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ORIGINAL RESEARCH

Telehealth in physical therapy: level of adherence among physical therapists and barriers faced during the COVID-19 pandemic

Telessaúde em fisioterapia: nível de adesão entre fisioterapeutas e barreiras enfrentadas durante a pandemia da COVID-19

Telesalud en fisioterapia: grado de adherencia entre los fisioterapeutas y barreras afrontadas durante la pandemia del COVID-19

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ABSTRACT | Telehealth in physical therapy was only authorized in Brazil after the onset of the COVID-19 pandemic, thus requiring rapid technological adaptations to guarantee the provision and accessibility of telemedicine services. Therefore, there was no time for anticipation and preparation for conducting this modality of service. This study aimed to investigate the level of adherence and the barriers faced by Brazilian physical therapists in coping with the crisis caused by the COVID-19 pandemic concerning telemedicine services. This is a cross-sectional study designed to reach the largest possible number of participants and, for this, an online survey questionnaire was applied using the SurveyMonkey platform. Among the 245 physical therapists included in the study, the level of adherence to telemedicine services was 63.3% (n=155). Regarding the different telemedicine modalities, teleconsultation, telemonitoring, and teleconsulting presented levels of adherence of 74.8% (n=116), 71% (n=110), and 23.9% (n=37), respectively. The most frequently reported barriers included difficulties related to the internet connection (38.1%; n=59), technology-related issues (29.7%; n=46), and the lack of compatibility within Physical Therapy (25.8%; n=40). Therefore, the level of adherence to telemedicine services by Brazilian physical therapists in facing the crisis caused by the COVID-19 pandemic was high, and the main barriers faced included difficulties related to the internet connection and technology-related issues.

Keywords | Telemedicine; Physical Therapy Modalities.

RESUMO | A telessaúde em fisioterapia foi autorizada no Brasil somente após o início da pandemia da COVID-19, o que exigiu uma rápida adoção de adequações tecnológicas para garantir a prestação de serviços de saúde de forma remota, incluindo sua acessibilidade, e, portanto, não houve tempo para estruturação suficiente para a realização dessa modalidade. Este estudo investigou o nível de adesão e as barreiras enfrentadas por fisioterapeutas brasileiros em relação aos serviços de telessaúde prestados durante a crise provocada pela pandemia da COVID-19. Trata-se de um estudo transversal, que visou o maior número de participantes e, para isso, distribuiu um questionário de pesquisa eletrônica utilizando a plataforma online SurveyMonkey. Entre os 245 fisioterapeutas incluídos no estudo, o nível de adesão aos serviços de teleconsulta, telemonitoramento e/ou teleconsultoria foi de 63,3% (n=155). Das modalidades utilizadas, 74,8% (n=116) aderiram à teleconsulta, 71,0% (n=110) ao telemonitoramento e 23,9% (n=37) à teleconsultoria. As barreiras mais frequentemente

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assinaladas pelos profissionais foram: dificuldades de conexão com a internet (38,1%; n=59), problemas relacionados à tecnologia utilizada para o trabalho (29,7%; n=46) e falta de compatibilidade completa das modalidades de atendimento com a área de atuação (25,8%; n=40). Sendo assim, concluiu-se que foi alto o nível de adesão de fisioterapeutas brasileiros aos serviços de telessaúde no enfrentamento da crise provocada pela pandemia da COVID-19, apesar dos desafios enfrentados devido às dificuldades relacionadas à conexão com a internet e à utilização da tecnologia.
Descritores | Telemedicina; Modalidades de Fisioterapia.

RESUMEN | La autorización de la telesalud en fisioterapia en Brasil se llevó a cabo solamente después del inicio de la pandemia del COVID-19, lo que requirió una rápida adopción de adaptaciones tecnológicas para garantizar la oferta de servicios de salud de forma remota, incluida su accesibilidad, así no hubo tiempo para estructurar esta modalidad de manera suficiente. Este estudio analizó el grado de adherencia y las barreras de afrontamiento de los fisioterapeutas brasileños respecto a los servicios de telesalud ofrecidos durante la crisis provocada por la pandemia del COVID-19. Se trata de un estudio transversal, que abarcó una gran cantidad de participantes, quienes respondieron un cuestionario electrónico en la plataforma SurveyMonkey. Entre los 245 fisioterapeutas incluidos en el estudio, el grado de adherencia a los servicios de teleconsulta, telemonitoreo y/o teleconsulta fue del 63,3% (n=155). De las modalidades utilizadas, el 74,8% (n=116) fue teleconsulta, el 71,0% (n=110) telemonitoreo y el 23,9% (n=37) teleconsultoría. Las barreras observadas con mayor frecuencia por los profesionales fueron: dificultades para conectarse a Internet (38,1%; n=59), problemas relacionados con la tecnología utilizada para el trabajo (29,7%; n=46) y falta de compatibilidad completa de las modalidades de atención con el área de especialización (25,8%; n=40). Se concluye que el grado de adherencia de los fisioterapeutas brasileños a los servicios de telesalud para hacer frente a la crisis provocada por la pandemia del COVID-19 fue alto, a pesar de los desafíos de afrontamiento debido a las dificultades relacionadas con la conexión a internet y el uso de la tecnología.
Palabras clave | Telemedicina; Modalidades de Fisioterapia.

INTRODUCTION

The pandemic caused by the new coronavirus (SARS-CoV-2) in early 2020 required a prompt adjustment to the provision of healthcare services, such as the use of information and communication technologies (ICTs) for the screening and monitoring of patients, along with healthcare consulting, which resulted in a broad field called telehealth[1].

Despite having substantially low pathogenicity[2], the coronavirus disease (COVID-19) spreads efficiently by breathing infected droplets or contact with infected droplets[3], with an estimated reproductive number of 2.2 to 2.5 determined by early studies in Wuhan[2,4]; therefore, social distancing measures were crucial to control the pandemic. Following the recommendations of the World Health Organization (WHO) to guarantee physical therapy care to the population and ensure physical therapists' health, the Brazil's Federal Council of Physical Therapy and Occupational Therapy (COFFITO) published Resolution No. 516, dated March 20, 2020[5]. The resolution authorizes telemedicine services and provisionally suspends the effects of article 15, Item II of COFFITO Resolution No. 424 of July 8, 2013[6], which prohibited consultation or prescription of non-face-to-face physical therapy treatment.

Several research centers in Australia and Canada are leading studies on telehealth. In Physical Therapy, telehealth research extends to diverse areas, such as rehabilitation for the cardiovascular, integumentary, neuromuscular, and musculoskeletal systems[7]. Recent research has indicated positive effects of adopting this type of care and monitoring[8-10]; however, even in developed countries, the barriers and challenges to apply this model of care are many[11-15].

It was not possible to anticipate and plan the implementation and use of the Telehealth service in Physical Therapy in Brazil since it was not allowed by COFFITO until March 2020. To date, and to the best of our knowledge, the adherence of physical therapists to telemedicine services in the context of the pandemic has not been investigated, neither the possible barriers faced by these professionals in using telework modalities. Therefore, this study aimed to investigate the level of adherence of Brazilian physical therapists to telemedicine services during the COVID-19 pandemic and the possible barriers faced in providing these services.

METHODOLOGY

Study design, population, location, and inclusion criteria

This is a cross-sectional study conducted with physical therapists residing across Brazil from March to July 2021. The inclusion criteria consisted of: being a physical therapist with active professional registration in the Regional Council of Physical Therapy and Occupational Therapy (CREFITO) of the region in which they work; residing in Brazil; having worked as a physical therapist in assessment, monitoring, and/or consulting services in the period after the publication of the COFFITO Resolution No. 516 of March 20, 2020; and not working exclusively in hospital physical therapy services since this would hinder their adherence to the services analyzed in this study. Participants who did not agree with the informed consent forms and those who did not answer the question about adherence to the services investigated in the study were excluded.

To calculate the sample, the number of 305,309 physical therapists with active registration in 2020 in Brazil (provided via email by COFFITO) was considered, with 95% confidence level and 5% margin of error, resulting in the need for 384 participants for the sample.

Data collection

The study was designed to involve as many participants as possible to collect data from a large sample for convenience. For this, an online survey was conducted using the SurveyMonkey platform, with an expected questionnaire response time of 5 to 10 minutes. The snowball strategy was used to distribute the questionnaire to physical therapists across the country using social media and forums, then asking them to also contribute to the distribution of the data collection questionnaire. The dissemination to participate in the survey and the distribution of the access link were done by partnering with pages about Physical Therapy that were available on Facebook and Instagram. The people responsible for the pages were contacted by direct message and, if they agreed to support the research, they received the link to access the questionnaire for dissemination. The research was also disseminated on the social networks of each member of the research team. In addition, dissemination support was also requested from all CREFITOs and other Brazilian associations of physical therapy.

In the absence of standardized and validated questionnaires on the topic, the questions were developed considering the Brazilian pandemic context and the new regulation that allowed telemedicine services provided by Brazilian physical therapists. The questions were reviewed by all authors for relevance, adequacy, readability, and wording.

By clicking on the access link, the prospective participant was directed to a welcome page containing the title of the survey, its objectives, and the invitation to participate, followed by a presentation of the eligibility criteria. When meeting all the eligibility criteria, the participant was directed to the page with an informed consent form to be downloaded and saved by the participant. After consent, the questionnaire presented questions on "demographic data" (age, gender, and address), "time of training in Physical Therapy," and "academic background." Since the next stage of questioning was aimed at collecting information about telemedicine services, the definitions of teleconsultation, telemonitoring, and teleconsulting were informed to clarify the different modalities of the service. Teleconsultation was defined as a remote clinical consultation recorded and performed by the physical therapist. Telemonitoring was defined as remote monitoring of patients that were previously seen in a face-to-face format. Finally, teleconsulting was described as recorded and performed communication among professionals, managers, and other healthcare stakeholders to clarify doubts about clinical procedures, healthcare policies, and issues related to the work process[5]. In this section, the participants were asked whether they had ever provided a service by teleconsultation, telemonitoring, and/or teleconsulting modalities. If so, they were asked about the type of service used; the level of difficulty experienced with the use of the modality(ies) (on a five-point Likert scale, ranging from "no difficulty" to "very high difficulty"); the technology, information, and communication tools used, and the barriers faced. To formulate the list of possible barriers, previously reported obstacles from other studies were used[11-14,16,17]. In case of a negative answer regarding adherence to telemedicine services, the participant was asked about the reasons for non-adherence. To get the most information on the experience of the survey participants, an open field

to allow typing a comment was included along with multiple choice questions with pre-determined answers.

Ethical aspects

This study is in agreement with all ethical aspects of the Brazilian Resolution of the National Health Council No. 466/2012 and the Declaration of Helsinki.

Statistical analysis

The data collected were tabulated and compiled in the Excel software (Microsoft), and the descriptive statistical analysis of the data was performed using the SigmaPlot software, version 12.0. The results of the variables analyzed in this study were presented in the form of descriptive statistics. Categorical variables were described using measures of absolute (n) and relative (%) frequency, and numerical variables were expressed by measures of central tendency (mean) and variability (standard deviation). The 95% confidence intervals (95%CI) of the main proportions were calculated and reported.

RESULTS

In total, 399 people accessed the welcome page of the collection form and, of these, 356 met the eligibility criteria to participate in the survey. However, only 274 physical therapists agreed to participate in the study. Of these, 29 participants were excluded since they did not fill out enough data from the form. The final sample consisted of 245 physical therapists, aged from 21 to 56 years, with a mean age of 32.29±6.72 (mean±standard deviation). Regarding gender, 78.0% (n=191) were women and 22.0% (n=54) were men. Most of the physical therapists participating in the survey resided in the Southeast (40.8%, n=100), Northeast (18.8%, n=46), and Midwest (16.3%, n=40) regions. Regarding the time working as a physical therapist, it was found a higher proportion of professionals who had been working for 10 years or more (38.4%; n=94), compared to other strata. In this study, it was found that a larger proportion of physical therapists were undergraduate with a specialization degree (59.2%; n=145), whereas a smaller proportion were PhD (4.1%; n=10). Table 1 shows the data.

Table 1. Results regarding the variables age, gender, address, length of work as a physical therapist and academic background among the physical therapists included in the study (n=245), Brazil, 2021

Variable	Mean±SD or % (n)(n)(n)
Age (years)	32.29±6.72
Gender	
Women	78.0 (191)
Men	22.0 (54)
Brazilian region	
Southeast	40.8 (100)
Northeast	18.8 (46)
Midwest	16.3 (40)
South	16.3 (40)
North	7.8 (19)
Time of performance as physical therapist	
Less than 1 year	13.1 (32)
At least 1 year, but less than 3 years	15.5 (38)
At least 3 years, but less than 5 years	14.3 (35)
At least 3 years, but less than 5 years	18.8 (46)
10 years or more	38.4 (94)
Academic Background*	
Specialization courses	59.2 (145)
Master's degree	9.8 (24)
PhD	4.1 (10)
No other certification	31.0 (76)

*It was allowed to check more than one alternative.

The level of adherence to teleconsultation, telemonitoring, and teleconsulting services in coping with the crisis caused by the COVID-19 pandemic was 63.3% (95%CI: 57, 69; n=155). The participants who adhered to the modalities were asked to point out the level of difficulty perceived when using the telemedicine services. Among the individuals who did not adhere to telemedicine (36.7%, 95%CI: 31, 43; n=90), the most cited reasons to justify non-adherence were: they believed that the care modalities were not compatible with their area of activity (43.3%, 95%CI: 34, 54; n=39); did not believe that telemedicine services could offer positive results in their field of work (32.2%, 95%CI: 23, 42; n=29); and believed that their patients were not sufficiently proficient to use the technological means (22.2%, 95%CI: 15, 32; n=20). Table 2 presents more details.

Table 2. Results regarding the level of adherence to teleconsultation, telemonitoring, and teleconsulting services in facing the crisis caused by the COVID-19 pandemic (n=245), the perceived level of difficulty (n=149), and the reasons for non-adherence (n=90), Brazil, 2021

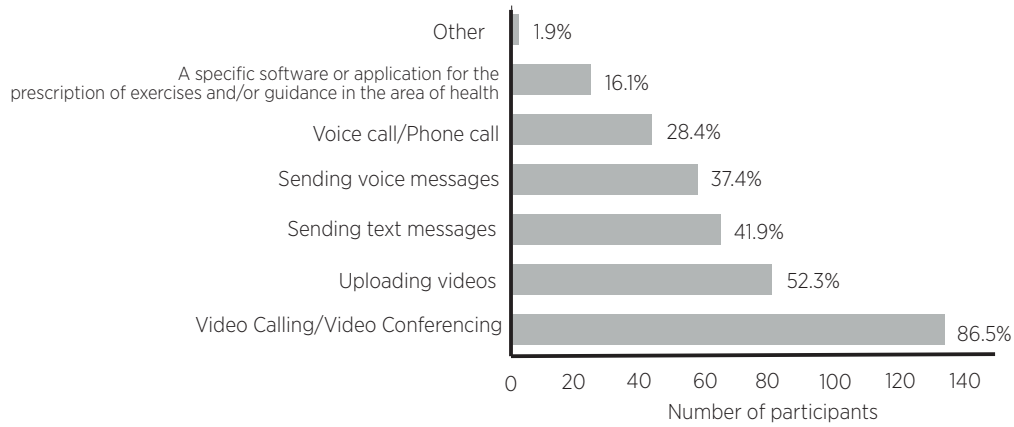
Variable	n	% (IC95%)
Adherence to telemedicine services		
Yes	**155**	**63.3 (57, 69)**
Perceived level of difficulty		
No difficulty	12	8.1 (4, 14)
Low difficulty	60	40.3 (33, 48)
Moderate difficulty	68	45.6 (38, 54)
High difficulty	8	5.4 (3, 10)
Very high difficulty	1	0.7 (0, 4)
No	**90**	**36.7 (31, 43)**
Reasons for non-adhesion*		
"Because telemedicine is not compatible with my area of expertise"	39	43.3 (34, 54)
"Because I do not believe that these modalities can offer positive results in my field of work"	29	32.2 (23, 42)
"Because the users of the services that I provide are not sufficiently proficient to use technological means"	20	22.2 (15, 32)
"Because I did not know how to offer these services"	10	11.1 (6, 19)
"Because I was not aware of the possibility of offering these services"	10	11.1 (6, 19)
"Because I do not feel proficient to use technological means in my field of work"	9	10.0 (5, 18)
"Because the users of the services I provide did not accept"	9	10.0 (5, 18)
"Because of difficulties related to billing for this type of service"	7	7.8 (4, 15)
"Because users experienced technology-related issues (e.g., internet connection, device problems) with the services I offer"	7	7.8 (4, 15)
Other reasons cited less frequently	21	23.3 (16, 33)

*It was allowed to check more than one alternative.

Of the 155 physical therapists who adhered to the telemedicine services, 149 answered the question about the perceived level of difficulty and most classified it as moderate (45.6%, 95%CI: 38, 54; n=68) or low (40.3%, 95%CI: 33, 48; n=60). When asked about the telemedicine modality to which the participants had adhered, 74.8% (95%CI: 67, 81; n=116) adhered to the teleconsultation, 71.0% (95%CI: 63, 78; n=110) to telemonitoring, and 23.9% (95%CI: 18, 31; n=37) to teleconsulting. Of the physical therapists who adhered to the modalities, 34.2% (95%CI: 27, 42; n=53) reported having provided care to people who were outside their address. In addition, it was found that only 22.3% (95%CI: 13, 36; n=12) were registered in the CREFITO of the region where the contractor was located.

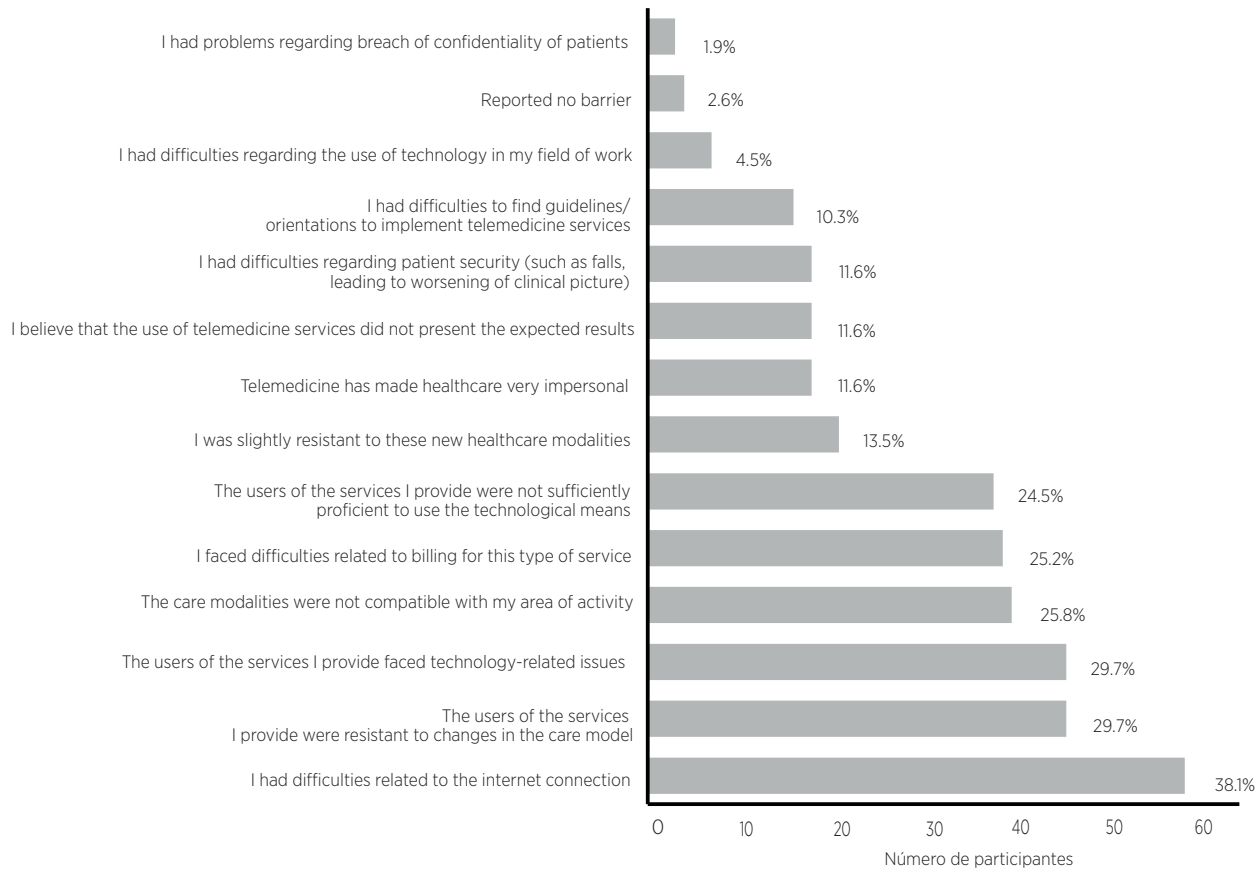
Regarding the ICTs used in the consultations, the participants used: video call/videoconference (86.5%, 95%CI: 80, 91; n=134), video uploading (52.3%, 95%CI: 44, 60; n=81), sending text messages (41.9%, 95%CI: 34, 50; n=65), and sending voice messages (37.4%, 95%CI: 30, 45; n=58) (Graph 1).

Graph 1. Bar graph illustrating the technology, information, and communication tools (ICTs) used by the physical therapists participating in the survey, Brazil, 2021



Regarding the faced barriers, the physical therapists pointed out difficulties related to the internet connection (38.1%, 95%CI: 31, 46; n=59), patients' resistance to changes in the care model (29.7%, 95%CI: 23, 37; n=46), technology-related issues (29.7%, 95%CI: 23, 37; n=46), the lack of compatibility within physical therapy (25.8%, 95%CI: 20, 33; n=40), among others (Graph 2).

Graph 2. Bar chart illustrating the barriers faced by physical therapists who adhered to teleconsultation, telemonitoring, and teleconsulting services



DISCUSSION

The main finding of this study was the high level of adherence of Brazilian physical therapists to teleconsultation, telemonitoring, and teleconsulting services during the COVID-19 pandemic. To date, and to the best of our knowledge, no previous Brazilian studies have analyzed the adherence of physical therapists to telemedicine services since these were prohibited by the Brazilian Code of Ethics and Deontology of Physical Therapy[6] until March 2020, when the pandemic began.

Regarding the subject of this study, from May to June 2020, the early stages of the pandemic, Fernandes et al.[18] investigated the perceptions of physical therapists and users regarding remote rehabilitation services. The authors found that half of the physical therapists were not confident in offering rehabilitation services over the Internet; however, in contrast, consumers of physical therapy services appeared to be confident and willing to participate in rehabilitation programs in this format if needed. In addition to this study, our data collection was conducted about a year after the declaration of pandemic state by the World Health Organization (WHO), which made it possible to verify the real adherence of professionals to telemedicine, as well as the level of perceived difficulty, the most used tools, the barriers faced, and the reasons for non-adherence.

Incompatibility with the physical therapist's field of work and the belief that telemedicine cannot offer positive results were frequently reported as reasons for non-adherence. These incompatibility reasons were expected since many physical therapist specialize in touch and physical contact as their main work tools (such as Osteopathic, Chiropractic, Acupuncture, and Dermatofunctional Physical Therapy). What many professionals may not know is that evidence points to a surprisingly successful adoption of telemedicine for patients with diverse complaints, and even professionals who use manual techniques can adopt these modalities as part of their work process[19].

Current evidence demonstrates that people who received telerehabilitation services after stroke had similar results to those who received in-person treatment regarding the level of independence in activities of daily living[8]. This finding indicates telerehabilitation as a suitable approach, although further high-quality methodological studies are necessary for more precise conclusions regarding the cost-effectiveness of this modality. We highlight that telerehabilitation can promote patient involvement in healthcare and plays an important role in improving health outcomes in patients with musculoskeletal conditions[20-22], along with providing new opportunities for health education and facilitating the adoption of strategies for behavior change, leading patients to more active lifestyles[23]. In the rehabilitation of patients with heart failure, the use of the modality also brought effective results with lower costs[10].

Our results show the lack of preparation in Brazil when facing the sudden decree of a pandemic situation and the resulting publication of the Resolution No. 516 of March 20, 2020[5], which authorized telemedicine services in Physical Therapy. Many participants reported that they did not feel proficient enough to use technology in their field of work, did not know how to offer these services, had no knowledge about the possibility of offering these services, and even faced difficulties related to billing for this type of service. The difficulties regarding appropriate billing for telemedicine services have been expected since the beginning of the pandemic. Fernandes et al.[18] identified that although users of rehabilitation services were willing to participate in telerehabilitation programs, few would pay the same amount charged in the in-person service for the online service.

Despite being a new alternative for Brazilian physical therapists, the telemedicine modalities investigated in this study have been pointed out for more than two decades as a promising way to facilitate access and help address the social challenges in providing rehabilitation services, overcoming distances and excessive expenses with the displacement of professionals and patients[24,25]. Telemedicine is, in fact, an area that already exists in other countries and is expanding annually, with several practical clinical guidelines published in English[26-30]. On the other hand, there is still a lack of published materials in Brazilian Portuguese[31] that are specifically designed to assist professionals in maintaining their work continuity even in isolation situations and that are adapted to the Brazilian reality.

Regarding the barriers faced, our results differ from part of the published literature[11-14,17] since Brazilian physical therapists reported difficulties related mainly to problems with the Internet, a barrier less present in developed countries. Organizational barriers, related to reimbursement policies for professionals by the healthcare services, are more commonly cited in other studies[11,12]. Another barrier frequently reported in the literature and by study participants was the difficulty in the use of technology by patients[32-34]. In the study by Tyagi et al.[32],

which utilized video for prescribing therapeutic exercises and monitoring patients, the barriers reported by physical therapists included difficulties in the patient evaluation process, interface issues with the device, limited range of exercises, and internet connectivity problems. The authors have also added that factors such as age, severity of disability, caregiver support, and culture can influence the perception of patients when receiving telehealth care. Similarly, our results indicate that many physical therapists report that their clients/users were resistant to changes in the care model. Considering that the modalities of care were new to the Brazilian population, there was not enough time for users to adapt to the idea of being evaluated or receiving treatment remotely.

This study presents limitations. The first concerns the data collection form, which allowed the participant to not answer all the questions and skip stages, leading to a considerable number of unanswered questions. Another limitation in the data collection method was the inability of the participant to ask questions while answering the survey. Additionally, it was not possible to identify the number of professionals with active registration per region in Brazil, hindering the verification of their representativeness. Furthermore, the calculated sample size to ensure the study's representativeness was not achieved.

CONCLUSION

The level of adherence among Brazilian physical therapists for teleconsultation, telemonitoring, and teleconsultancy services during the COVID-19 crisis was high. The most utilized modalities were teleconsultation and teleconsulting. Finally, difficulties regarding internet connectivity and issues with the technology used for service delivery were the main barriers faced by the professionals.

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