Remote physical therapy during COVID-19 pandemic: guidelines in the Brazilian context

Atendimentos remotos em fisioterapia na pandemia por COVID-19: diretrizes no contexto brasileiro

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Abstract

Introduction: On March 11, 2020, Covid-19 was characterized by the World Health Organization as a pandemic. In this context, different health professional councils have adopted initiatives to use communication technologies to provide services at a distance. Specifically, for physiotherapy, the Federal Council of Physiotherapy and Occupational Therapy (COFFITO) made possible the modalities of teleconsultation, teleconsulting, and telemonitoring. **Objective:** This study aimed to develop guidelines for physiotherapists who provide teleservices, which will help ensure the safety and quality of their professional practice during the COVID-19 pandemic. **Methods:** An integrative literature review was conducted through PubMed (National Library of Medicine), Cochrane Library, Higher Education Personnel Improvement Coordination Portal - CAPES, Virtual Health Library, Google Scholar, and personal experience within the team to develop guidelines for remote physical therapy during the COVID-19 pandemic. **Results:** Initially, 3,298 articles were selected from all cited search bases, scaled to 2,031 after exclusion due to repetition, 78 were in compliance with the proposed study, 73 of which were excluded for not answering the guiding question; therefore, 5 articles were accepted for the final analysis and used for the elaboration of the guidelines. **Conclusion:** The results provide an overview of the literature and guidelines for physiotherapists to implement physiotherapy teleconsultation, as well as some of the challenges that need to be considered.

Keywords: COVID 19. Internet-based intervention. Physical therapy.

Resumo

Introdução: *Em 11 de março de 2020, a COVID-19 foi caracterizada pela Organização Mundial da Saúde (OMS) como uma pandemia. Nesse contexto, diferentes conselhos de classes das categorias profissionais de saúde adotaram iniciativas para o uso de tecnologias de comunicação como modalidade de prestação de serviços à distância. Especificamente para a fisioterapia, o Conselho Federal de Fisioterapia e Terapia Ocupacional (COFFITO) possibilitou o teleatendimento nas modalidades de teleconsulta, teleconsultoria e telemonitoramento.* ***Objetivo:*** *Elaborar diretrizes para os fisioterapeutas que prestam teleatendimento, as quais ajudarão a ampliar a segurança e qualidade da sua prática profissional no período da pandemia de COVID-19.* ***Métodos:*** *Realizou-se uma revisão integrativa da literatura nas bases de dados PubMed (National Library of Medicine), Cochrane Library, Portal da Coordenação de Aperfeiçoamento de Pessoal de nível Superior - CAPES, Virtual Health Library (VHL) e Google Scholar e utilizou-se a experiência pessoal dentro da equipe para propor diretrizes para o atendimento não presencial para o período da pandemia por COVID-19.* ***Resultados:*** *Inicialmente foram selecionados 3.298 artigos em todas as bases de buscas citadas, dimensionado para 2.031 após exclusão por repetição. Destes, 78 trabalhos apresentavam aderência ao estudo proposto, porém 73 foram excluídos por não responderem à questão orientadora; portanto, cinco artigos foram admitidos para a análise final e utilizados para a elaboração das diretrizes.* ***Conclusão:*** *Os resultados fornecem uma visão geral da literatura e diretrizes para os fisioterapeutas implementarem um teleatendimento em fisioterapia, bem como alguns dos desafios mais amplos que precisam ser considerados.*

Palavras-chave: *COVID 19. Intervenção baseada em internet. Fisioterapia.*

Introduction

The coronavirus disease 2019 pandemic (COVID-19) was recognized by the World Health Organization (WHO) on March 11, 2020.[1] Since then, COVID-19 has been changing the way we live and interact, including in health.[2]

Owing to the lack of specific preventive or therapeutic measures for COVID-19, the WHO recommended that governments adopt interventions that include individual measures (washing hands, use of masks, and social distancing), environmental measures (routine cleaning of environments and surfaces), and community restrictions (restriction or prohibition on the operation of schools and universities, places of community living, public transport, and other spaces where people may agglomerate).[1,3-6]

In this context, particularly in the case of social distancing, it is necessary to rethink an effective and efficient way of life, which means making quick decisions based on the best available evidence. During this rapidly changing situation, the field of physiotherapy needs to develop strategies and alternatives for physicians to monitor patients during the pandemic caused by the SARS-CoV-2 virus.[7-9]

Different class councils of healthcare professional categories have already adopted initiatives for the use of communication technologies as a modality for providing services at a distance to adapt to difficulties from COVID-19. Specifically, up until the end of March 2020, the Federal Council of Physiotherapy and Occupational Therapy (COFFITO) prohibited the telecare of patients. However, with Resolution No. 516/2020, COFFITO enabled telehealth through teleconsultations and telemonitoring.[10] Further innovations in physiotherapy have consisted of offering consultations, diagnoses, and exercise guidance to patients at a distance through computers, cell phones (smartphones), and video platforms.

Although still controversial,[11] there is evidence that the use of telemarketing can bring benefits, such as a reduction in travel costs for patients and health professionals, as well as improvements in the quality of care, by expediting access to health professionals.[12-16] The science and practice of physical therapy have grown rapidly in recent years and there has never been a better time than now to provide a quick solution, with adequate, accessible, patient-friendly, and innovative technolog.[17,18] The available technology provides physical therapists new ways of delivering efficacious treatments and ensuring continuity of care for patients as well as business continuity for professionals during this period.[15,18,19]

However, questions still arise as to whether the reasons for the aversion to using telemarketing in the past are no longer valid today; or if the grounds are temporarily invalid, during the pandemic period, but will return when this critical period passes; or whether we can learn from previous concerns and current usage

to implement physical therapy telecare more effectively in the long term.[11] We currently have a history of using physical therapy telecare during the COVID-19 pandemic in Brazil, but we do not have structured guidelines to support its use. This study aimed to develop guidelines for physical therapists who provide telemonitoring or teleconsultation, a structure that will help ensure the safety and quality of their professional practice during the COVID-19 pandemic period.

Methods

This was a descriptive study through an integrative literature review, which aimed to build guidelines to guide physical therapists in the use of telecare modalities during and after the COVID-19 pandemic. The process of building guidelines was developed according to the following phases: situational diagnosis, content survey, formulation, and elaboration of guidelines.

First stage: situational diagnosis

The proposal for telecare guidelines emerged from observations made in clinical practice, as some professionals working in the COVID-19 pandemic have difficulty performing telecare consultations. If the procedures are not performed correctly, the patient will be at risk, with the possibility of harming their clinical evolution. In addition, there is a need for patients to adapt to the technologies and physiotherapeutic procedures performed.

Second stage: content collecting

AThe research was conducted from January to April 2021 and followed six phases: elaboration of the guiding question, search or sampling in the literature, data collection, critical analysis of the included studies, discussion of the results, and presentation of the integrative review. The following was defined as a guiding question: What are the guidelines regarding changes in the domains of functionality and the use of telecare by physiotherapy? A methodology was adopted that incorporated the results of significant studies as scientific evidence for the performance of physiotherapy telecare. Data extraction to determine study eligibility was performed using prepared a from prepared by two researchers using Excel®, in which the extracted data were initially added by one of the researchers and then checked by another researcher. Initially, the articles were selected according to their title; then, the abstracts were analyzed, and only those that were potentially eligible were selected for the next evaluation phase. Based on the abstracts, articles were selected for full reading, and those that met all predetermined criteria and answered the guiding question were admitted. Studies published between 2015 and 2020 were selected from health sciences databases, including PubMed (National Library of Medicine), Cochrane Library, Coordenação de Aperfeiçoamento de Pessoal de nível Superior – CAPES´s website, Virtual Health Library (VHL), and Google Scholar. The descriptors physiotherapy, teleconsultation, and COVID-19 were used, along with the corresponding terms in Portuguese, English, and Spanish. The search strategy for each language was determined by combining the selected descriptors and the Boolean operator "AND," as in the examples: COVID-19 AND teleconsultation, physiotherapy AND COVID-19.

Third stage: formulation and elaboration of guidelines

Based on this survey, a proposal for guidelines suggested by the authors of this manuscript was elaborated, which comprised a sequence described in four phases. First, factors were considered in the decision to use face-to-face care and strategies to support safe telecare practices. Second, the factors affecting patients' willingness to use telecare were considered. Third, the factors must be considered in terms of free and informed consent. Fourth, general factors should be considered in telecare physical therapy consultations.

Results

Initially, 3298 articles were chosen; of these, 1267 were excluded because they were duplicates in the databases. Thus, 2031 articles were selected for reading the title and abstract, resulting in a sample of 78 articles for reading the full text. Of these, 73 were excluded because they did not answer the guiding question, which resulted in 5 articles being chosen to prepare the proposa.[20-24] The titles, study types, and conclusions of the five articles are presented in Table 1.

Table 1 - Classification of references obtained in the databases

Title	Types of studies	Conclusion
Digital physical therapy in the COVID-19 pandemic [20]	Editorial	There is a need to develop specific guidance on the many issues surrounding the practice of telecare in physical therapy.
Musculoskeletal physical therapy during the COVID19 pandemic: is telerehabilitation the answer? [21]	Point of view	Physiotherapy telecare shows promise as a timely model of care to be adopted alternatively or in combination with the usual care for patients during the COVID-19 pandemic.
"Physio anywhere": digitally-enhanced outpatient care as a legacy of coronavirus 2020[22]	Editorial	Telecare practices can be appropriate, well-received, and efficient in providing physical therapy care.
COVID-19 and the advancement of digital physical therapist practice and telehealth [23]	Point of view	The guiding principles need a strong therapist-patient relationship, valid and reliable evidence, and research to show whether remote care has greater benefits than potential risks for physical therapist practice.
Telehealth for musculoskeletal physiotherapy[24]	Review	Telehealth should not be considered a temporary solution, but a sustainable alternative way in which patients can have safe access to healthcare.

First, it is important to determine which patients are suitable for telecare based on resources, technology, and the urgency of care. The patient's ability to participate should be considered before offering the service, as guided by the telehealthcare guide developed by the team in the present study (Figure 1). For example, video consultation may be inappropriate for patients with visual or hearing impairment. Additionally, as appropriate, services should be provided according to the usual guidelines (Table 2). As needed, the patient and/or caregiver must be able and willing to participate in the telecare.[22]

Table 2 - Factors to be considered for the decision to use telehealthcare and strategies to support safe practices

Factors	Strategies
Clinics	The continuity of care and the best model of care for the patient.
Practice	Availability of appropriate technology and patient support. Ability to handle the tools and simultaneously manage the proposed technology.
Quality	The quality of technology at the remote site will play a significant role in the information obtained during the clinical consultation. Familiarity with the area of clinical practice.
Security	The service can be provided securely in accordance with the General Data Protection Law (LGPD - Law 13,709/18). Ability to support the patient to use technology and solve problems with any difficulties encountered.
Ambient	A quiet place that is fit for purpose, where the increased noise associated with care will not be heard by others or disturb others. Simple decor that won't distract from on-screen images. Good lighting, avoiding high-intensity light behind the physical therapist. Ready access to clinical equipment that may be needed during a call center. Appropriate clinical clothing as would be worn in a normal clinical setting.
Sessions	Inform patients about video appointments. Consider patient preferences regarding video consultations. Request that you prepare beforehand for the telecare service. Explain what happens at the time of the video consultation. Explain what happens after the interaction.
Patients	Providing information in plain language about telecare physical therapy. Information on any expenses for telecare physical therapy. Indication of the duration of the telecare physical therapy. Reconsider when there is a risk of rapid decline in the patient's health status. Reconsider when the patient's health condition is unstable, for example, after recent trauma or risk of a sudden increase in blood pressure. Reconsider when the patient is at risk of falling/imbalance and cannot be accompanied through all care by a person capable of supporting them.

Figure 1 - Guide for telecare in physical therapy: assessment and intervention.

When concentrating on patient safety, physical therapists should note whether their patients have vision, speech, or hearing impairments. These deficiencies can have a negative impact on the effective participation of telecare patients. When a patient has a pre-existing disability, its impact on safety must be considered.[24] These conditions do not preclude telecare consultation under the current conditions, but extra care must be taken to ensure that the patient is well supported and can hear and understand instructions.[21]

In addition to confirming that the parties are satisfied to proceed with all the criteria that have been presented, it will be important, as with face-to-face consultations at the clinic, to confirm that all parties are aware that the service meets the criteria of conduct and protection of the physical therapist and patient (Table 3).[23]

Physiotherapists (and their workplaces) must put a number of simple safeguards in place to ensure that face-to-face sessions are safe and effective. The identification of risks and hazards (Table 4) can have a negative impact on patient safety and should be minimized.[22]

Table 3 - Criteria for conduct and protection of the physical therapist and the patient in telehealthcare

Criteria	Description
Clinics	The nature of the patient's health condition.
Practice	Difficulty accessing the internet. Technology issues: past experiences and your confidence in using communication systems, as well as reading ability. Access to support to configure the devices and applications used and for solving technical problems. Your socioeconomic status, age, and digital literacy.
Quality	Confidence that physical therapy, through a videoconference, is at least as good as face-to-face. Perception that physical therapy should include manual or "touch" therapies. Your views on health, self-care, and addiction.
Security	Security of using technology to access care. Ability to support the patient to use technology and solve problems with any difficulties encountered. The telecare service is private. The technology and platforms that are secure, with end-to-end encryption, must be chosen.
Recording	Declare that the session will not be recorded without the explicit and informed consent of the patient or guardian.
Exams	Declare that any photograph of a complementary exam report or imaging exam that is shared will be attached to the patient's physical or electronic record, and its use outside this purpose will only happen with the explicit and informed consent of the patient or guardian.
Charging	The charging modalities for the costs of telecare assistance must be transparent and agreed upon.
Security technology	The telecare therapy is private.

Table 4 - Factors to be considered in telecare physical therapy

Factors	Description
Care given	Both patients and the physical therapist must ensure that their location is private and free from harm. Communication technologies, computer-based or cellular, must be charged, working and free of viruses, trojans, and malware. Cell phone numbers must be available, and phones turned on so that communication is available in the event of a technical failure or delay. The patient's address for consultation must be known so that some assistance can be sent for any undesirable event; for example, an ambulance can be called in an emergency.
Emergency	Guide the family member or companion to activate the SAMU emergency service (192). Immediately call SAMU emergency service (192) to discuss the case with the regulation and shared decision of the most appropriate conduct, if it is not possible to turn to the family member or companion during the service. Contact a close family member and guide them to the place where the patient is.
Ending the session	A summary of what happened. A summary of the next treatment steps and the treatment plan with the patient. Preparation of complementary material for remote monitoring by the physical therapist. Planning of the next telecare service and scheduling. Request any feedback from the patient about the session. Write the record of care in the patient's medical record, including the results achieved and the evolution. Record any technical events that disrupted service.
Feedback from patients	Were you able to see and hear the physical therapist clearly during the consultation? Was there a connection drop, video, or sound failure? Did you receive the care and information requested? Would you like to have another telecare service using the same technologies in the future? If not, what can be done to improve the service?

Discussion

The guideline proposal was built after an integrative literature review, and the articles identified during the review reported evidence-based studies.[20-25] From the analysis of the bibliographic material, it is identified that this proposal for guidelines is of great value to physical therapists, as it presents the necessary subsidies to promote safety in the context of telecare consultations during and after the COVID-19 pandemic.

In telecare, the physical therapist can use synchronous and/or asynchronous methods, as well as decide on the need for face-to-face meetings for reassessment whenever necessary; this can also be done by mutual agreement with another physical therapist or local occupational therapist.[26-29] This modality of teleservice through communication technologies must be conducted in accordance with the best clinical practices, existing standards, and service models for face-to-face consultations.[25,30]

Several systematic reviews and meta-analyses have evaluated the effectiveness of telecare rehabilitation after total arthroplasty (e.g., knee,[31-34] shoulder,[19] hip[27]) and upper limb interventions (e.g., proximal humerus fractures, carpal tunnel release surgery, ruptured rotator cuff[33]). The results are promising as the outcomes of post-surgical physical therapy (e.g., reduction in pain intensity and disability[31-34] and increased range of motion, muscle strength,[27] functional activities[19]) are similar or superior to those of usual face-to-face care. However, it should be considered that these studies were carried out in different countries, in contexts different from the COVID-19 pandemic, and, mainly, were applied strictly to patients with musculoskeletal pathologies and may not be applicable to other health conditions.

The telecare services provided by the physical therapist must respect the physical technological infrastructure, adequate human and material resources, as well as comply with the technical standards of storage, handling, and transmission of data, guaranteeing confidentiality, privacy and professional secrecy similar to that of face-to-face care.[30] Physiotherapists and the organizations they work for need to adhere to the same ethical principles as they would if digital technologies were not being used.[27]

In health care, trust is important for both intrinsic and instrumental reasons. The patient needs to be confident that the physical therapist has adhered to the same strict data security and privacy protocols they follow in non-digital practice when collecting, storing and sharing their data.[35] In addition, the physical therapist must continue to adhere to ethical principles to do no harm, act justly, and use health resources wisely. In order to fulfill these obligations, they must consider ways to ensure equity in the digital environment.[10,36]

Physiotherapists and the organizations they work for must maintain their focus on ensuring the safety of patients and their close caregivers by providing high-quality care. It is necessary to consider the specific risks that accompany the use of digital technologies, as data security and privacy standards are crucial (Table 2). In this sense, when adhering to the ethical principle of doing no harm, professionals need to consider a valid and reliable assessment.[28] An important option is the use of questionnaires on functional performance and physical capacity. In these validated questionnaires, the patient will be able to respond objectively to qualitative questions that, at the end of the evaluation, will be converted into quantitative data that can be used as a reference for the evolution of treatment.[30] Thus, it is important for physical therapists to consider their ability to use technology as a support for assessment activities.[19]

When deciding whether or not to use video consultations, physical therapists need to consider the likelihood of an adverse event or worsening of their patient's functional condition.[27] As with face-to-face care at the clinic, this involves preparatory actions such as creating contingency plans for any event.[37] It is important to consider, for example, whether the patient will be able to safely perform all necessary activities during the consultation. Before consultation, it is important to consider how these risks can be mitigated. For example, risks of falls can be mitigated by ensuring that a family member or caregiver is physically present and properly positioned during the therapy session,[37] and it is necessary to educate them about this possibility so that they participate in the process of accompaniment in a conscious way.

If telecare video consultations are new to some physical therapists, it is important to ensure that they are prepared for the first meeting, informed about the types of occurrences that may occur during a telecare consultation, and confirm that they are adapted (if necessary) to non-face-to-face video calls.[17] It is essential to send any resources that can be used during non-face-to-face consultations via email to the patient in the form

of classes or booklets. Particularly, information that can help in the configuration of their environment before the reception may be helpful, and a quick call to test before actual service can ensure a problem-free session.[30]

Evidence suggests that caregivers are satisfied and comfortable with interventions delivered through face-to-face communications.[38] As a result, caregivers are likely to want to participate in non-face-to-face video care, and it is possible that their participation benefits both the patient and the caregiver through empathy. Thus, physical therapists can verify, in advance, if a third party is present in the telecare with the patient's consent. This principle also applies to third parties that may be members of the care team (such as other healthcare professionals). It is also important that the physical therapist have at least two close family members on the phone so that they can be contacted in case of an emergency, even if they do not participate in telecare.[22]

The first point to highlight regarding patient data security is the protection of the triad of confidentiality, integrity, and availability. These three fundamentals gained even greater consideration with the General Data Protection Law (LGPD - Law 13,709/18), which came into force in August 2020.[39] Misuse is considered to be the unauthorized sharing of personal information, the sale of user data (a common practice today among marketing companies), and the carelessness in collecting, storing, using, or disposing of this sensitive personal data. Therefore, for physical therapists, the exchange of patient information between professionals and clinics or hospitals, or between telecare services and clinics cannot occur without written authorization from the patient. In addition, it is important to use advanced intelligence services that offer systems secure against the actions of hackers, as the leakage of information due to system fragility will also be penalized.[39]

According to the LGPD, data processing includes any operation carried out with personal data such as collection, production, reception, classification, use, access, reproduction, transmission, distribution, processing, archiving, storage, elimination, evaluation, or control of the information, modification, communication, transfer, dissemination, or extraction. The consent provided for in Law No. 13,709/18 must be provided in writing or by other means that demonstrate the patient's will. This must be done through a clause detached from the other clauses in the Term of Consent and Clarification to the Patient about telecare, including in cases of need for communication or sharing of information with third parties. Generic authorizations will be void, and any type of processing of personal data where consent is lacking is prohibited.[39]

Free and informed consent is recommended for performing teleservices to meet the LGPD. Article 8 of Law 13,709/18 states that consent can be provided in writing or by another means that demonstrates the expression of desire.[39] Therefore, the orientation for physical therapists should ensure the asking of users to express their willingness to participate in telecare and to record the decision in the electronic medical record. It is recommended that the user's consent be obtained when sending the response to the invitation sent to schedule the online service.

It is essential that, if the patient agrees and has the technological resources, as well as the ability to video call, they should respond to the scheduling message by writing, "I agree with the non-face-to-face video call service". If they prefer telephone assistance, they should reply: "I agree with telephone assistance". Physiotherapists and their practitioners have an ongoing obligation to improve the safety and quality of patient care. Some digital technologies allow feedback from patients and other participating parties to be easily obtained through online surveys.[22] When finalizing telecare, physical therapists need to consider which mechanisms will provide better safety. They should also provide quality information about opportunities to improve the online care service and should actively design improvement strategies.[23-25]

The telecare physical therapy service facilitates access to health services for various types of patients in the COVID-19 pandemic period. In addition, it is a tool that must be anchored in clinical guidelines with updated evidence due to the diverse modes of action.[11] These notes must be used while COFITO´s Resolution No. 516/2020 is valid.[10,11] As discussed, telecare consultations show promise as a way of supporting non-serious patients in the period of the COVID-19 pandemic, reducing the pressure on hospital care, as well as providing access to routine care for patients.[11] Although telecare cannot fully replace face-to-face care, it is an economical and efficient way to facilitate access to care.[19,20,22,30]

Study limitations and implications for clinical practice

The present work has limitations due to the lack of studies in the area and limitations in the systematization of the search in the literature, which are inherent to the integrative review method. However, it describes the role of physiotherapy in clinical and functional management through the teleservice method during the COVID-19 pandemic. Furthermore, as the physical therapist's practice involves different specialties, these guidelines may be more important for one specific area than for another. The particularities of each area can be minimized by the participation of professional associations and societies. In addition, physical therapy teleservices have negative aspects, such as limited access to quality technology and the Internet, lack of standardized and secure platforms, limited communication, difficulties in measurements and stratification of joint movements during evaluation, lack of rehabilitation material at the patient's home, and difficulties in ensuring safety during consultations, especially in patients with significant functional limitations.[26,27,32,34,40,41]

Conclusion

Physiotherapists have had to quickly adjust the way patients access care during the COVID-19 pandemic, which has led to the widespread adoption of telecare. The results provide an overview of the literature and guidelines for physical therapists to implement physical therapy telecare, as well as some of the broader challenges that need to be considered. Thus, as services evolve, additional research should be undertaken to explore the costs and benefits of face-to-face physical therapy in different settings, as well as difficulties and facilitators.

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Authors' contributions

NLC participou da concepção, elaboração, fundamentação e redação do manuscrito. JRTS e JMS participaram da concepção, elaboração e revisão do manuscrito. AMM revisou e editou o manuscrito. MLS coordenou, elaborou, revisou e editou o manuscrito.

References

1. Coronavirus disease (COVID-19) pandemic. 2020 [cited 2021 Dec 7]. Available from: https://tinyurl.com/daystypz

2.Malta D C, Szwarcwald CL, Barros MBA, Gomes CS, Machado IE, Souza Jr PRB, et al. A pandemia da COVID-19 e as mudanças no estilo de vida dos brasileiros adultos: um estudo transversal, 2020. Epidemiol Serv Saude. 2020;29(4): e2020407. DOI

3. Painel Coronavírus. Ministério de Saúde. 2020 [cited 2021 Dec 7]. Available from: https://www.gov.br/mec/pt-br/coronavirus

4. Read JM, Bridgen JRE, Cummings DAT, Ho A, Jewell CP. Novel coronavirus 2019-nCoV: early estimation of epidemiological parameters and epidemic predictions. Philos Trans R Soc Lond B Biol Sci. 2021;376(1829):20200265. DOI

5. Liu T, Hu J, Kang M, Lin L, Zhong H, Xiao J, et al. Transmission dynamics of 2019 novel coronavirus (2019-nCoV). bioRxiv. 2020:2020.01.25.919787. DOI

6. Aquino EM, Silveira IH, Pescarini JM, Aquino R, Souza-Filho JA, Rocha AS, et al. Medidas de distanciamento social no controle da pandemia de COVID-19: potenciais impactos e desafios no Brasil. Cienc Saude Coletiva. 2020;25(Supl. 1):2423-46. DOI

7. Richardson E, Aissat D, Williams GA, Fahy N. Keeping what works: remote consultations during the COVID-19 pandemic. Eurohealth. 2020;26(2):73-6. Full text link

8. Paz LES, Bezerra BJS, Pereira TMM, Silva WE. COVID-19: a importância da fisioterapia na recuperação da saúde do trabalhador. Rev Bras Med Trab. 2021;19(1):94-106. DOI

9. Silva RMV, Sousa AVC. Fase crônica da COVID-19: desafios do fisioterapeuta diante das disfunções musculoesqueléticas. Fisioter Mov. 2020;33:0033002. DOI

10. Brasil. Resolução COFFITO nº 516 de 20 de março de 2020. Establishes other measures during the confrontation of the crisis caused by the Pandemic of COVID-19. Brasília: DOU; 23 mar 2020. Full text link

11. Bidmead E, Marshall A. Covid-19 and the 'new normal': are remote video consultations here to stay? Br Med Bull. 2020;135(1):16-22. DOI

12. Caetano R, Silva AB, Guedes ACCM, Paiva CCN, Ribeiro GR, Santos DL, et al. Desafios e oportunidades para telessaúde em tempos da pandemia pela COVID-19 - uma reflexão sobre os espaços e iniciativas no contexto brasileiro. Cad Saude Publica. 2020;36(5):e00088920. DOI

13. Caffery LJ, Farjian M, Smith AC. Telehealth interventions for reducing waiting lists and waiting times for specialist outpatient services: A scoping review. J Telemed Telecare. 2016;22(8):504-12. DOI

14. Bradford NK, Caffery LJ, Smith AC. Telehealth services in rural and remote Australia: a systematic review of models of care and factors influencing success and sustainability. Rural Remote Health. 2016;16(4):3808. DOI

15. Bennell KL, Lawford BJ, Metcalf B, Mackenzie D, Russell T, van den Berg M, et al. Physiotherapists and patients report positive experiences overall with telehealth during the COVID-19 pandemic: a mixed-methods study. J Physiother. 2021;67(3):201-9. DOI

16. Reynolds A, Awan N, Gallagher P. Physiotherapists' perspective of telehealth during the Covid-19 pandemic. Int J Med Inform. 2021;156:104613. DOI

17. Stanhope J, Weinstein P. Learning from COVID-19 to improve access to physiotherapy. Aust J Prim Health. 2020;26(4):271-2. DOI

18. Aderonmu JA. Emerging challenges in meeting physiotherapy needs during COVID-19 through telerehabilitation. Bull Fac Phys Ther. 2020;25(1):16. DOI

19. Adamse C, Dekker-Van Weering MG, van Etten-Jamaludin FS, Stuiver MM. The effectiveness of exercise-based telemedicine on pain, physical activity and quality of life in the treatment of chronic pain: A systematic review. J Telemed Telecare. 2018;24(8):511-26. DOI

20. Dantas LO, Barreto RPG, Ferreira CHJ. Digital physical therapy in the COVID-19 pandemic. Braz J Phys Ther. 2020;24(5):381-3. DOI

21. Turolla A, Rossettini G, Viceconti A, Palese A, Geri T. Musculoskeletal physical therapy during the COVID-19 pandemic: is telerehabilitation the answer? Phys Ther. 2020; 100(8):1260-4. DOI

22. Tack C, Grodon J, Shorthouse F, Spahr N. "Physio anywhere": digitally-enhanced outpatient care as a legacy of coronavirus 2020. Physiotherapy. 2021;110:A26-8. DOI

23. Lee AC. COVID-19 and the advancement of digital physical therapist practice and telehealth. Phys Ther. 2020;100(7):1054-7. DOI

24. Cottrell MA, Russell TG. Telehealth for musculoskeletal physiotherapy. Musculoskelet Sci Pract. 2020;48:102193. DOI

25. Tauben DJ, Langford DJ, Sturgeon JA, Rundell SD, Towle C, Bockman C, et al. Optimizing telehealth pain care after COVID-19. Pain. 2020;161(11):2437-45. DOI

26. Pastora-Bernal JM, Martín-Valero R, Barón-López FJ, Estebanez-Pérez MJ. Evidence of benefit of telerehabitation after orthopedic surgery: a systematic review. J Med Internet Res. 2017;19(4):e142. DOI

27. Agostini M, Moja L, Banzi R, Pistotti V, Tonin P, Venneri A, et al. Telerehabilitation and recovery of motor function: a systematic review and meta-analysis. J Telemed Telecare. 2015;21(4):202-13. DOI

28. Brasil. Conselho Federal de Fisioterapia e Terapia Ocupacional – COFFITO. Resolução nº425, de 8 de julho de 2013. Estabelece o Código de Ética e Deontologia da Terapia Ocupacional. Brasília: DOU; 1 ago 2013. Full text link

29. Flauzino KL, Pimentel MGC, Batistoni SST, Zaine I, Vieira LOB, Rodrigues KRH, et al. Letramento digital para idosos: percepções sobre o ensino-aprendizagem. Educ Real. 2020; 45(4): e104913. DOI

30. Pegorari MS, Ohara DG, Matos AP, Iosimuta NCR, Ferreira VTK, Pinto ACPN. Barriers and challenges faced by Brazilian physiotherapists during the COVID-19 pandemic and innovative solutions: lessons learned and to be shared with other countries. Physiother Theory Pract. 2020;36(10):1069-76. DOI

31. Castrodad IMD, Recai TM, Abraham MM, Etcheson JI, Mohamed NS, Edalatpour A, et al. Rehabilitation protocols following total knee arthroplasty: a review of study designs and outcome measures. Ann Transl Med. 2019;7(Suppl 7):S255. DOI

32. Jiang S, Xiang J, Gao X, Guo K, Liu B. The comparison of telerehabilitation and face-to-face rehabilitation after total knee arthroplasty: A systematic review and meta-analysis. J Telemed Telecare. 2018;24(4):257-62. DOI

33. Mani S, Sharma S, Omar B, Paungmali A, Joseph L. Validity and reliability of Internet-based physiotherapy assessment for musculoskeletal disorders: a systematic review. J Telemed Telecare. 2017;23(3):379-91. DOI

34. Shukla H, Nair SR, Thakker D. Role of telerehabilitation in patients following total knee arthroplasty: Evidence from a systematic literature review and meta-analysis. J Telemed Telecare. 2017;23(2):339-46. DOI

35. Hwang R, Bruning J, Morris NR, Mandrusiak A, Russell T. Home-based telerehabilitation is not inferior to a centre-based program in patients with chronic heart failure: a randomised trial. J Physiother. 2017;63(2):101-7. DOI

36. Hohenschurz-Schmidt D, Scott W, Park C, Christopoulos G, Vogel S, Draper-Rodi J. Remote management of musculoskeletal pain: a pragmatic approach to the implementation of video and phone consultations in musculoskeletal practice. Pain Rep. 2020;5(6):e878. DOI

37. Ramage ER, Fini N, Lynch EA, Marsden DL, Patterson AJ, Said CM, et al. Look before you leap: interventions supervised via telehealth involving activities in weight-bearing or standing positions for people after stroke-a scoping review. Phys Ther. 2021;101(6):pzab073. DOI

38. Chi NC, Demiris G. A systematic review of telehealth tools and interventions to support family caregivers. J Telemed Telecare. 2015;21(1):37-44. DOI

39. Brasil. Lei no. 13.709, de 14 de agosto de 2018. Provides for the protection of personal data and amends Law No. 12,965. Brasília: Diário Oficial da União; 23 abr 2014. Full text link

40. Donaghy E, Atherton H, Hammersley V, McNeilly H, Bikker A, Robbins L, et al. Acceptability, benefits, and challenges of video consulting: a qualitative study in primary care. Br J Gen Pract. 2019;69(686):e586-94. DOI

41. Mulvihill C, Cooper J, Pavey J, Laake JP. Remote consultations in primary care during the COVID-19 pandemic: student perspectives. Postgrad Med J. 2020; postgradmedj-2020-139149. DOI