

## Access and use of speech-language therapy services in Porto Alegre, Brazil: a population-based study

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**Abstract** *To estimate the prevalence of access and use of speech-language therapy services and identify the variables associated with access. Cross-sectional population-based study. The sample consisted of adult individuals living in Porto Alegre, southern Brazil. The data were collected using an instrument constructed with domains of national research questionnaires, with a module on speech-language therapy. The outcome was the access to a speech-language therapist. Poisson regression with robust variance was used to calculate Prevalence Ratios with 95% confidence intervals. A total of 214 people participated in the study, of which 67.3% (n = 144) were female. The mean age was 54.28 (SD±18.83) years. Fifty-six (26.2%) people mentioned the need for speech-language therapy consultation. All 56 subjects were able to perform speech-language therapy, of which 69.4% (n = 39) in private practice and 19.6% (n=11) used healthcare insurance plans at partnering providers. In the final model, the highest prevalence of access was associated with female (PR=1.09,95%CI1.01-1.18) and had some deficiency (PR = 1.09,95%CI1.03-1.17). Access to a speech-language therapist is more frequent in private services. It is observed that women and the disabled individuals have a higher prevalence of access to speech-language therapist.*

**Key words** *Access to Health Services, Speech-language therapy, Prevalence*

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## Introduction

Health Access refers to the use of the services meeting individual needs<sup>1</sup>. Access is the actual use of health services and everything that facilitates or inhibits their use, getting the right service at the right time to promote better health outcomes<sup>2</sup>. The use of health services is a consequence of an interaction of factors, including users perception and the available service offer<sup>3</sup>.

Studies that analyze access to and the use of health services portray vulnerabilities and social inequalities, resulting from the social conditions of individuals and their places of residence<sup>4-6</sup>. It is known that access is directly related to supply and difficulties in access are related to the particularities of health systems and services, involving economic, political, technical and organizational aspects<sup>7,8</sup>. Population-based research that addresses the use of health services is essential to describe trends and frequencies. The obtained results make it possible to know the real access and use of services of a given population, enabling the foundation for proper planning, (re)formulation and management of health policies<sup>9,10</sup>.

Limited access to specialized care is a major obstacle to health care. In Canada, 41% of health care users were found to wait more than 2 months for an appointment with a specific professional. In addition, in the United States, 39% of individuals with below average income reported difficulties in accessing specialized professionals, with the greatest complaint related to cost<sup>11,12</sup>. In Brazil, access to health services has been increasing for both users of the Unified Health System (SUS) and for users of health insurance or private services, but inequalities still persist<sup>13,14</sup>.

Population-based epidemiological surveys of human communication disorders and access to speech-language therapy services are scarce. The only Brazilian survey found in the indexed literature estimated a prevalence of 30.8% of speech-language disorders in the adult population<sup>15,16</sup>. Speech-language therapy aims to develop a wide range of actions, including specific protection, diagnosis, early treatment, rehabilitation of oral and written language disorders, hearing, voice, orofacial motricity and oropharyngeal dysphagia. Therefore, there are several population demands for care with a speech-language therapist.

The shortage of speech-language therapists that are accessible to any population is a challenge to be overcome worldwide<sup>17</sup>. Strategies have been developed to favor universal and in-

tegral speech therapy care for the population<sup>18</sup>. Thus, it is important that efforts are directed to investigate the variables associated with access to and the need for speech therapy care, aiming to identify the individuals most susceptible to non-access to speech therapy.

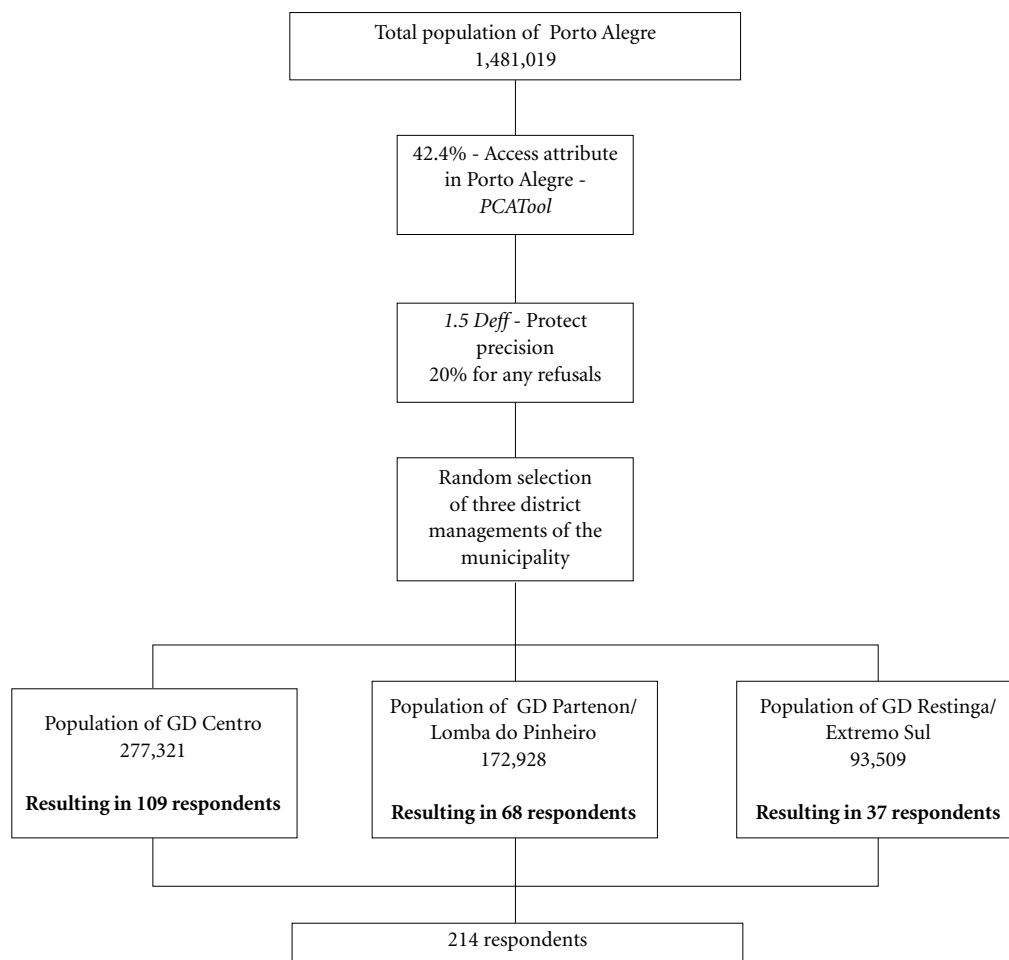
This population-based study is unheard of in its proposition. Its objective is to estimate the prevalence of access, the use of speech-language therapy services and to identify the variables associated with access.

## Methodology

This is a population-based, cross-sectional study, nested in a larger project conducted in partnership with the city of Porto Alegre, which aims to analyze access to primary health care services<sup>19</sup>. The sample consisted of adult individuals, with a minimum age of 18 years old, living at least 12 months in the areas covered by the public primary health care network in the city of Porto Alegre/RS between 2016 and 2017.

The sample of the present study was estimated considering the prevalence of 42.4% of the attribute access, as measured between users of primary health care services and residents of the area covered by the District Management/GD Partenon-Lomba do Pinheiro in 2012, measured with the Primary Care Assessment Tool (*PCA-Tool*)<sup>20</sup>. An error of 9% was used and therefore a range of 0.33-0.51 was estimated. Of the eight district managements in the municipality, three managements were selected for the study. The selection of district managements took place in a simple random manner (draw). The district managements drawn were the Central Management with a population of 277,321 inhabitants, the Partenon-Lomba do Pinheiro Management with a population of 172,928 inhabitants and the Restinga-Southern Management with a population of 93,509 inhabitants. In each management, 20% was added for eventual refusals and a *deff* of 1.5 in order to safeguard accuracy, considering the structure of the sampling plan. Following the proportionality of distribution by district management, the final sample size of the three district managers chosen was 214 respondents (Figure 1).

During the collection, within each management, households were randomly selected, and one user was interviewed from each household. In the case of more than one adult in the residence, a draw was held. The sample included individuals residing in the territory drawn for at



**Figure 1.** Flowchart of composition of the studied sample.

least 12 months. Household sampling was carried out systematically to ensure that all households covered by health services had the same chance of entering the study. The selection of households was as follows: 1) The field coordinator had a map of the census tract to be visited and the order of the numbered blocks; 2) In each block on the map, one of the corners was highlighted, according to the previous draw; 3) After being in the corner, in front of the houses, the coordinator, walking down the left-hand street, located the first house whose entrance door was facing the street; 4) As of the identification of this house, the first house to be visited was select-

ed with the use of a coin, being the obverse side equivalent to domicile number 1 and the reverse side to domicile number 2; 5) After approaching the first picked house, it was the next existing house was skipped, and this was continued until completing the sampling target or reaching the initial corner.

Data were collected on a tablet from a questionnaire constructed with specific blocks from the National Household Sample Survey/PNAD (Identification Data, Education Characteristics and Household Income), National Health Survey/PNS (Household Information, Health Plan Coverage, Health Team Home Visits, Lifestyle,

Health Services Utilization and Oral Health) and *PCATool* (Degree of Affiliation, First Contact Access – Use and First Contact Access – Accessibility). A speech-language therapy module was included with questions about audiological assessment, need for speech-language therapy, reason for care, access to consultation, place of care, need for treatment and access to treatment. This questionnaire was previously tested in a pilot study conducted between August and September 2016 on 11 subjects. After the pilot study there were adjustments in the questionnaire in order to optimize the duration and understanding of the interviewees.

All interviewers were properly trained. The outcome was created from the variable that identified access to speech-language therapy, categorized as yes and no, originated from the following questions to respondents: “Have you ever consulted with a speech-language therapist (brief explanation of the profession by the interviewer)?” (yes; no) and “Did you get access to this query?” (yes; no). It was considered as positive access to the speech-language therapist when the interviewee answered yes to both questions. The exploratory variables used were: gender (male; female), age (in years: 18-39; 40-59; 60 or more), color/race (white; other), marital status (in relationship; single), education (up to elementary school; up to high school; higher education or more), self-report of the diagnosis of chronic, mental or physical disease (no; yes), have some kind of disability (physical, sensory or mental: no; yes), use the municipal health unit (yes; no) and health insurance coverage (no; yes).

Data were analyzed using SPSS v.21 software (Chicago: SPSS Inc). Chi-square test was used to evaluate differences in the variables studied, and when it violated their assumptions, Fisher’s Exact Test was used, both with a 5% significance level. Poisson regression with robust variance was used to calculate crude and adjusted Prevalence Ratios (PR) and their respective 95% confidence intervals. For the multivariable analysis, the category was considered to have positive access to the speech therapist as a reference for data adjustment and interpretation. For the adjusted model, only the theoretically relevant variables with  $p$  value  $< 0.3$  were included. Model fit was assessed with the Deviance test.

This study was approved by the Research Ethics Committee of the Municipal Health Secretariat of Porto Alegre and by the Research Ethics Committee of the Universidade Federal do Rio Grande do Sul.

## Results

A total of 655 people was approached and 214 agreed to participate. Refusals were related to insecurity (receiving interviewers at home), and lack of time to participate in the survey. Of the respondents, 67.3% ( $n = 144$ ) were female. The average age was 54.28 ( $SD \pm 18.83$ ) years and most preferred not to report monthly income. 54.2% ( $n = 116$ ) reported having audiological evaluation already and 26.2% ( $n = 56$ ) reported the need for speech-language therapy consultation at some point.

The reasons for the need for speech therapy consultation were hearing (66.1%;  $n = 37$ ), speech (12.5%;  $n = 7$ ), voice (8.9%;  $n = 5$ ), swallowing (8.9%;  $n = 5$ ), speech-reading/writing-hearing (1.8%;  $n = 1$ ) and speech-hearing (1.8%;  $n = 1$ ). All 56 individuals in need were able to perform speech-language therapy, of which 69.4% ( $n = 39$ ) were in private practice with private funding, 19.6% ( $n = 11$ ) were in a health insurance office, 3.6% ( $n = 2$ ) were a health unit, 3.6% ( $n = 2$ ) were in a public hospital, 1.8% ( $n = 1$ ) were in a university clinic and 1.8% ( $n = 1$ ) was in commerce social service. Among those who underwent speech-language therapy consultation, 57.1% ( $n = 2$ ) underwent speech therapy, 39.3% ( $n = 22$ ) reported no need for treatment, 3.1% ( $n = 1$ ) dropped out and 3.1% ( $n = 1$ ) said it was expensive.

Access to the speech-language therapist was predominantly by women (57.1%;  $n = 32$ ), individuals aged 60 years or over (51.8%;  $n = 29$ ), white (78.8%;  $n = 44$ ), with diagnosis of chronic, mental or physical disease (58.9%;  $n = 33$ ) and with health insurance (67.9%;  $n = 38$ ). There were no significant differences in access to speech-language therapy according to sex ( $p = 0.069$ ), between different age groups ( $p = 0.529$ ), color/race ( $p = 0.305$ ), marital status ( $p = 0.788$ ), education ( $p = 0.962$ ), diagnosis of a chronic, physical or mental illness ( $p = 0.457$ ), use of the municipality’s health unit ( $p = 154$ ) and adherence to a health plan ( $p = 0.153$ ), while having a disability ( $p = 0.026$ ) was significantly associated (Table 1).

In the final adjusted model, when controlling for possible confounding factors, the highest prevalence of access to speech-language therapist was associated with females (PR=1.09; 95%CI 1.01-1.18) and to have some disability (PR=1.09; 95%CI 1.03-1.17) (Table 2).

**Table 1.** Description of the sample studied through a household survey in an adult population in the city of Porto Alegre, 2017.

Variables	Speech-language Therapist Access		p-value
	Yes	No	
Sex			0,069
Male	24 (42.9 %)	46 (29.1%)	
Female	32 (57.1%)	112 (70.9%)	
Age			0,529
18 – 39 years	12 (21.4%)	45 (28.5%)	
40 – 59 years	15 (26.8%)	43 (27.2%)	
60 years or more	29 (51.8%)	70 (44.3%)	
Race/Color			0,305
White	44 (78.8%)	113 (71.5%)	
Other	12 (21.2%)	45 (28.5%)	
Marital status			0,788
In relationship	24 (42.9%)	71 (44.9%)	
Single	32 (57.1%)	87 (55.1%)	
Schooling			0,962
Until Elementary School	11 (19.6%)	33 (20.9%)	
Until high school	23 (41.1%)	66 (41.8%)	
Higher Education or more	22 (39.3%)	46 (37.3%)	
Diagnosis of chronic, mental or physical illness			0,457
No	23 (41.1%)	74 (46.8%)	
Yes	33 (58.9%)	84 (53.2%)	
Have a disability			0,026
No	40 (71.4%)	86 (54.4%)	
Yes	16 (28.6%)	72 (45.6%)	
Uses health unit of the municipality			0,154
No	24 (42.9%)	51 (32.3%)	
Yes	32 (57.1%)	107 (66.7%)	
Possession of health insurance			0,153
No	18 (32.1%)	68 (43.0%)	
Yes	38 (67.9%)	90 (57.0%)	

## Discussion

This study showed that 26.2% of the sample pointed to the need for speech-language therapy consultation at some point, primarily due to hearing complaints, followed by speech complaints. Of these individuals, 69.4% were able to attend privately and 19.6% through health insurance.

Access to health services is complex and, in addition to supply, is related to the ability to produce services, according to the user's perceived health needs, mediated by individual factors. Thus, factors such as health complaints originate demands and, consequently, become the use of services<sup>4,10</sup>.

Socioeconomic inequalities in access and use of health services are related to individual characteristics, which affect the need and the search for care by the individual. In addition, contextual variables are associated, mainly related to the characteristics and the type of organization of the health system, which often ends up reproducing social inequalities in the access to health services<sup>21</sup>. Better socioeconomic status is associated with easier health care than a worse condition. Social inequality in access to health tends to be higher in countries with private health care than in countries with universal health care<sup>22</sup>. Brazil has a health system organized in the form of a complex network of complementary and com-

**Table 2.** Crude and adjusted prevalence ratios (PR) in relation to access to speech therapy care. Porto Alegre, 2017.

Variáveis	PRcrude (CI95%)	p-value	PR adjusted (CI95%)	p-value
Sex				
Male	1	-	1	-
Female	1.07 (0.99-1.16)	0.007	1.09 (1.01-1.18)	0.025
Age				
18 – 39 years	1	-	-	-
40 – 59 years	0.95 (0.88-1.03)	0.243	-	-
60 years or more	0.97 (0.89-1.06)	0.542	-	-
Race/Color				
White	1	-	-	-
Other	1.04 (0.97-1.12)	0.278	1.03 (0.96-1.10)	0.396
Marital Status				
In relationship	1	-	-	-
Single	0.99 (0.93-1.06)	0.787	-	-
Schooling				
Until Elementary School	1	-	-	-
Until high school	0.99 (0.90-1.08)	0.792	-	-
Higher Education or more	0.99 (0.91-1.09)	0.916	-	-
Diagnosis of chronic, mental or physical illness				
No	1	-	-	-
Yes	1.03 (0.96-1.10)	0.453	-	-
Have a disability				
No	1	-	1	-
Yes	1.08 (1.01-1.54)	0.020	1.09 (1.03-1.17)	0.006
Uses health unit of the municipality				
No	1	-	1	-
Yes	0.95 (0.88-1.02)	0.169	0.96 (0.89-1.04)	0.324
Possession of health insurance				
No	1	-	1	-
Yes	1.05 (0.98-1.12)	0.141	1.04 (0.97-1.12)	0.284

95%CI: 95% Confidence Interval; RP: Prevalence Ratio. \*Adjustment for sex, race /color, disability, use the municipal health unit, possession of health insurance.

petitive services, forming a mixed public-private system<sup>23</sup> and this study shows that access to a speech-language therapist takes place mostly privately or through health insurance.

Access to an appointment with a specific specialist in different countries has been mainly by richer individuals<sup>11,12,24</sup>. In addition, it is known that limited access to the speech-language therapist is a challenge to be overcome<sup>17,25,26</sup>, which may contribute to the effort to access this professional. In Brazil, it has only been 36 years since speech-language therapy has been regulated as a profession<sup>27</sup>, which may imply a reduced number of professionals, as well as the population's little knowledge about its performance, not recognizing

that some health problems can be rehabilitated by such a professional.

Data from the World Health Organization (WHO) indicate that 1.1 billion people worldwide can develop hearing loss<sup>28</sup>. In addition, WHO emphasizes that decisive actions to prevent and optimize rehabilitation services for the hearing-impaired should be prioritized in all settings of attention levels<sup>29</sup>. It is corroborated by the increase of the aging, hearing-impaired population<sup>30</sup>, which is associated with the decline of hearing function<sup>31</sup>. Thus, the findings of this study show that, currently, there is a greater demand for speech-language therapy services in the audiological area.

Deficiency is conceptualized as loss or abnormality of anatomical structure, temporary or permanent physiological or psychological function. The consequences include communication, directly or indirectly, are language (speech/writing) and hearing (listening) changes, as well as musculoskeletal and organic (physical) changes, which, depending on the affected area, may interfere with orofacial motricity and/or swallowing, as well as intellectual disability<sup>32</sup>. Thus, speech-language therapy care is essential to this population, as evidenced in this study, with a higher prevalence of access to speech-language therapy by the disabled.

People with disabilities have a higher prevalence of chronic diseases, a higher risk of developing secondary diseases due to disability, and a greater need for unresolved treatment<sup>33-35</sup>. They also report difficulty in using health services due to access and communication barriers<sup>36,37</sup>. In the present study, however, an association was found between a greater use of services and disability. One possible explanation may be related to the higher burden of disease and severity of cases combined with the need for treatment perceived by people with disabilities, which influence the demand for services.

Regular use of health services is often higher among women than men in all age groups<sup>38</sup>.

Generally speaking, health problems affect both men and women alike; however, there is a greater tendency for women to seek services<sup>39</sup>, which may justify the higher prevalence of access to speech-language therapists found in this study.

This study has some limitations, including the large number of refusals that occurred despite: face-to-face interviews, well trained interviewers, flexibility of times with the possibility of scheduling according to the preference of the resident, clear identification of the interviewer, exposure and explanation of the term of consent within the home, which was given primarily due to insecurity and repression of citizens in the face of urban violence. However, this is the only population-based study found in the literature that highlights the need and access to speech therapy care.

It is concluded that access to the speech-language therapist is more frequent in private offices and private offices associated with the health plan, and there is limited access to the speech-language therapist in public health services. Speech-language therapy demand is more frequent for hearing problems, followed by speech disorders. Finally, it is observed that women and individuals with disabilities have a higher prevalence of speech-language therapy use.

## Collaborations

RS Rech contributed in the conception of the project, data collection, analysis and interpretation, writing, critic review of the intellectual content and approval of the final version. PT Bulgarelli contributed in the conception of the project, data collection, writing, critic review of the intellectual content and approval of the final version. AM Condessa and CM Santos contributed in the writing, critic review of the intellectual content and approval of the final version. JB Hilgert contributed in the conception of the project, data analysis and interpretation, writing, critic review of the intellectual content and approval of the final version. BNG Goulart contributed in the conception of the project, data analysis and interpretation, writing, critic review of the intellectual content and approval of the final version.

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