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How do speech-language pathologists assess speech production through telehealth?

Como os fonoaudiólogos realizam avaliação da produção de fala por meio da telessaúde?

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ABSTRACT

Purpose: to verify if, due to the pandemic, clinical speech therapists perform teleservice, if they carry out speech assessments using the virtual environment and how they are doing it, as well as which instruments they use. **Methods:** the sample consisted of 271 clinical speech therapists in the country. An online questionnaire was sent with questions about their education and professional performance, speech therapy services (assessment, monitoring and therapy) and speech assessments through Telehealth, that is, if they were performing care and assessment through this means and how they were doing it. Data were analyzed descriptively. **Results:** Most speech therapists who participated in the study were providing assistance through Telehealth. However, only a small group of professionals performed speech assessment in this modality, using spontaneous speech as a data collection method, pictures for naming, instruments adapted for the virtual environment – ABFW and AFC, videos sent by family members, among others. Furthermore, more than half of the speech therapists believe that it is feasible to carry out speech assessment using Telehealth. However, they consider that the evaluation by this means does not have the same effectiveness as the face-to-face evaluation. **Conclusion:** Telehealth, although not widespread in Brazil, has speech therapist professionals working in this modality. In this sense, there is a need to adapt assessment instruments for virtual application, in addition to improving the infrastructure (audio, video, support and internet network).

Keywords: Speech, Language and Hearing Sciences; Speech; Evaluation; Telehealth; Pandemic

RESUMO

Objetivo: verificar se, por conta da pandemia, os fonoaudiólogos clínicos estavam realizando teleatendimento, se faziam avaliações de fala utilizando o meio virtual e de que modo o faziam, bem como quais instrumentos utilizavam. **Métodos:** a amostra foi composta por 271 fonoaudiólogos clínicos do país. Foi enviado um questionário *online* com perguntas a respeito da sua formação e atuação profissional, da realização de atendimentos fonoaudiológicos (avaliação, acompanhamento e terapia) e avaliações de fala por meio da telessaúde, isto é, se estavam realizando atendimento e avaliação por esse meio e como o estavam fazendo. Os dados foram analisados descritivamente. **Resultados:** a maioria dos fonoaudiólogos que participaram do estudo estava realizando atendimentos por meio da telessaúde. Porém, apenas um pequeno grupo dos profissionais realizou avaliação da fala nessa modalidade, utilizando, como método de coleta de dados a fala espontânea, figuras para nomeação, instrumentos adaptados para o meio virtual – Teste de Linguagem Infantil (ABFW) e Avaliação Fonológica da Criança (AFC) -, vídeos enviados pelos familiares, entre outros. Ainda, mais da metade dos fonoaudiólogos referiu acreditar que seja viável realizar avaliação da fala por telessaúde. Entretanto, consideraram que a avaliação por esse meio não tem a mesma efetividade que a avaliação presencial. **Conclusão:** a telessaúde, embora pouco difundida no Brasil, apresenta profissionais fonoaudiólogos atuantes na modalidade. Nesse sentido, surge a necessidade de adaptação de instrumentos de avaliação para aplicação virtual, além de aperfeiçoamento da infraestrutura (áudio, vídeo, suporte e rede de internet).

Palavras-chave: Fonoaudiologia; Fala; Avaliação; Telessaúde; Pandemia

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INTRODUCTION

The advent of COVID-19 (coronavirus disease - 2019) and the declaration of the World Health Organization (WHO), elevating the state of contamination to a pandemic, alerted to the need to adapt access to health services, especially for patients who already were in continued treatment[1]. Therefore, the use of telepractice gradually increased and several professionals adapted their practice and began to provide their services through telepractice[2-4].

Telepractice is the term used by the American Speech-Language-Hearing Association (ASHA). The term includes remote services outside healthcare settings. It is defined by ASHA as "a delivery of services using telecommunication and Internet technology to remotely connect clinicians to clients, other health care providers, and/or educational professionals for screening, assessment, intervention, consultation, and/or education"[5]. The services provided by the Speech-Language Therapists are completely adequate for this modality because of the audiovisual nature of speech therapy practices[6].

Before the pandemic, studies had already been developed on this practice in Speech-Language Pathology and Audiology, mainly in the United States and Australia[7,8]. Forty percent of the studies on speech area refer to stuttering and 30% to dysarthria. The main objective of these studies was intervention (75%). Of these 75%, 75% studies compared remote and face-to-face interactions and 45% verified satisfaction with the use of telepractice and teleconsulting[7].

In 2014, before the pandemic, Keck & Doarn[8] reviewed the application of telepractice technology in speech and language therapy. The authors found that most services used a hybrid model, combining synchronous and asynchronous technologies for the best development of the patient. Furthermore, this hybrid format was used to deal with some difficulties such as costs, connection and availability of resources and equipment.

Regarding speech assessment, studies were carried out with the objective of analyzing its effectiveness through telepractice and all items accessed in this modality, which was online assessments and telerehabilitation systems. All these items were considered viable and reliable by users and professionals[9-11]. In addition, professionals considered the technological tools efficient, reliable, and valid for remote assessment[12,13].

In Brazil, a study was carried out to verify the strengths and weaknesses of Speech and Language Pathologists (SLPs) work in a virtual environment, in times of the COVID-19 pandemic. Thirty-two SLPs from the state of Bahia participated in the study[14]. SLPs highlighted the maintenance of speech therapy assistance, even during social isolation, greater flexibility in schedules, increased frequency of contact with the user and greater family participation in speech therapy. As for weaknesses, they reported patients' difficulties in handling technological tools and digital platforms and the patient's resistance to adhering to speech therapy in this format.

Nationally, only one article was published with an experience report of speech therapy during the COVID-19 pandemic[15]. However, more studies are need taking into consideration speech evaluations through telepractice. There is no data on the matter in the national literature.

In this context, questions about the current reality of SLPs in Brazil were made. Thus, the aim of this study was to verify if SLPs were performing telepractice during pandemic; if they were administrating speech assessments how they did it, as well as what instruments they used.

METHODS

This work is linked to a research project properly registered and approved by the Ethics and Research Committee of the Federal University of Santa Maria, under number 3,912,480. The participation of professionals was consented, in accordance with the norms of the National Health Council (CNS), Resolution 466/12, through the reading and signing of the Free and Informed Consent Form (TCLE).

This is a qualitative, descriptive, and exploratory field research. The sample was composed of speech therapists who work in the clinic throughout the country. The questionnaire for this research was created by the authors of the study and was developed online using the platform Google Forms® for better dissemination. The questionnaire was sent to several of the authors' contacts, published on social networks (groups of Speech Therapists on Facebook and Instagram), e-mails from Higher Education Institutions and disseminated by some regional councils of Speech Therapy and Audiology of Brazil through emails and electronic magazine. Thus, all clinical speech-language pathologists with whom contact was made, without control of regions or clinical activity itself, were invited to participate.

The online questionnaire consisted of ten questions (seven closed questions - 1, 2, 3, 4, 6, 8 and 9 - and three open questions - 5, 7 and 10), in addition to collecting information on the training and performance of SLPs.

Form questions:

(1) How often do you perform speech evaluation on your sessions?

(2) Considering speech therapy, do you treat more children, adolescents, or adults with speech disorders?

(3) In this moment of social isolation, do you do your attendance face-to-face?

(4) Did you/do you carry out care through telepractice? *Telepractice: any activity that uses information and communication technology (telephone, text message, WhatsApp, Telegram, e-mail) to enable or qualify health care?

(5) What technological tools did you use/ do you use to contact the clients?

(6) Have you performed speech assessment through telepractice?

(7) How did you perform the speech assessment through telepractice?

(8) In which population did you carry out the assessment?

(9) Do you think it is feasible to carry out online speech assessment of children, adolescents and adults?

(10) Do you think that the speech assessment performed through telepractice is effective as the face-to-face assessment?

A total of 271 clinical speech therapists participated in the research, and the training and performance profile of all participants is described in Table 1.

Table 1. Academic profile and performance of speech-language pathologists

	n	%
Graduation completion time		
≤ 5 years	87	32.1
6-15 years	90	33.2
16-30 years	83	30.6
≥ 31 years	11	4.05
Time working in the speech-language pathology clinic		
≤ 5 years	97	35.8
6-10 years	55	20.3
11-20 years	70	25.8
≥ 21 years	49	18.1
Academic level		
Graduation	65	24
Specialization (longer than 360 hours)	126	46.5
Multiprofessional residency	9	3.3
Master's Degree professional/academic	46	17
Doctorate Degree	19	7
Post-doc	6	2.2
Region of Brazil of professional performance		
North region	6	2.2
South region	134	49.4
Southeast region	81	29.9
North East region	31	11.4
Midwest region	19	7
Type of assistance provided		
Hospital assistence	13	4.8
Intensive care assistance	3	1.1
Home assistance	15	5.5
Assistance provided in a pedagogical environment	28	10.3
Ambulatory care	212	78.2
Main professional bond		
Private sector	86	31.7
Statutory public sector (municipal)	40	14.8
Employed public sector (municipal)	16	5.9
Statutory public sector (state)	5	1.8
Employed public sector (state)	3	1.1
Statutory public sector (federal)	4	1.5
Public sector employment (federal)	5	1.8
Non-Governmental Organization or Community Association	14	5.2
Autonomous	98	36.2
Area of operation		
General clinic	73	26.9
Audiology	62	22.9
Dysphagia	87	32.1
Language	217	80.1
Orofacial motricity	152	56.1
Speech/fluency	150	55.4
Public health	32	11.8
Voice	80	29.5
TOTAL	**271**	**100**

Data analysis was performed descriptively, based on the results organized by the platform itself, such as frequency of responses, presented in graphs and tables.

RESULTS

From the analysis of the responses of the participating speech therapists, of the 271 who started the questionnaire, 81.2% (n = 258) responded that they frequently performed speech assessment in their consultations and the prevalence of assessment in children was 86.8%, followed by adults (15.5%).

In this way, after questioning about the frequency of speech assessment, the speech therapists who answered "never" did not continue the questionnaire, resulting in 258 responses from this stage.

After responses from the 258 professionals, in the question related to performing speech assessment through telepractice, a small group of professionals (22.1%) was obtained who performed the assessment in this way, in the context of social isolation (Figure 1).

Among the participating speech therapists, of the 72.1% who were performing consultations through telepractice, 75.6% reported using Whatsapp/Telegram, 57.8% attended through video calls, 36.4% by telephone and 16, 7% by email.

Regarding speech assessments and the opinion of speech therapists on the feasibility of assessment through telepractice, it was possible to notice that only 22.1% of the professionals performed this type of procedure online and 58.1% believed that this alternative was viable. Those who did, reported that they evaluated children (87.7%).

Furthermore, the professionals who performed the speech assessment through telepractice reported that they adapted their instruments and methods of data collection for the online assessment (Figure 2).

Regarding the comparison between the two modalities of speech assessment, 56% of the speech therapists reported that the face-to-face assessment and the assessment through telepractice are not equally effective. Aspects of difficulty were highlighted, such as age, environment, patient care, delay in internet connection, image sharpness, degree of severity of the patient, audio input control, interaction, lack of evaluation of orofacial structures, among others.

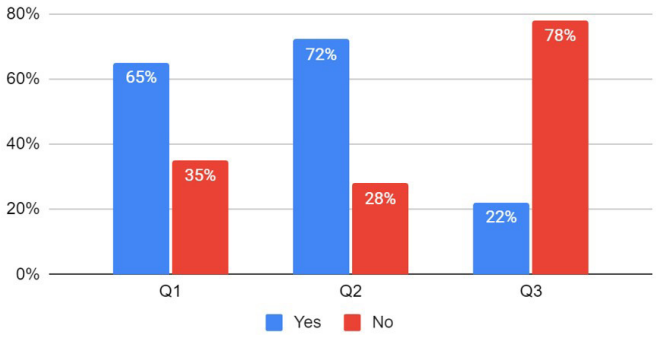

Figure 1. Face-to-face care, telehealth care and telehealth assessment during the Covid-19 pandemic
Subtitle: % = percentage; Q1 = Question 1; Question 2; Q3 = Question 3

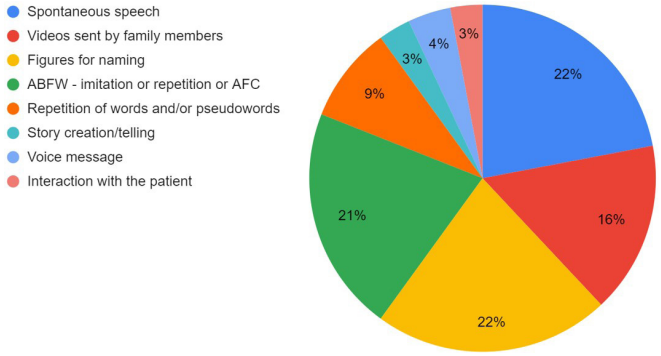

Figure 2. Adaptation of online assessment methods and instruments[16,17]
Subtitle: Language Assessment – ABFW and Phonological Assessment of Children – AFC.

In addition, reports such as "*Communication is better evaluated in person, as different aspects are involved and speech is one of them, being intrinsically related*" and "*I believe that face-to-face interaction favors greater details for the speech sample*" were some of the comments related to the negative points for the telepractice assessment.

On the other hand, some professionals still said they had doubts about this modality, reporting insecurity due to the lack of reliable assessments, age of patients and severity of cases. As can be seen in the reports: "*Although it is possible to see the execution of speech, I do not know if it would be possible to effectively see everything that speech encompasses*", "*I believe that for children from 5 years old it would be more feasible. For the little ones I think it's more complicated. With teenagers and adults, I would find it viable too*" and "*It depends on the conditioning of the child during the assessment through telepractice, I see many children with autism spectrum disorder, and I would certainly face many difficulties related to conditioning during the remote assessment*".

Positively, some speech therapists reported that, as long as the professional has the support of the patient and family members, and that he or she prepares an adequate assessment, considering that, for each patient, it is necessary to carefully elaborate the assessment by telecare, it is, yes, equally effective, when compared to face-to-face assessment.

DISCUSSION

The COVID-19 pandemic has influenced the growth of non-traditional healthcare practices such as tele practice and telemonitoring[18]. Similarly, health organizations encouraged speech therapists to adopt telepractice, in order to improve the availability of services and reduce patient contact. Several relevant educational materials and guidelines for professional practices became easily accessible[19].

Regarding the exercise of the profession through telepractice, it was possible to verify that many SLPs were performing online consultations, since outpatient speech-language rehabilitation is considered a non-essential or elective service[20]. Therefore, patients undergoing rehabilitation and monitoring to improve speech intelligibility, such as children with speech sound disorders and adults and elderly people with comorbidities, were forced to maintain social isolation, making it impossible to go to the speech therapy clinic[21].

The professionals reported that they had to make adaptations and even training, to continue the service online, especially regarding the performance of assessments, as well as patients, parents and/or caregivers had to adapt and update themselves in the face of this new situation[20-22]. In addition, there was a greater need for help from parents/caregivers to act as facilitators in the therapeutic process, which also required their training, conducted by speech therapists[19]. In this sense, in the present study many of the speech-language pathologists mentioned the need for help from the parents of patients for the application of assessments.

Although speech therapists answer that they do not think that the effectiveness of assessment through telepractice is the same as in-person assessment, Australian studies[10,23] showed otherwise. Motor speech evaluation was performed in dysarthric patients by videoconference and in person, and both parameters presented high levels of agreement[10]. In children, they generally found a high agreement between remote and face-to-face assessments, thus supporting the use of videoconferencing for oromotor evaluation[24]. In these studies, the materials needed for the evaluations were displayed on the computer screen in front of the participant, in accordance with what the speech therapists who answered this questionnaire reported doing.

A literature review to verify the use of telepractice for speech evaluation in children[25] reported that there is evidence that telepractice can be used to make valid assessments of oromotor function, speech, and language intelligibility, as well as a screening of speech articulation. In the studies, commercialized instruments, articulation tests and orofacial assessments were used[25].

Research proves the efficacy of speech assessment and therapy by telepractice, showing improvement in the speech and language skills of children living in rural areas and regular schools[23]; of dysarthric patients[9]; patients with speech apraxia[26]; of patients with stuttering[27]; aphasic patients[28], among others.

Regarding infrastructure and technological procedures for telepractice applications in speech therapy, a review article[8] concluded that general technological components for telepractice activities include computers, web cameras, headphones with integrated microphone, and Internet connectivity. As for the forms of evaluation, the stimuli are displayed by the speech therapist and include pre-recorded audios, videos, text files, and images scanned from text files[29,30]. In the present study, the methods of data collection through telepractice followed what the literature already presents.

Telepractice has proven to be an effective model for standardized and formal assessments[29,30]. Although there is a favorable response, both from the speech therapist and the patient, in relation to speech therapy in the telepractice[30], studies are needed to validate speech therapy protocols, including technical specifications, clinical efficacy and results.

Analyzing the references used in this study, it is important to emphasize that telepractice is a common practice in developed countries, before the COVID-19 pandemic. However, in Brazil, this resource started to be used only after 2020, since there are not many national studies on the subject, as well as assessment tools available for the virtual environment. In addition, as a limitation of the study, the difficulty of disseminating the research nationally can be highlighted, considering that it was only possible to share through social networks. Furthermore,

the lack of validation of the questionnaire content through the analysis of judges, as well as the use of open questions, may have made it difficult to verify and interpret the results. Future works are suggested in order to investigate the continuity of post-pandemic telepractice.

CONCLUSION

Due to the COVID-19 pandemic the Brazilian SLPs had to adapt to telepractice care. In this regard, it was necessary to modify speech production assessment instruments that were not developed for online application. In addition, the speech production evaluation was based on videos and audios sent by patients' relatives. Videos calls platforms were very used to sharing figures for clients naming and imitation.

Despite being widespread in other countries, in Brazil telepractice still leaves SLPs uncertain about its effectiveness, especially in the evaluations of speech production.

Therefore, greater focus is needed in this health service delivery system, not only in the area of speech-language pathology assessments, but also in infrastructure, such as connection, audio and video.

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