School of Dentistry – University of São Paulo; PUC-RS: Pontifical Catholic University of Rio Grande do Sul; PUC-SP: Pontifical Catholic University of São Paulo; UFMG: Federal University of Minas Gerais; UFPB: Federal University of Paraíba; UFPE: Federal University of Pernambuco; UFRGS: Federal University of Rio Grande do Sul; UFSC: Federal University of Santa Catarina; UFSCAR: Federal University of São Carlos; UFSM: Federal University of Santa Maria; UNCISAL: Alagoas State University of Health Sciences; UNESP: São Paulo State University; UNICAMP: University of Campinas; UNIFESP: Federal University of São Paulo; USP: University of São Paulo; UTP: University of Tuiuti do Paraná.



Table 3 shows the distribution of scholarship speech therapists according to the level of the scholarship and the types of supervision provided. At level 1A, there was a predominance of postgraduate guidance (n = 130); unlike level 1B, since the master's guidelines stood out from all the others (n

= 160). It is worth mentioning that, for levels 1C, 1D and 2, the predominance of supervisions was in the Scientific Initiation category, representing more than 30% of the supervisions performed by these researchers.

**Table 3.** Distribution of speech therapists with productivity scholarships according to the level of the scholarship and type of supervision provided

Supervision	Scholarship level				
	1A	1B	1C	1D	2
	n (%)	n (%)	n (%)	n (%)	n (%)
Postdoctorate	5 (1.25)	10 (1.95)	4 (1.61)	19 (1.40)	25 (0.81)
Doctorate	23 (5.76)	53 (10.31)	40 (16.06)	159 (11.73)	180 (5.84)
Master	129 (32.33)	160 (31.13)	62 (24.90)	306 (22.58)	691 (22.44)
Graduate*	130 (32.58)	146 (28.40)	32 (12.85)	246 (18.15)	489 (15.88)
Undergraduate	22 (5.51)	51 (9.92)	17 (6.83)	207 (15.28)	744 (24.16)
Scientific Initiation	90 (22.56)	94 (18.29)	94 (37.75)	418 (30.85)	951 (30.88)
Total	399	514	249	1.355	3.080

Subtitles: N: absolute value; %: relative value; \* included specialization and residences.

Scientific production was also analyzed among fellows according to the level of the fellowship to which they belong (Table 4). Among scientific productions, the publication of books was the most frequent (M= 380, SD= 14.50), followed by papers/abstracts in annals (M= 218.71, SD= 129.44) and scientific articles (m= 90.83, SD= 46.74). Among

the levels, books were more prevalent when it was added the levels 1C-1D (M= 14.57, SD= 25.92). Papers/abstracts in annals (M= 310.17, SD= 160.24) and articles (M= 126.67, SD= 47.39) were more prevalent at the conjugated levels 1A-1B. The lowest average of all productions was level 2 for books (M= 2.61, SD= 3.40).

**Table 4.** Scientific productivity of the general sample and according to the level of the fellowship of speech therapists with research productivity scholarships by CNPq

	General		1A-1B		1C-1D		2	
	M	DP	M	DP	M	DP	M	DP
Artigos	90.83	46.74	126.67	47.39	124.86	44.87	76.63	36.98
Books	380	14.50	12.83	14.81	14.57	25.92	2.61	3.40
Book chapters	30.19	0	42	26.97	52.14	42.14	20.24	15.51
Papers in annals*	218.71	129.44	310.17	160.24	247.36	148.56	193.71	110.81
Awards and titles	22.81	16.90	21.67	16.37	25.21	16.92	22.11	17.34

Subtitles: M: mean; SD: standard deviation, \* Includes simple, expanded abstracts and completed papers.

Considering the importance that scientific production of articles has, the number of citations, according to the main databases by scholarship levels, was also analyzed in this study (Table 5). It was observed that at levels 1A and 1C the database that concentrated the highest number of citations by the researchers was Scopus (n= 428) with 46.8% and 72.6%, respectively. The Web of Science database

was the one with the lowest number of citations for level 1B researchers (n= 17). Level 2 fellows were those with the highest number of citations in all databases, with a predominance of the Brazilian database SciELO (n= 4098). Among all levels, scholarship holders at level 1B were those with the lowest rate of citations (n= 231).

**Table 5.** Number of citations according to the level of research productivity scholarships in CNPq

Citations	Scholarship level									
	1A		1B		1C		1D		2	
	n	%	n	%	n	%	n	%	n	%
Web of Science	314	34,3	17	7,4	53	18,4	1,428	31,3	2,885	27,1
SciELO	173	18,9	132	57,1	26	9,0	1,222	26,8	4,098	38,5
SCOPUS	428	46,8	82	35,5	209	72,6	1,918	42,0	3,649	34,3
Total	915	100,0	231	100,0	288	100,0	4,568	100,0	10,632	100,0

Subtitles: SciELO: Scientific Electronic Library Online; n: valor absolute,

## Discussion

According to a study published in 2014, there were 46 speech therapists with productivity grants from CNPq<sup>1</sup>. Although this number has increased by about 26%, it is still lower when compared to that of physicians<sup>12</sup> and dentists<sup>13</sup>. This may have happened due to the fact that Speech, Language and Hearing Sciences are still a relatively new profession, recognized only in 1981 in Brazil<sup>14</sup>. There are still other possible factors, such as few professional doctors in the area<sup>15</sup> and the reduced number of postgraduate courses in the country for this area, in comparison to professions previously mentioned. Therefore, it is important to investigate the relationship between sociodemographic factors and the distribution of productivity fellows from different courses.

The predominance of scholarship holders at level 2 was also observed in other professionals such as Psychologists<sup>11</sup>, Dentists<sup>13</sup>, Pediatricians<sup>16</sup> and other professionals in the field of Physical Education<sup>17</sup>. Although level 2 is the lowest in the scholarship classification system and has the least prerequisites for its classification, it can be classified as a gateway to the scholarship system. Therefore, so many speech therapists at this level represent an expectation that scientific research in Speech, Language and Hearing area will improve and increase through this initial stage. Furthermore, in order to reach the highest levels, it takes time to complete the doctorate, time for the development of research and leadership of consolidated groups.

As an example, there was no “senior” scholarship holder. According to CNPq rules, these scholarships can only be applied for by researchers who have remained for at least 15 years as category 1A and/or 1B fellows<sup>5</sup>. It was observed that, even in courses instituted before Speech, Language and Hearing Sciences, the number of fellows in this

category is low, as in Psychology<sup>11</sup>, Medicine<sup>12</sup>, Dentistry<sup>13</sup> and in the area of Collective Health<sup>18</sup>. It is believed that the fact that there are not many professionals in these areas as fellows in “senior” category can be influenced by the difficulty of professionals to produce a large quantity of quality research for such a long period, in addition to be responsible for consolidated research groups and contribute to the formation of new researchers, factors which are intrinsic to the inclusion in category 1A and/or 1B scholarships.

Nearly 95% of scholarship speech therapists are female. Female participation has also been observed in other studies. In comparison with the grants awarded to the Health Sciences area in 2001 and in 2012, almost 11 years later, a study highlighted that the presence of women grew considerably in the total number of grants. Approximately 55% of university professors are men and there are still areas of health with a predominance of men in research, such as Biophysics<sup>19,20</sup>. However, this trend may be modified later due to the growth of female adherence in areas such as Nursing, Physiotherapy, Nutrition, Pharmacy, Occupational Therapy and Speech, Language and Hearing Sciences<sup>19</sup>.

Another factor of characterization present in this study is the time since graduation of these scholarship holders. It was observed that the largest portion corresponds to professionals who have a long history in the career. In relation to the types of institution to which the fellows were linked, the majority are public, as well as in the case of fellows in the area of Physical Education<sup>21</sup>. Public universities are the ones that most produce science in Brazil<sup>22</sup>, perhaps because they are more charged for efficiency and for the services provided<sup>23</sup>. Therefore, belonging to a public university seems to favor professionals, since there is greater incentive for quality academic production. The private insti-



tutions comprise approximately 17% of scholarship holders in the area.

Although this number is considerably smaller when compared proportionally to the number of federal and state public universities, it is an expressive and important number for scientific production in the Speech, Language and Hearing area. Generally, in federal and state educational institutions, the teacher is dedicated exclusively to that institution, and should encourage teaching, research and extension activities. In private teaching institutions, professionals can practice clinic in their offices or work in other institutions, which reduces the professional's time for dedication to research because there is no exclusive dedication planned.

For professionals with a doctoral conclusion time greater than 20 years, the number of scholarships is more quantitatively distributed. However, most of the 32 are at level 1C. Studies have demonstrated the conclusion time of the doctorate of scholarship holders from other areas. For medicine, the majority of scholarship holders have between 11 and 15 years of doctorate<sup>12</sup>. Dentistry fellows, on the other hand, have 16 or over 16 years of doctorate conclusion<sup>13</sup>. Comparing the Speech, Language and Hearing scholarship holders with the Medicine and Dentistry scholarship holders, the doctoral completion time for the last two courses is shorter, that is, with less time, these researchers reach higher levels such as levels 1A and 1B.

In a short survey on the website of the Federal Council of Speech Therapy<sup>24</sup>, it is possible to access the number of specialists in each area of the profession. Through this search, it can be confirmed that Audiology is also the area with more specialists among the other areas. The reason for having speech therapy scholarship holders developing more research related to hearing and balance may be related to the fact that there are more specialists in this field in Brazil. Such data suggest that the interest in hearing and balance studies or even the number of graduate courses in the area may be influencing these numbers. Therefore, it is suggested studies that focus on the relationship between the area of specialty and scientific production.

As for the Brazilian state with the highest number of productivity fellows, it can be noted that São Paulo (SP) has the prevalence. The concentration of scholarship holders in that state is also frequent in other courses such as Psychology<sup>11</sup>, Medicine<sup>12</sup> and Dentistry<sup>13</sup>. Several factors may explain the

reason for this event, such as the socioeconomic factor of that state. Another factor would be the number of universities concentrated in SP, as this is the State that registered one of the first Speech Therapy courses in the country<sup>25,26</sup>. The search for the relationship between the creation of universities and the number of scholarship researchers is still little explored. We believe that studies like this favor future research on the topic.

As noted, the number of fellows is expected to change over the next few years. According to CNPq, each type of scholarship has a duration period. Fellowships 1A have a longer duration (60 months), followed by fellows 1B, 1C, and so on<sup>27</sup>. As new calls for new scholarships or renewal of scholarships are opened, the number changes. This change will be observed through studies with these fellows. In 2014<sup>1</sup>, there were 46, today there are 58. It is expected that this number will increase, in view of the continuous increase in speech therapists with a doctorate<sup>15</sup>.

Among the supervision of these fellows, it varies according to the type of scholarship. For scholarship holders 1A, the highest level of the scholarship system, postgraduate studies (*latu sensu*) are more present, an unexpected factor. Taking into account the high level of researchers, a predominance of strict *sensu* type supervision was expected. These values are similar to data from scholarship researchers in the area of Physical Education. For these, doctoral supervision by level 1A researchers is more frequent, but master's degrees and scientific initiations are more frequent for fellows at other levels<sup>21</sup>. For researchers at all levels in the Collective Health area, master's degrees are more frequent than doctorates<sup>28</sup>.

It is important to analyze the institution's teaching offer. There are those that offer only graduation and those that offer, in addition to graduation, postgraduate programs (*stricto sensu* and *latu sensu*), and other teaching modalities. However, this study did not aim at this characterization. For this reason, research is suggested to verify whether there is a relationship between the number of teaching programs offered by the institutions in which the scholarship holders are accredited and the number of studies carried out according to each program.

Comparing the scientific productivity of speech therapists with other areas such as Public Health, the latter produce more articles and papers/abstracts in scientific annals<sup>28</sup>. The production of books, for

them, was among the least recurring publications. The same happened to Psychology researchers<sup>5</sup>. It is not clear why scholarship students in Speech, Language and Hearing produce more books than those in other areas, but it is emphasized that such productions are important for the expansion and dissemination of research in the area.

Scopus led the number of citations among speech therapy researchers, followed by SciELO and Web of Science, respectively. The frequency of studies indexed on the Scopus platform is also common among researchers in health courses, such as Nutrition<sup>29</sup>. The placement of SciELO may have been influenced by the fact that the main Brazilian scientific journals on the area are indexed on the platform, so researchers more often choose to publish their articles in these because of their aptitude for the language<sup>1</sup>.

Through studies like this, it is possible to get an overview of those who produce more science in the field of Speech, Language and Hearing Sciences and encourage scientific production by supervising students, improving and training professionals and other interested.

## Final considerations

In this study, the profile of speech therapists with research productivity scholarships at CNPq was described. There was a greater number of scholarship holders occupying level 2, a majority of women, a predominance of post-doctorate holders with a degree in Brazil and time since graduation over 30 years. State public universities concentrate the largest number of fellows, as well as the area of Audiology has greater representation. There was also an increase in the number of scholarships for the new 2020-2023 triennium. In addition, the highest percentage of scholarship speech therapists has less than 20 years of doctorate. There are numerous scientific contributions evidenced from the amount of publication of books and papers in annals, supervisions of undergraduate students and a considerable number of citations in the Scopus database. Thus, longitudinal studies are necessary to accompany the increase in the number of speech therapists with CNPq scholarships, as well as to characterize the scientific production that has been carried out by these researchers over the years.

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