



User access to speech-language pathology care in a Primary Health Unit in Campinas

O acesso de usuários à fonoaudiologia em uma Unidade Básica de Saúde de Campinas

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ABSTRACT

To identify the profile of users of a Basic Health Unit, the aspects of the technical dimension of access to speech-language pathology care, and to highlight significant factors for the time until care is provided. An observational, descriptive-analytical, longitudinal study and survival analysis based on the examination of 242 recorded services from 2012 to 2020. Among the cases, 77.7% were children up to 10 years old, 64.9% were boys, and 69.8% had complaints in the language area and were referred by a pediatrician (47.5%). Days elapsed until reception, referral source, age group, and complaint are significant for the time until service is provided. The results indicate the need to reinforce services for complaints of orofacial motor function alteration, language delay, phonological deviation, school difficulty/reading and writing, and stuttering. The presence of interns and a resident in speech-language pathology contributed to user access, enabling greater identification of demands.

Keywords: Access to Health Care. Epidemiology. Speech-language Pathology. Primary Care. Public Health.

RESUMO

Identificar o perfil dos usuários de uma Unidade Básica de Saúde, aspectos da dimensão técnica do acesso à Fonoaudiologia e apontar fatores significantes para o tempo até o atendimento. Estudo descritivo-analítico observacional, longitudinal e análise de sobrevivência, a partir da análise de 242 atendimentos registrados de 2012 a 2020. Dentre os casos, 77,7% eram de crianças de até 10 anos; 64,9% meninos; 69,8% com queixas na área da linguagem e encaminhados pelo pediatra (47,5%). Dias transcorridos até o acolhimento, origem do encaminhamento, faixa etária e queixa são significantes para o tempo até o atendimento. Os resultados apontaram a necessidade de reforçar o atendimento para as queixas de alteração de motricidade orofacial, atraso de linguagem, desvio fonológico, dificuldade escolar/leitura e escrita e gagueira. A presença de estagiários e residente de Fonoaudiologia contribuiu com o acesso dos usuários, possibilitando maior identificação das demandas.

Descritores: Acesso aos Serviços de Saúde. Epidemiologia. Fonoaudiologia. Atenção Básica. Saúde Coletiva.

INTRODUCTION

Speech-language pathology has increasingly shown itself to be a necessary profession for expanding the scope of Primary Health Care (PHC) and comprehensive care. Professionals, who once were confined to rehabilitative actions in outpatient clinics and hospitals, now find themselves occupying territories assigned to the Family Health Strategy (ESF) or Primary Health Care teams, developing actions not only in clinical care but also in health promotion, prevention, surveillance, and harm reduction¹.

It was through the Family Health Support Centers (NASF)², called since 2017 by the National Primary Care Policy as Expanded Family Health and Primary Care Centers (NASEFAB)^{3,4}, that the role of speech-language pathology in Primary Health Care gained legitimacy by being configured as one profession that could compose these teams. The work would be matrix support for the reference teams of the ESF, configuring as a specialized backup in two dimensions: technical-pedagogical and clinical-assistential^{4,5}.

In terms of health system design, the health systems of Chile, Spain, and Italy resemble that of Brazil, being divided into primary, secondary, and tertiary levels of care. In these countries, there is also a pursuit of an integrated model with a focus on family and community care, with primary and community care being the main component of coordination with other network services. Thus, the importance of primary health care as the entry point into the system and the distribution of care flows to other levels of care is also observed in the international scenario^{6,7}.

In Chile, for example, there is a need for speech-language pathology to enter primary care spaces, with speech-language pathologists more frequently allocated to specialized/secondary care services, emergency services, hospitals, and schools, many of which are private. Saavedra and Lizana⁶ also discuss the relevance

of training directed towards primary care work for community care, health promotion, and prevention of health conditions as a way to favor the presence of speech-language pathologists in Primary Health Care and access.

In Brazil, on the other hand, the speech-language pathologist of the NASF is tasked to act both in the field of health in an interdisciplinary and even transdisciplinary manner, and within their specific area of expertise. This professional may carry out actions common to all NASF professionals and, in their practice, should promote conditions that favor human communication through specific actions of assessment, rehabilitation, and prevention, as well as health promotion¹.

In the undergraduate speech-language pathology course, students must have in their curriculum content from the field of collective health, especially Primary Health Care (PHC), encompassing the acquisition of theoretical and practical knowledge about the role of speechlanguage pathology in PHC through work in the NASF-AB, including Basic Health Units (UBS) as practice settings for students^{8,9,10,11}.

Despite the advances of the last decades, there are still numerous challenges for the insertion of this professional category in PHC, whether through NASF or otherwise, which configures as an access barrier to this professional in PHC. This is because NASF has not reached the coverage expected¹², or because there is not always this professional included in the NASF teams¹³. In general, the insertion of speech-language pathology in PHC is limited and occurs irregularly across the national territory, with a predominance of speechlanguage pathologists in the southeast region of Brazil¹⁴.

Among the possible definitions of access, Assis and Jesus¹⁵ conceptualize it from four theoretical explanatory dimensions: political, economic, technical, and symbolic. The political dimension refers to the development of health awareness and the organization of the

population, which includes social participation, decision-making, and monitoring processes, among others. The economic dimension relates to supply and demand and deals with investments in the public network and social, economic, cultural, and physical barriers⁹. The technical dimension refers to the individual's entry into the health network itself, reception of the user, service hours, comprehensiveness of the attention to the individual, commitment, and bond. Lastly, the symbolic dimension refers to the social representation of health care, in addition to its specifics, such as availability, accessibility, financial capability, functional adequacy, and acceptability.

Access to speech-language pathology professionals at the primary level of care has become even more difficult from 2019 with the creation of the *Previne Brasil* Program and in 2020 with the COVID-19 pandemic. These factors significantly determine the interruption of the expansion of NASF and a strong setback in national coverage⁴, leading to a decrease in speech-language pathologists linked to NASF or the operation of these professionals in PHC as municipal administrations deem most appropriate.

Given the above, the aim was to analyze the profile of users and expose aspects of the technical dimension of access to speech-language pathology in the context of PHC in a Primary Health Unit (UBS) in Campinas. A second objective was to identify significant factors that imply a longer waiting time for service.

MATERIALS AND METHOD

This is a quantitative, descriptive-analytical, observational, and longitudinal study. Data were collected at a Primary Health Unit in the North District of Campinas, which operates with four Family Health Teams and has, since 2009, included the speech-language pathology

undergraduate internship from the State University of Campinas, and in 2020, the Multiprofessional Health Residency Programs in Health – concentration area in Children and Adolescents, from the same university. Until the year of the study, there was no speechlanguage pathology service at the UBS, but only practices developed by third-year undergraduate students in speech-language pathology (from 2009 to 2020) and by a speechlanguage pathologist Resident from the Multi-professional Health Residency Program (in 2020). The trainees performed actions including health promotion and prevention in schools, Non-Governmental Organizations (NGOs), and the UBS itself; reception; evaluation; individual or group speech-language therapy; and home visits; among others.

This study focuses on a database that was constructed for organizing the service provided by the speech-language pathology internship and that subsequently served the Residency Program as well, as a way to organize the service offered. The information in this database pertains exclusively to clinical-assistential speech-language pathology practice, involving “reception,” “evaluation,” and “speech-language therapy.” From this source, a cut was made according to the date of referral to speech-language pathology care from January 2012 to December 2020, totaling a non-probabilistic sample of 242 cases involving all age groups.

This is an observational study composed of two instances: the first instance presents a univariate descriptive analysis formed by both absolute (*f*) and percentage (%) frequency tables aimed at describing the behavior of the database variables. These variables are described in Tables 1 and 2, which explore them in relation to the profile of the UBS users and access to speech-language pathology care. Figure 1 shows a comparative graph between the number of referrals and the number of receptions at the UBS.

A second instance of the study presents various survival analyzes. Figure 2 reports the survival analysis of the number of days between referral and speech-language pathology care at the UBS without considering the different levels that the variables (such as gender and age group) may present. The survival analyzes that consider the levels of the variables are summarized in Table 3 and are detailed graphically in Figures 3, 4, 5, and 6.

Table 1 presents a summary that portrays the behavior of the variables, aiming to extract the profile of the users and the UBS of service (as well as their levels), which are:

(a) Gender (two levels): Male and Female;
(b) Age, in complete years, of the patient at the date of referral (five levels): Up to 2 years, 2 to 5 years, 5 to 10 years, 10 to 15 years, and over 15 years;
(c) Speech-language pathology complaint (seven levels): Orofacial motor function alterations, Voice changes, Language delay, Phonological deviation, School difficulty/reading and writing, Stuttering, Others. The Others category encompasses the following complaints: Suspected hearing loss, Cerumen, Behavioral changes, Deleterious habits, Suspected hearing loss associated with speech swaps (in children over 5 years old), Intellectual Disability, DNPM Delay, Autism, Aphasia, Food Sensitivity, Central Auditory Processing Disorder (CAPD), Dysphagia, Dysgraphia + Speech Apraxia, Apraxia or Dysarthria, Deafness, Tinnitus, Not recorded;
(d) Family Health Team (four levels): Yellow, Blue, Orange, and Green.

The following list of variables is summarized in Table 2 and is related to access to speech-language pathology care:

(a) Referral source (five levels): Schools, NGOs, UBS, Unicamp, Others;
(b) Professionals who referred (five levels): Educators, Speech-language pathologists, Pediatricians, Psychologists, Others;

(c) Status of patients referred for reception in speech-language pathology care (five levels): Speech-language pathology care in the UBS, Withdrawals, Referral to another service, Pending reception, Not recorded;

(d) Outcomes of patients referred for Speech-Language Pathology Care in the UBS (eight levels): Withdrawal, Withdrawal due to unsuccessful contact, Withdrawal due to absences, Withdrawal because moved region, Withdrawal due to schedule incompatibility, In speech-language pathology care at the UBS, Referred to another Service, Pending for Care;

(e) Reason for withdrawal of patients referred for reception in speech-language pathology care (six levels): Withdrawal due to unsuccessful contact, Withdrawal due to schedule incompatibility, Withdrawal because moved region, Withdrawal because did not attend the reception, Withdrawal because no longer has a complaint, Being followed up in another service;

(f) Reason for referrals of patients to another service and/or professional after reception in speech-language pathology care (ten levels): Referral to Associação dos Cirurgiões Dentistas Campinas (ACDC)/MANDIC/Frenectomy, Referral to Associação dos Pais e Amigos do Excepcional (APAE), Referral to Associação de Pais e Amigos de Surdos de Campinas (APASCAMP), Referral to Casa da Criança Paralítica, Referral to Centro de Estudos e Pesquisas em Reabilitação (CEPRE), Referral to Centro de Referência em Saúde do Trabalhador (CEREST), Referral for psychology at the UBS, Referral to Saber Interdisciplinar em Aprendizagem (SABIÁ), Referral to Polyclinic, Others.

In a second instance, after the analysis of Tables 1 and 2, the aim was to investigate whether the different levels of the variables (those summarized in Table 1, Referral source, Professionals who referred from Table 2, and Waiting time in days between referral and reception) lead to a significant change (at a 5% significance level) in the waiting time until service. This means the study's questions were: Does the waiting time until service differ when observed for male and female genders separately? For example, does the waiting time until service differ when considering different age group levels or speech-language pathology complaints? If there is a difference, such a finding could point to the need to strengthen service in certain sectors of the UBS or for a specific patient profile.

The database has a specific characteristic, as there are records (patients) who exit the study before it is possible to offer service or who remain awaiting service until the end of the study. Removing these cases (known as "censored cases" in statistics) from the database is not prudent because it would decrease the sample size (242), compromising the viability of the analysis. Censoring is defined as those cases in which there was a withdrawal of the user (voluntary or not) or the analysis period ended without having been able to provide service (postreception conduct equal to "not recorded" or "pending for reception"). Thus, the profile of the database naturally fitted this study into survival analysis, enabling a probabilistic interpretation of the time until speech-language pathology care for a given patient without removing censored data.

To attest to any significant difference between the waiting time for speech-language pathology care for the different variable levels, the log-rank statistical test was employed, which is calculated based on survival curves, and the rejection of the null hypothesis implies that at some point in time, one curve significantly differs from the others¹⁶.

In this study's context, speech-language pathology care was defined as the event of interest, which may include: 1) evaluation followed by referral to a more appropriate service; 2) speech therapy evaluation, with possible outcomes of discharge or withdrawal for other reasons. To graphically compare the probability of receiving speech-language pathology care regarding the patient's associated characteristics, non-parametric Kaplan-Meier estimators were used to construct survival curves¹⁷.

For a numerical comparison of the Kaplan-Meier curves, the log-rank test was used, as previously mentioned, at a significance level of 5%.

This study was approved by the Research Ethics Committee of the State University of Campinas under the number CAAE 39149320.3.0000.5404 and opinion number 4.513.035/2019, respecting the guidelines and criteria established by the Helsinki Declaration and Resolution 466/12 of the National Health Council (CNS).

RESULTS

Aiming to describe and analyze the user profile, it was identified that between 2012 and 2020, 223 individuals were referred for speech-language pathology care, predominantly people under 15 years old (192 - 86.1%). Considering cases that were re-entered as new cases because they were re-referred, the total rises to 242, and from this total, 209 records correspond to patients aged 15 years or younger, representing 86.4%.

Table 1 highlights the profile of users with speech-language pathology demands at the UBS in terms of gender, age group, speech-language pathology complaint, and the Family Health Team to which they were registered. Regarding gender, there is a predominance of males (148 - 64.9%); regarding age group, the 2 to 5 years category

prevails (84 - 34.7%); as for speech-language pathology complaints, the highest number of cases is reported at the level of phonological deviation (88 - 36.4%). Finally, concerning the Health Team registration, the Yellow team predominates (65 - 26.9%).

As for the division into teams, the studied UBS has always operated with four Family Health Teams, and the Red team was absorbed by another UBS, no longer being part of the assigned area of the unit under analysis, and the Yellow team split into two – Yellow and Orange.

Table 1. Profile of users with speech-language pathology demands at the UBS, from 2012 to 2020

Variable	N	N (%)
(a) Gender	242	
Female		87(36,0%)
Male		155 (64,0%)
(b) Age Group	242	
Up to 2 years		30 (12,4%)
2 to 5 years		84 (34,7%)
5 to 10 years		74 (30,6%)
10 to 15 years		21 (8,7%)
Over 15 years		33 (13,6%)
(c) Speech-language pathology complaint	242	
Phonological deviation		88 (36,4%)
Others		43 (17,8%)
Language delay		29 (12,0%)
School difficulty/reading and writing		26 (10,7%)
Stuttering		26 (10,7%)
Orofacial motor function alterations		15 (6,2%)
Voice changes		15 (6,2%)
(d) Family Health Team	242	
Yellow		65 (26,9%)
Blue		59 (24,4%)
Orange		31 (12,8%)
Green		84 (34,7%)
Red		3 (1,2%)

Table 2 highlights the distribution of users according to: (a) referral source (b) professionals who referred (c) the status of the demand of patients referred for reception in speech-language pathology care (d) outcomes of patients referred for speech-language pathology care at the UBS (e) reason for withdrawal of patients referred for reception in speechlanguage pathology care, and (f) reason for the referrals of patients to another service and/or professional after reception in speech-language pathology care, which are aspects related to these users' access.

The predominant referral source is the UBS itself (163; 67.4%); regarding the professionals who made the referrals, the largest number of records corresponds to pediatricians

(115; 47.5%). Concerning the situation of the patients referred for reception in speechlanguage pathology care, speech-language pathology services at the UBS lead (91; 37.6%). For the variable Outcomes of patients referred for speech-language pathology care at the UBS, the predominant level is Discharge (25; 27.5%); regarding the reason for withdrawal of patients referred for reception in speech-language pathology care, the level that predominates is Withdrawal due to unsuccessful contact (19; 33.7%). For the variable Reasons for referrals of patients to another service and/or professional after reception in speech-language pathology care, the majority level is referral to CEPRE (14; 28.0%).

Table 2. Univariate descriptive analysis of users with speech-language pathology demands, from 2012 to 2020

(Continued)

Variable	N	N (%)
(a) Referral source	242	
UBS		163 (67.4%)
Schools		45 (18.6%)
NGOs		13 (5.4%)
Others		11 (4.5%)
Unicamp		10 (4.1%)
(b) Professionals who referred	242	
Pediatricians		115 (47.5%)
Speech-language pathologists		47 (19.4%)
Others		32 (13.2%)
Psychologists		27 (11.2%)
Educators		21 (8.7%)
(c) Status of patients referred for reception in speech-language pathology	242	
Speech-language pathology care at the UBS		91 (37.6%)
Withdrawals		86 (35.5%)
Referral to another service		50 (20.7%)
Pending reception		13 (5.4%)
Not recorded		2 (0.8%)

			(Conclusion)
Variable	N	N (%)	
(d) Outcomes of patients referred for Speech-Language Pathology Care at the UBS			
	91		
Discharge		25 (27.5%)	
Withdrawal due to absences		21 (23.1%)	
In care		14 (15.4%)	
Pending for care		13 (14.3%)	
Referred to another service		9 (9.9%)	
Withdrawal because moved region		4 (4.4%)	
Withdrawal due to schedule incompatibility		3 (3.3%)	
Withdrawal due to unsuccessful contact		2 (2.2%)	
(e) Reason for withdrawal of patients referred for reception in speech-language pathology			
	86		
Withdrawal due to unsuccessful contact		29 (33.7%)	
Withdrawal because did not attend the reception		21 (24.4%)	
Withdrawal because no longer has a complaint		16 (18.6%)	
Withdrawal because moved region		14 (16.3%)	
Being followed up in another service		5 (5.8%)	
Withdrawal due to schedule incompatibility		1 (1.2%)	
(f) Reason for the referrals of patients to another service and/or professional after reception in speech-language pathology			
	50		
Referral to CEPRE		14 (28.0%)	
Referral to APASCAMP		12 (24.0%)	
Referral to Polyclinic		8 (16.0%)	
Others		6 (12.0%)	
Referral to APAE		3 (6.0%)	
Referral for psychology at the UBS		2 (4.0%)	
Referral to SABIÁ		2 (4.0%)	
Referral to ACDC / MANDIC / Frenectomia		1 (2.0%)	
Referral to Casa da Criança Parálitica		1 (2.0%)	
Referral to CEREST		1 (2.0%)	

Legend: UBS – Primary Health Unit; NGO - Non-governmental organization; Unicamp - Universidade Estadual de Campinas; CEPRE - Centro de Estudos e Pesquisas em Reabilitação; APASCAMP - Associação de Pais e Amigos de Surdos de Campinas; APAE - Associação de Pais e Amigos dos Excepcionais, SABIÁ – Saber Interdisciplinar em Aprendizagem; CEREST - Centro de Referência em Saúde do Trabalhador, ACDC - Associação dos Cirurgiões Dentistas Campinas; MANDIC - Faculdade São Leopoldo Mandic

In Figure 1, it is observed that the trend of increasing referrals and receptions was interrupted in 2018, and a decline was established in 2020.

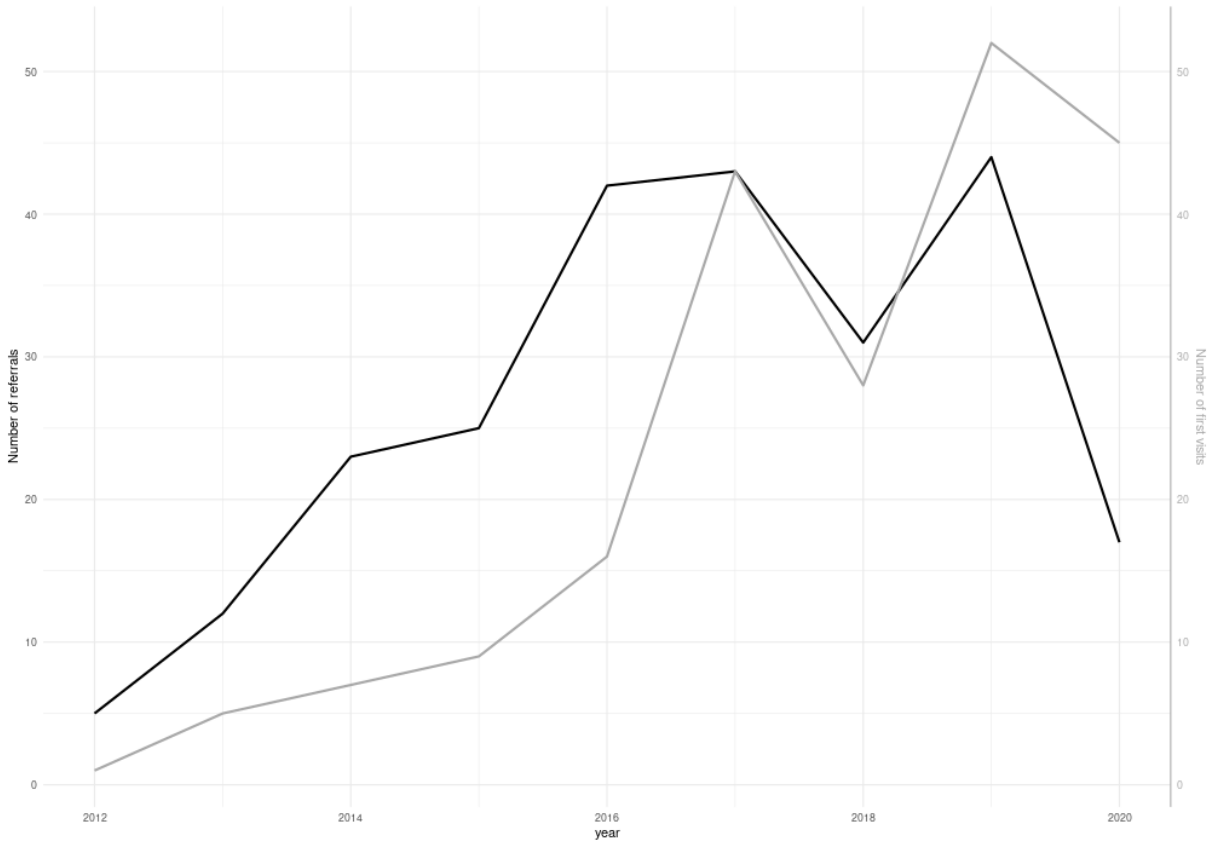


Figure 1. Comparative evolution of the number of referrals and receptions to speech-language pathology at the UBS

Based on the times available in the database, which record the waiting time (in days) between referral and care, the curve reported in Figure 2 was calculated, which is the survival function given by the Kaplan-Meier estimator. This curve estimates the probability of a patient not being served, that is, at each point in time on the horizontal axis, the probability of a patient having to wait beyond that time to be served is estimated.

The interpretation of Figure 2, in this case, is that as more time passes (moving from left to right along the horizontal axis), the chance of a patient not being served after referral becomes increasingly smaller a fact that is natural; however, the aim was to identify, with the help of such an estimator, how this reduction occurs. It should be noted that, in the case of Figure 2, the estimator was adjusted using the entirety of the database records and not discriminating by variable: age, gender, complaint, professional, origin, etc.

Based on Figure 2, with the help of dashed lines, it is possible to observe that the survival function decreases in an approximately linear manner in the first 600 days, although in the first 30 days, it undergoes a marked reduction, representing those cases in which speech-language pathology care occurs in the first days after referral.

The dashed lines help in determining the median time until the user is served, that is, without considering any information from the patients. Half of the users are served within approximately 1,500 days, that is, just over 4 years. This long waiting time is because there is no speech-language pathology service at the UBS, but only undergraduate and residency students, who allocate few days and hours for speech-language pathology care, which is not sufficient to meet the demand.

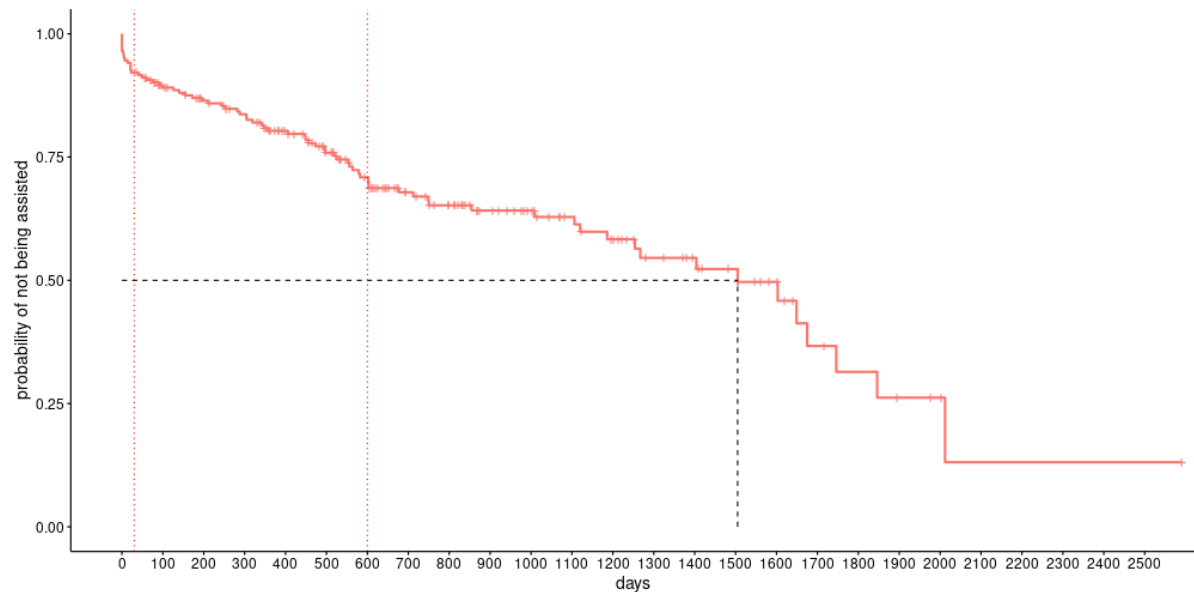


Figure 2. Kaplan-Meier estimator for the variable “number of days between referral and speech-language pathology care at the UBS”

In Table 3, the results of various survival analyzes are summarized. For each one (identified in each table row), the result of the log-rank hypothesis test is reported, indicating whether the survival curves are different, with the cut-off level set at a significance level of 0.05 (5%). Thus, given the different levels of a variable, it was determined whether there is a significant difference or not between the survival curves constructed for each level of the variable. Here, “level of a variable” refers to the possible values it assumes, not to the significance level used in hypothesis tests for difference between groups; for example, male and female are “levels” of the gender variable.

A p-value less than 0.05 indicates there is statistically significant evidence at the 5% level to reject the assumption of equality in the behavior of the survival curves among the reported variable levels. For instance, the survival curves constructed for the time between referral and care for male patients (one curve) and female patients (another curve) do not show significant differences, as the resulting p-value is greater than

0.05. Conversely, the four curves constructed for the time between referral and care, one for each level of the variable “Days elapsed between referral and reception,” show significant differences (see Figure 3) because the p-value is less than 0.05. From these results, it is observed there is little statistical evidence (at the 5% significance level) for a difference in waiting time for speech-language pathology care for variables such as gender, team, and professional who referred. In other words, variables like gender, team, etc. do not represent factors that alter the probabilities of care/no care for the patients.

As for the factors that prove significant, there is statistical evidence (at the 5% significance level) for a difference in waiting time for speech-language pathology care for variables like days elapsed until reception, patient’s age group, referral source, and patient’s complaint.

Table 3. Summary of comparisons of referral time until the start of speech-language pathology care for each categorical variable of interest

Variable	Levels	p-value from Log-Rank Test
Gender	Male	0.2371
	Female	
Referral Source	UBS*	0.0047
	Schools	
	NGOs**	
	Unicamp	
Days elapsed between referral and reception	Others	< 0.0001
	0 to 90 days	
	90 to 180 days	
	180 to 360 days	
Professional responsible for referral	Over 360 days	0.1974
	Pediatricians	
	Speech-language pathologists	
	Others	
Team	Psychologists	0.7355
	Educators	
	Yellow	
	Blue	
	Green	
Age Group	Orange	< 0.0001
	Up to 2 years	
	2 to 5 years	
	5 to 10 years	
Complaint	10 to 15 years	< 0.0001
	Over 15 years	
	Orofacial motor function alterations	
	Language delay	
	School difficulty/reading and writing	
	Voice changes	
Complaint	Phonological deviation	< 0.0001
	Stuttering	
	Others	

Legend: *UBS - Primary Health Unit **NGO - Non-Governmental Organization

Figures 3, 4, 5, and 6 are designed to achieve a better understanding of the significant cases at the 0.05 level reported in Table 3, corresponding to the variables: Days elapsed between referral and reception, Patient's age group, Referral source, and Complaints. The four figures show the survival curves in the upper panel (one curve for each level of the variable) and the number of patients at risk of not being attended to in the lower panel.

Figure 3 (upper panel) displays the graphs corresponding to the variable “Days elapsed between referral and reception,” including four curves. The highest curve (in terms of the vertical axis), which corresponds to the variable level “over 360 days,” shows the highest probabilities of a patient not being attended, while the lowest curve, corresponding to the variable level “0 to 90 days,” reports the lowest probabilities of a patient not being attended.

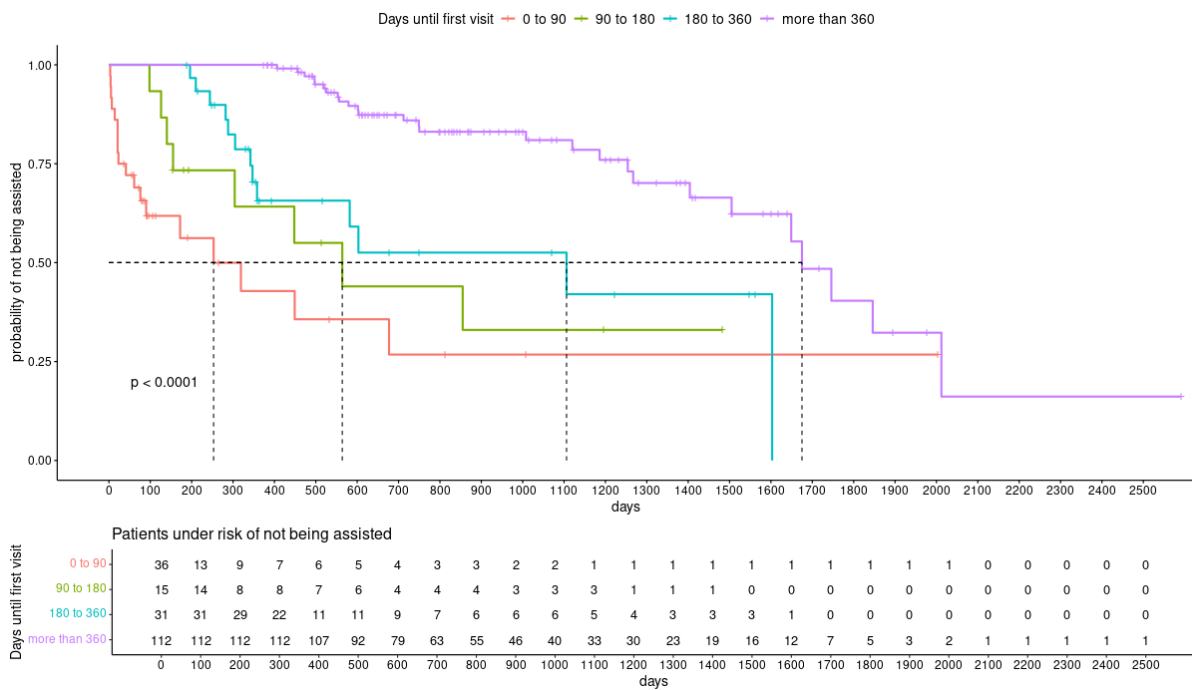


Figure 3. Kaplan-Meier Estimator for the Variable “Days Elapsed from Referral to Reception”

Figure 4 (upper panel) shows the survival curves of the variable “Age Group,” comprising levels “up to 2 years,” “2 to 5 years,” “5 to 10 years,” “10 to 15 years,” and “over 15 years.” The

curve extracted from patients older than 15 years is the lowest, indicating that these patients are attended more promptly compared to the other age groups.

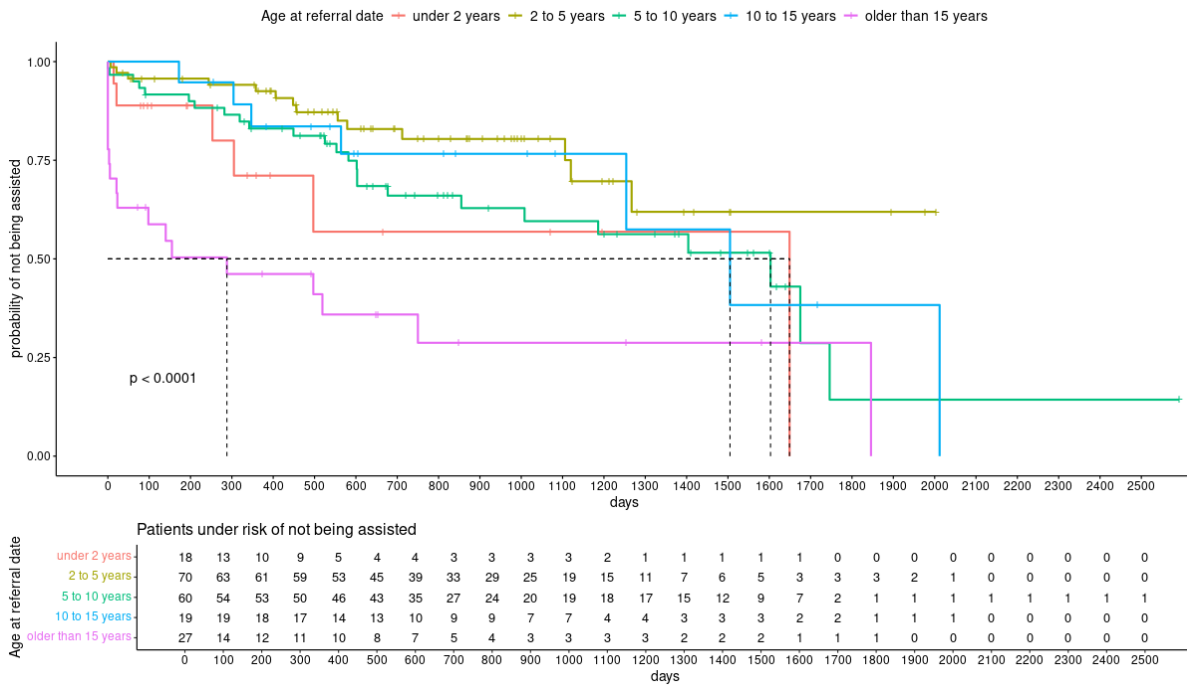


Figure 4. Kaplan-Meier Estimator for the Variable "Patient Age Group"

Figure 5 (upper panel) exhibits the survival curves of the variable "Complaint" (seven levels) and indicates that the least elevated curve corresponds to the variable level "Vocal changes," meaning patients with this specific complaint have a lower chance of not being attended compared

to patients presenting other complaints. On the contrary, excluding the level "Others," the other complaints show a similar behavior with high chances of the patient not being attended compared to the complaint "Vocal changes."

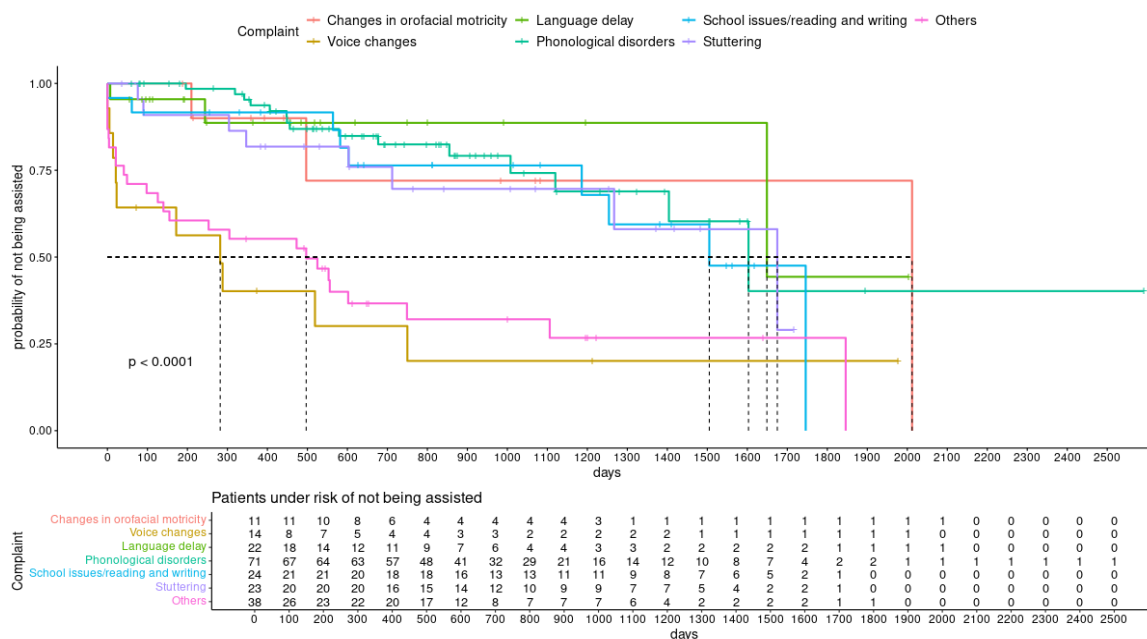


Figure 5. Kaplan-Meier Estimator for the Variable "Complaint Category"

Figure 6 (upper panel) displays the survival curves of the variable “Referral source,” comprising levels “Schools,” “NGOs,” “Others,” “UBS,” and “Unicamp.” The curve derived from

patients from NGOs is the lowest, showing that these patients are attended to more promptly compared to other levels of referral source.

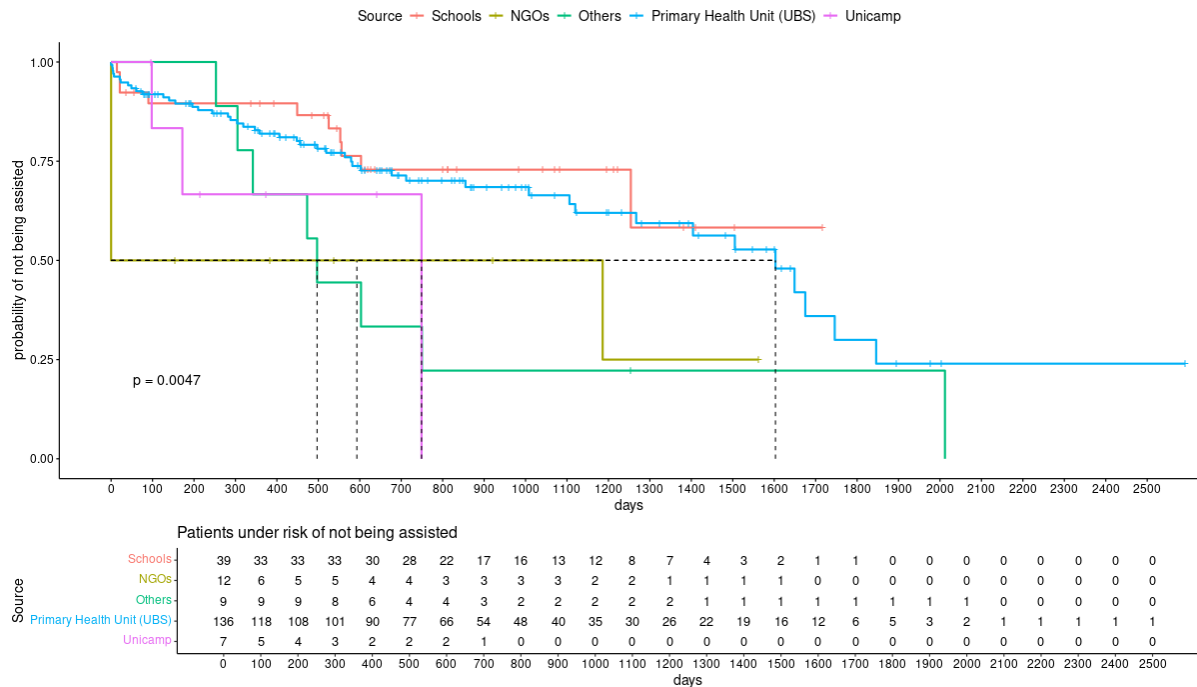


Figure 6. Kaplan-Meier Estimator for the Variable “Referral Source”

Regarding the days elapsed between referral and reception, it was assumed that there is a strong association between reception and service. In other words, the quicker a referral is made, the quicker the service is provided. As for the patient’s age variable, younger children are given priority in service.

Concerning complaints, the statistical analysis (see Figure 5) revealed that cases with vocal complaints are attended to more quickly, whereas those involving alterations in orofacial motor function, language delays, phonological deviations, school difficulties/reading and writing, and stuttering do not differ among themselves in terms of the time from referral to service.

Finally, as for the referral source, the statistical analysis (see Figure 6) showed that cases coming from NGOs and Unicamp are attended to more quickly, while those from UBS, schools, and other origins do not differ among themselves regarding the time from referral to service.

DISCUSSION

Out of the 242 cases with speech-language pathology complaints attended from 2012 to 2020, the majority were children aged 0 to 10 years, male, with a predominance of complaints in the language area, and referrals mainly made by pediatricians. The presence of interns and residents in the field of speech-language pathology contributed to user access to these services, given that during the studied period, there was no professional from the city’s health department linked to the UBS, nor was there a NASF. The involvement of speech-language pathology students in the UBS led to greater identification of demands, but in many cases, it was not possible to provide quick responses to them due to being students in training with limited service hours, thus configuring a barrier to access^{10, 18}.

Considering the profile of cases attended at the studied unit, a predominance of males (155; 64.0%) was observed. This data aligns with similar studies conducted by Tavoni et al.¹⁹ in another UBS in the same city (Campinas/SP) and by Peixoto et al.²⁰ in a UBS in Maceió/AL. The age group with the highest prevalence of speech-language pathology demands was 0 to 10 years (188; 77.7%), as also noted in the study by Medeiros and Lima²¹.

Language-related complaints were most frequently observed (169; 69.8%), including in this study those related to phonological deviations (88; 36.4%), language delays (29; 12.0%), school difficulties/reading and writing (26; 10.7%), and stuttering (26; 10.7%), findings that are consistent once again with the studies by Tavoni et al.¹⁹, Medeiros e Lima²¹ e Peixoto et al.²⁰

Santos, Aleixo e Santos²² in another similar study sought to outline the profile of speechlanguage pathology services in the area of language at the NASF in São Tomé/RN municipality. They also found a majority of cases to be male, in the age group of 0 to 5 years, with phonological disorder/deviation, and a service duration of less than 3 years.

For age groups under 15 years, the complaint of phonological deviation is the most reported, aligning with the previously mentioned studies^{19, 20, 21}.

It is common for health professionals to associate speech-language pathology work with language alterations and, more specifically, with speech, as well as with the pediatric population, although speech-language pathology acts from infancy through senescence. These factors might explain why most referrals were from children, mainly by pediatricians (115; 47.5%), for language-related issues, again resembling the findings from the studies by Tavoni et al.¹⁹ e Medeiros e Lima²¹.

In Campinas, for many years, the UBS was organized into Expanded Family Health Teams, composed not only of professionals from the minimum team but also of other

professionals such as pediatricians, gynecologists, psychologists, psychiatrists, and occupational therapists, among others, depending on the unit and the needs of the territory^{10,18}. Until 2021, there were only three NASFs in the city, and only one of them had a speech-language pathologist, none of which was linked to the UBS of this study. From 2022, the management reorganized Primary Health Care in the municipality, adopting the concepts of ESF and NASF more vigorously. Thus, any professional who worked in Primary Health Care and who did not belong to the minimum team was incorporated into the NASF. In 2023, the Ministry of Health established the E-Multi: they are teams of health professionals from various areas, who work in a complementary and integrated manner with other teams of Primary Health Care²³, which led Campinas to a new restructuring, transforming the then NASF into E-multi. Therefore, the pediatrician was a quite frequent specialty in the UBS, which may justify the high number of referrals from this professional category to speech-language pathology.

Guckert et al.²⁴ highlighted that 41.2% of NASF professionals from a capital city in the southern region of the country make referrals to speech-language pathologists with complaints of speech and language for children²⁵, and also, the main demands reported by professionals refer to demands for childhood.

While this perception among healthcare professionals facilitates and speeds up children's access to speech-language pathology, it may also result in adults and seniors who could benefit from care across the various areas of this profession either not accessing these services or accessing them late.

According to the database and analyzing only the age group of 60 years or more, which corresponds to 15 of the cases collected (15; 6.2%), as expected in this group, most of the complaints are related to deafness and suspected hearing loss (7; 46.7%), followed by "voice changes" (5; 33.3%) and the remaining (3; 20%)

referring to aphasia, dysphagia, and tinnitus. The results of the study do not explain why voice complaints common in people over 60 years of age occur, highlighting the interest in further studies to explore and answer this question.

Dimer et al.²⁶ in a population-based study conducted in Rio Grande do Sul found that from the age of 60, there is an increase in the prevalence of speech-language pathology disorders, with hearing and balance problems being the most common among this audience. Rech et al.²⁷ found that the common speech-language pathology demands, with a sample composed of adults, in a study carried out in Primary Care in Porto Alegre/RS, are hearing problems (66.1%), followed by speech (12.5%). The study by Anderle et al.²⁸ showed that doctors and nurses of the ESF linked to a NASF in the southern region of Brazil had difficulty identifying signs and symptoms related to cognitive speech-language disorders and the stomatognathic system for referring post-stroke patients, prevalent in the older people.

Continuing education actions for ESF and NASF professionals on the vast range of speech-language pathology's fields of action can lead to better identification of the health needs of adult and older users who, like children, have the right to access this professional^{29,30}.

As mentioned, pediatricians were the professionals who made the most referrals, followed by speech-language pathology itself, characterized in this study by the group of undergraduate students and the resident speech-language pathologist who worked in 2020 at the UBS. In this study, users referred by speech-language pathology came from identifications made by students during their practices, which involved prevention actions and health promotion in schools (Centro Educacional de Educação Infantil – CEMEI; and Escola Municipal de Ensino Fundamental - EMEF), NGOs, and at the UBS itself. Besides prevention and health promotion actions, the team provided reception, assessment

services, individual or group speechlanguage therapy, and home visits.

Furthermore, the Multi-professional Health Residency Program in Health Care - focus area in Children and Adolescents, despite having started in 2020, offered greater support to the population and contributed to the recognition, assessment, and referral of speech-language pathology complaints, making this territory a privileged location. Zanin et al.³¹ demonstrated that the presence of the Multi-professional Residency in Family Health significantly contributes to strengthening speech-language pathology in PHC.

Tavoni et al.¹⁹, when analyzing the evolution of the number of referrals and receptions carried out annually for the resident speech-language pathologist at a UBS from 2013 to 2020, recorded a considerable increase in both referrals and receptions. In 2013, there were 7 referrals (4.09%) and 6 receptions (3.51%), but by 2019, there were 29 referrals (16.96%) and 13 receptions (7.60%), with a decline in 2020 due to the COVID-19 pandemic. Thus, the study by Tavoni et al.¹⁹ also highlights the strength of Health Residency Programs as facilitators of access to speech-language pathology actions.

The presence of students and residents means that the speech-language pathology needs of the territory are more readily identified, i.e., those demands, often hidden, are unveiled and triggered by the developed actions³².

Regarding the referral sources, the studied UBS represented 67.4% of the referred cases, characterizing itself as the entry point for speech-language pathology care, as it indeed should be. These results point to the reality of a territory where speech-language pathology is present due to a partnership between the State University of Campinas and the City Hall of Campinas, contributing to more timely access for users compared to other reference services in the city, which receive referrals from all over the city, with long waiting lists³³.

The provision of speech-language pathology services, coupled with the identification of speech-language needs, led to a gradual increase in the number of referrals from 2012 to 2020, with a decline at two points: in 2018, due to changes in the dynamics of internships, and in 2020, due to the COVID-19 pandemic, which resulted in the suspension of undergraduate internships at the UBS, interruption of clinical services, including those of the speech-language pathology resident. Additionally, many professionals, including pediatricians who were the most frequent referrers to speech-language pathology, stepped back from their activities, some because they were at risk for COVID-19 and others due to retirement. The trend of an increase in receptions was maintained, while that of referrals reversed the upward trend, returning to levels comparable to those of 2013.

Dimer et al.³⁴ reported the experience of a team of students, a teacher, and speech-language pathologists in developing an extension project at a UBS during the context of the COVID-19 pandemic. Of the 25 patients who were receiving speech-language pathology services, 17 were considered eligible for teleconsultation and agreed to switch to this service model, adapting to the new proposal³⁴. This experience was not encountered by the students at the studied UBS, due to regulations from the Municipal Health Department of Campinas itself, which did not open up the possibility of conducting teleconsultations by interns and residents in the context of their practices, which also led to a decrease in the number of receptions performed by speech-language pathology.

As emphasized, the presence of speech-language pathology within the studied UBS allowed cases referred for speech-language pathology care to have their first contact with this professional still within Primary Care, at which time reception is conducted. A considerable number of patients (91; 36.4%) were absorbed for evaluation and speech therapy within the

same unit, while those presenting with a speech-language complaint whose care should be conducted at another specialized service (50; 20.7%) were referred to the references defined in the design of the SUS network in the municipality.

A limitation of this study relates to the fact that what happened to the cases after they had been referred was not investigated, as this does not guarantee access.

It is noteworthy that the Campinas Health Network includes service providers contracted by the Municipal Health Department of Campinas, which are services to which the cases received can be referred. These include: APAE, APASCAMP, Fundação Síndrome de Down, and Casa da Criança Paralítica, among others, as well as a few municipal services, such as the Speech-Language Pathology Service at Polyclinic II and SABIÁ, which were discontinued (in 2022) by the municipal administration. It is observable in Table 2 (f) that APASCAMP is one of the services that received the most referrals from the UBS (24%) during the studied period. This service was a reference until April 2023 (when the agreement with the institution was terminated) for conducting audiological evaluations, which might explain why the main complaint is related to language, as it is necessary to rule out possible hearing losses as a cause of alterations in this area.

The high number of users who were withdrawn, 86 (35.5%), is striking, with unsuccessful contact attempts being the most common cause (29; 33.7%), followed by nonattendance at reception (21; 24.4%) and no longer having a complaint (16; 18.6%). A possible justification for these withdrawals may be due to the long waiting time, such that the referral once made by a professional, no longer makes sense for the user and their family.

Paro et al.³⁵ emphasized that lack of adherence is multifactorial and needs to be analyzed in depth. In their study conducted at a UBS in Campinas/SP, they found that users have difficulty adhering to treatments for various

reasons. These include incompatible session schedules, the dynamics of speech-language pathology services, the need for prior treatment in another area, patient demotivation, and improvement of reported complaints, with the latter being the third most common justification for patient withdrawal in the present study.

Regarding the outcome of cases where speech-language pathology care was initiated, discharge was the most common (27.5%), followed by withdrawal due to absences (23.1%). Farias et al.³⁶ described that 28.6% of the cases attended in a speech-language pathology clinic of a public university were discharged from speech-language pathology care, and the main reason for withdrawal was absence or abandonment (71.4%), as in this study. In contrast, in the study by Tavoni et al.¹⁹, withdrawals due to absences exceeded discharges from speech-language pathology care.

Regarding the comparisons of the referral time until the start of speech-language pathology care for each categorical variable of interest, it is important to note that the quicker a user is received, the faster they are attended to. This is due to the work process established in the unit, which conditions the reception's execution on the availability of a slot for the user to be seen for evaluation and speech-language therapy, should this initial encounter with the patient indicate such a need. However, this practice distorts the very purpose of this type of care, which aims to ensure comprehensive care and greater resolution through attentive and qualified listening. When awaiting a slot to schedule the reception, the opportunity to refer them for examinations, such as audiometry (a common practice in cases with language alterations, as previously mentioned), as well as the chance to intervene through guidance, is lost.

It also draws attention to the fact that approximately half of the users are attended to in just over four years, giving a significant number of people a long waiting time. The study by Oliveira

et al.³⁷ assessed the access barriers existing in five health regions, from the perspective of managers, providers, and health workers, and found that barriers related to availability, such as prolonged waiting time, were significant in all the Health Regions studied³⁷.

Another situation highlighted by the statistical analysis was the greater speed in cases with vocal complaints. This is because, according to the referral flows agreed upon by the municipality, these are cases that will not be attended at the UBS and should be referred to the reference service. With the UBS in question, it is the clinic school linked to the undergraduate speech-language pathology course that is at the UBS, facilitating the scheduling and making access faster.

It was noted from the entire analysis that it may be advisable to reinforce the staff, as also highlighted in other studies^{6,14,38}. This is particularly true for serving specific patient age groups, considering that younger children receive care more quickly. In addition, concerning the type of complaint, the analysis revealed this is a determining factor for the waiting time and such time is longer for complaints that are not vocal complaints. This finding necessitates the implementation of promotion and prevention actions directed at complaints: orofacial motor function alterations, language delay, phonological deviation, school difficulty/reading and writing, and stuttering.

The study by McGill et al.^{38,39} corroborates the above finding, suggesting that since young children are considered more frequent and of high priority by speech-language pathologists, it is necessary to guide services to important factors for prioritizing care: severity, resource availability, diagnosis, and age. Other studies^{39,40} emphasize there is a need to structurally reassess the system aiming at access to speech-language pathology, to better utilize the waiting period from a perspective of active waiting, and to think of better strategies for this.

The National Policy on Health Promotion (PNPS)⁴¹ in Brazil, which foresees health promotion and the prevention of health conditions, are prerogatives of any health professional within the scope of Primary Care according to guidelines that direct the practice of comprehensive care from a broad perspective of health. Considered a set of strategies for care production, health promotion can and should be worked on individually or collectively, always with a view of the demands of a given population. The present study provides fundamental data for guiding actions of health promotion and prevention of health conditions in speech-language pathology at the studied location.

CONCLUSION

From the results, it was identified that among the cases with complaints of speechlanguage alterations, the majority were children up to 10 years old, male, presenting complaints related to the language area, and referred by pediatricians. The levels presented by the variables (days elapsed until reception, referral source, patient age group, and patient complaint) are factors that change the probabilities of the waiting time for care.

The greatest demand comes from children and for areas of Language, Educational Speech-Language Pathology, and Orofacial Motor function. This underscores the need for health promotion and education actions to prevent the emergence of speech-language pathology issues and to make better use of the waiting period. Additionally, there is a call for more comprehensive studies proposing innovative actions in the UBS and the territories encompassing the speech-language pathology internship and the Unicamp Residency Program.

The presence of interns and a resident from the field of speech-language pathology contributed to user access to the practices of this

category, since, during the studied period, there was no professional linked to the UBS, nor was there a NASF. Having students at the UBS led to greater identification of demands; however, in many cases, it was not enough to provide quick responses to them, which became an access barrier, resulting in half of the users being attended to in just over four years.

The study highlighted the need for the presence of a speech-language pathology professional, preferably through the E-Multi (previously NASF) linked to the studied UBS. The inclusion of a speech-language pathologist in the team occurred starting from 2022, and given this, future comparative studies may be important for analyzing the expansion of access and the resolution in this new scenario.

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