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Complete List of Authors:	Filleul, Arthur; Centre for Interdisciplinary Research in Rehabilitation of Greater Montreal; Centre de recherche en éthique (CRÉ); IRCM; Université de Montréal, Bioéthique Sigouin, Jennifer; Centre for Interdisciplinary Research in Rehabilitation of Greater Montreal Drolet, Marie-Josée; Universite du Quebec a Trois-Rivieres, Département d'ergothérapie; Centre de recherche en éthique (CRÉ) Hudon , Anne ; Universite de Montreal Kairy, Dahlia; Ctr Interdisciplinary Res Rehabil Greater Montrea
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What are the ethical issues related to telerehabilitation? A critical interpretive synthesis protocol

Arthur Filleul [1,2*] ; Marie-Josée Drolet [2,3] ; Jennifer Sigouin[1] ; Anne Hudon[1,2,4] ; Dahlia Kairy[1,4]

1. Centre for Interdisciplinary Research in Rehabilitation of Greater Montreal (CRIR), Montréal, Québec, Canada
2. Centre de recherche en éthique (CRÉ), Montréal, Québec, Canada
3. Occupational therapy Department, Université du Québec à Trois-Rivières (UQTR), Trois-Rivières, Québec, Canada
4. School of rehabilitation, Faculty of medicine, Université de Montréal, Montreal, Quebec, Canada

***Corresponding Author:** Arthur Filleul

Email: arthur.filleul@umontreal.ca (AF)

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Abstract

Introduction: Telerehabilitation (also known as virtual rehabilitation) refers to the use of telecommunication technologies to deliver remote rehabilitation services synchronously or asynchronously to patients. Systematic reviews seem to validate the efficacy and efficiency of telerehabilitation services for diverse patient conditions, while offering in addition potential cost savings in healthcare. However, integrating telerehabilitation into clinical settings raises several ethical issues, including the risk of exacerbating existing health inequities in the provision of care. Despite the apparent scarcity of the literature addressing ethical issues related to telerehabilitation, some of these fundamental concerns have already been discussed in health ethics publications.

Objective: The main objectives of this study are therefore to first scrutinize what has been published to date and secondly to critically examine the way in which these dimensions have been conceptualised, especially the philosophical and ethical conceptions on which they are based.

Methods: To meet these objectives, we will conduct a Critical Interpretive Synthesis (CIS). By using an iterative and interactive process, a CIS aims to critically examine the literature and develop a theoretical understanding grounded in review studies. As per the steps described by Dixon-Woods, we will start by conducting a systematic search of the literature within five selected databases: CINAHL, EMBASE, MEDLINE, Web of Science and PsycINFO. The search strategy will be based on two main concepts: 1) telerehabilitation and 2) ethic. This systematic search will be completed by other research strategy: searching the list of references of selected articles and contacting experts within and outside our team's expertise. Search results will be imported within the Covidence software to be assessed for relevance. We will include all empirical and non-empirical articles that specifically investigate or discuss ethical

dimensions of telerehabilitation. Only studies published in English and French will be included. The search and selection of the articles will be carried out interactively and inductively throughout the stages of extraction and development of a theoretical understanding of the data to fill emerging conceptual gaps. The analysis and critical synthesis will be led by the first author but carried out by our multidisciplinary research team. This study, through its critical dimension, has the potential to provide a more comprehensive overview of the many ethical issues surrounding telerehabilitation.

Ethics and dissemination: This review does not require ethical approval. We aim to publish the results in a peer-reviewed journal but also presentations at local, national, and/or international research meetings and workshops for all stakeholders.

Strengths and limitations of this study

- Critical interpretive synthesis (CIS) draws on qualitative research traditions and is distinguished from other approaches to literature synthesis by its iterative, interactive, and evolving approach.
- This CIS will provide a better understanding of how ethical issues in rehabilitation have been defined to date.
- This review will also help identify blind spots in ethical reflection, whether on issues that have already been defined or on those that have yet to be identified.
- A key challenge is synthesizing results from a diverse set of documents. To address this, the CIS approach will be supported by continuous input from our interdisciplinary team.

Introduction

Technology has transformed various facets of life, including medicine, giving rise to innovative forms of care such as telemedicine and telehealth. While telehealth encompasses health information available on tech platforms, telemedicine can be defined as "the practice of medical consultation between physicians and patients using telecommunication systems over some distance" (1–3). Telerehabilitation (TR) is a telemedicine branch involving remote rehabilitation services (4) (see all the definitions in Table 1). TR can refer to any part of rehabilitation services: assessment, diagnosis, treatment, education, follow-up, and is provided remotely synchronously or asynchronously, via video and/or audio formats and/or texts (5). TR can be used by many rehabilitation professionals, including rehabilitation physicians, physiotherapists, occupational therapists, audiologists, speech therapists, neuropsychologists and psychologists (6). The COVID-19 pandemic, through the need for social distancing measures, has led to the widespread adoption of TR care, even if it existed before the pandemic (7). This large-scale experiment was carried out under emergency conditions, leaving limited time for reflection and thus a number of unconsidered questions.

Table 1 Key terms and definition

Telemedicine	"The provision of online healthcare services when the distance between a service provider and a patient matter" (2)
Telehealth	"The use of a technology-based virtual platform to deliver various aspects of health information, prevention, monitoring, and medical care." (61)
Telerehabilitation	"A branch of telemedicine that uses telecommunication technologies to deliver rehabilitation services synchronously or asynchronously to patients at a distance." (62)
Ethical issue	"Any situation that may compromise, in whole or in part, the respect of at least one value considered legitimate and desirable" (36)

Recent studies have shown that TR can be more or no-less effective than in-person rehabilitation for patients suffering from various pathologies such as musculoskeletal (e.g., post orthopaedic surgery, chronic pain) (8–10), neurological (e.g., stroke, traumatic brain injury) (11–15), cardiopulmonary (16–18) and other health conditions (4). Above all, TR is often cited as a means of improving accessibility, continuity of care, and allowing access to limited specialized resources for populations structurally made vulnerable (19) such as people with disabilities or geographically remote populations (4,20–23). TR could therefore have the potential to guarantee the quality of care while saving health resources and reducing waiting times.

Although some research results seem very promising, they remain controversial and inconsistent. For example, the effectiveness of TR seems to be compromised when the experimental trials come to an end and give way to real-life deployment, without the considerable resources and monitoring of the experimental phases (24). TR can also affect the quality of care, as clinicians and patients report significant barriers, including insufficient infrastructure, limited resources and a restricted digital health culture (25). Regarding the gain in accessibility, while there may be a benefit in terms of cost and travel time, emerging data shows that urban and relatively young patients are most likely to use telehealth applications (26). These people are already those who have the easiest access to rehabilitation, therefore TR has the potential not to reduce, but to exacerbate pre-existing biases (27) such as inequalities in health, particularly in terms of access to care.

From a more global perspective, TR is fully in line with a neoliberal Western socio-political context. It provides a justification for the implementation of austerity policies over the last few decades, aimed at reducing healthcare budgets while maintaining a so-called "high quality of care" (28,29). As Botrugno (30) shows by tracing the European political agenda behind the

implementation of tele-health care and services, the arguments put forward are primarily economic in nature before assuming an ethical dimension (31). In this context, TR may be seen as a desirable way of satisfying economic and political objectives: “do more with less”. Because of this global context, the focus on ethical issues may be partial and may not cover the whole spectrum (32). While the rationale for implementing TR is appealing, it is essential to approach it with a critical and ethical reflection. We must avoid the trap of "technological determinism", which assumes that technology dictates the direction and pace of progress, leading to inevitable results (33). Instead, we need to carefully consider the ethical implications to ensure that the values that underpin rehabilitation practices such as justice, safety and patient well-being remain primordial. (31,34,35).

TR can be considered to have ethical stakes, since some situations are potentially compromising, in whole or in part, respect for at least one ethical value (36). If we consider ethical issues related to TR through the lens of *principalism* as defined by Beauchamps & Childress (37), it appears that the four principles are in jeopardy. The principle of *justice* can be compromised, particularly regarding equity of access to rehabilitation services. This seems particularly relevant for people living with cognitive disorders that limit their use of technology, or people living in isolated areas, people lacking access to the Internet, people unfamiliar with technological devices or lacking the financial means to access TR services. TR therefore implies ethical issues relating to distributive justice, as location, gender, acquaintance with technologies, culture and other social aspects can influence decisions on the allocation and provision of TR. The principle of *non-maleficence* may be threatened if TR practices lead to under-supervision and limited control by the clinician. This can lead to a direct risk of falls when working on balance or functional exercises at home (transfers to bath for example). Lack of proximity can also lead to the failure to recognize physical, cognitive or emotional fatigue when the person is working on language exercises or occupational organization tasks. activities

may indirectly deprive patients of effective and useful rehabilitation methods, this would compromise the principle of *beneficence*. TR can also jeopardize the principle of *beneficence* in view of the impossibility of "hands-on" and face-to-face evaluation (25). Indeed, therapists may miss important clinical signs or symptoms, leading to misdiagnosis or inappropriate treatment decisions. In addition, a person may not feel sufficiently confident to share all the relevant information required for the rehabilitation professional to understand a particular situation. In certain cases, physical presence is necessary for direct assessment, which may not be fully considered during remote consultations. Regarding the principles of *autonomy*, decision-making on the rehabilitation modality, whether physical or remote, can lead to paternalistic situations, where clinicians or a third party decide without consulting the patient's opinion. Also, during remote sessions, the professional may be less able to fully appreciate the patient concerns and thus support his or her free consent and decision-making autonomy. Such situations have the potential to violate the patient's values and expectations. Thus, TR services raise many ethical issues that may jeopardize many values and ethical principles.

To provide guidance in our analysis of the ethical issues involved in TR, we will use the Quadripartite Ethical Tool (QET), an ethical analysis tool derived from the field of rehabilitation (38–41). This tool is designed to help researchers, clinicians and students integrate ethical knowledge into their analysis of ethical issues and contribute to fostering ethical reflections based on pertinent philosophical and axiological foundations. The innovative aspect of the QET is that it encompasses the three main contemporary ethical theories (utilitarianism, deontologism and virtue ethics) and an axiological ontology (professional values) (38). It thus provides four distinct but complementary ethical lenses through which to conduct ethical analyses and support ethically sound decision-making. We will use this tool not as a framework for analysis, but as a means of shedding different ethical lights on what has been considered up to now and how it has been done. This will enable us to discuss the relevance

(i.e. the quality of ethical knowledge mobilized) and comprehensiveness (i.e. the attempt to provide a broad reflexive balance) of the conceptualisation of ethical issues relating to TR.

The need for a Critical Interpretive Synthesis:

TR involves different types of issues that need to be considered before deciding how to implement it, depending on the context. Several issues have already been raised in connection with TR. But as these issues are complex, interconnected and broad, as well as influenced by socio-cultural, economic and technological contexts, it is important to ask how these issues have been conceptualised in the literature so far. This is why we believe it is crucial to take a critical view of how the ethical issues associated with TR activities have been shaped to develop an in-depth conceptual thinking.

Review objectives:

The aims of this critical synthesis are to:

1. Explore what ethical issues are discussed in connection with TR (e.g. what ethical values or principles are compromised? at what level? for whom?).
2. Understand how these issues are conceptualised (e.g. what ethical lens? by whom? on what ethical foundations or assumptions?)

Materials and methods:

We'll employ a critical interpretive synthesis (CIS) approach for the literature review. This method was introduced by Dixon-Woods in 2006 in an article focusing on the concept of access to healthcare (42). Unlike conventional systematic reviews, which are designed to compile, aggregate, and summarise data on predetermined concepts, CIS examines the literature with a critical lens. CIS allows the use of a wide range of sources (qualitative and quantitative) if they are deemed relevant, without the need to assess data quality. It avoids limiting data integration based on the quality of the source or the methods employed. The processes of question

formulation, research, selection, data extraction, critique and synthesis are iterative and interactive (42,43). The aim is not to search the literature for the effectiveness or ineffectiveness of a treatment, as in a systematic review, or even to understand the extent and gaps in the literature, as in a scoping review, but rather to understand the assumptions underlying the concepts used. This allows us to question assumptions, ideologies and methods that are frequently used and often taken for granted in the literature towards a subject, especially in fields with a large and complex body of literature (43). This is particularly important when addressing ethical issues, as it allows researchers to question prevailing norms and values, leading to a more nuanced understanding of the challenges in TR. Because CIS is emphasizing on theory development, critical orientation, and flexibility, we believe it suits our objective of developing a more comprehensive understanding of the ethical issues related to TR (44). A CIS begins with the utilisation of an initial broad question, this question will evolve and must be seen as a compass more than an anchor (45), ours will be: "How are ethical issues currently described and conceptualised in the field of TR?"

5 steps proposal and quality framework

Though CIS offers considerable flexibility, it also presents the drawback of introducing ambiguity in the application and reporting of the review in research (46). To improve the transparency and systematicity of the CIS, the study will be based on the criteria proposed by Depraetere et al. (44) (see Table 2). Although this framework helps to improve the quality of our research, there are currently no widely accepted guidelines for a CIS protocol. We therefore propose the following 5 steps: (1) Search Strategy, (2) Study selection, (3) Data extraction, (4) Interpretive Synthesis (5) Ethical criticism using QET. These steps have been adapted from the original Dixon-Woods methodological document (42), methodological articles (43,44,46–50) and available examples of CIS protocols (51–55).

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Table 2 Assessment criteria of CIS according to Depraetere and al. (2020) (44)	
Key feature	**Description of the evaluation criteria for obtaining score 1**
1. Data Extraction	Recurring themes/concepts are identified and the analysis technique (based on the metaethnography, including an inductive approach) is clearly described.
2. Synthetising argument	A synthesising argument is described and the applied analysis technique (i.e. examining the relationship between the concepts, refining the identified concepts, creating higher-order construct and constructing a conceptual/theoretical framework) is described. The analysis technique is based on the meta-ethnography and includes an inductive approach.
3. Inclusion of various methods	Selected studies are specified (either in text, table or in appendix where the number of different research results included in the review are described) and include various research results (i.e. quantitative and qualitative and/or mixed methods).
4. Flexible inclusion criteria	Selection strategy is described either by specifying inclusion criteria that allow for the inclusion of both qualitative and quantitative research results. Or by specifying that the selection of sources is based on relevance to the research question without utilizing specific criteria.
5. Quality appraisal	Quality appraisal is described and based on likely relevance and contribution to the theory that is being developed. Some form of quality appraisal may occur, and methodologically weak studies may be excluded. However, emphasis is placed on likely relevance and is also described as such by the authors.
6. Two-staged sampling process	Sampling strategy is reported (including a description about the number of sources found and selected in text and/or in flow chart) and includes a two-staged sampling process starting with purposive sampling, followed by theoretical sampling to add, test and elaborate the emerging analysis.
7. Broad searching strategy	At least three searching methods are clearly described (e.g., database search, reference chaining, expert consultation (e.g., professional librarian, team member familiar with the field, information specialist)) including a description of the used search terms, which databases were searched, etc. If experts were consulted (in addition to database search), the search strategy is automatically considered as broad.

1. Search Strategy

Our literature search will begin with a structured research strategy on the ethical issues related to TR. An initial extended search strategy combining index terms and keywords from the text was developed by the research team with the help of two rehabilitation librarians to ensure that all relevant synonyms used were included. We will perform research across five data bases: CINAHL, EMBASE, MEDLINE, PsycINFO and Web of Science. To enhance our database searches, we will employ additional strategies. These include examining the reference lists of included studies, drawing on the diverse expertise within our research team to identify relevant literature regarding TR, and reaching out to external experts if needed. For example, experts from each rehabilitation profession could be consulted if there is a need to study issues specific to each profession. To this end, our project, which is part of the "Avoiding pitfalls in virtual care: paving the road for more ethical and equitable policies and practices in rehabilitation" project (CIHR project grant #178354), relies on teams working on rapids reviews raising ethical issues specific to each profession. The CIS does not require the inclusion of all relevant literature, as its aim is to develop concepts and theories rather than exhaustively summarize all data. If an article does not bring new information to our synthesis, then it may not be included, even though it may meet our inclusion criteria. However, to ensure that the proposed synthesis and theorization arise from conceptual gaps in the literature rather than flaws in the search strategy, purposive research will be conducted when synthesizing and analysing emerging theories throughout our investigation. The purposive research will be in collaboration with the project team and based on our collective best understanding of the literature.

2. Study selection

The research will be structured to include documents on ethical issues on TR in general, as well as documents relating to more specific considerations in one of the professions as long as their

related specifically to TR. In the same way, papers dealing with all realms of these issues will be included: individual, organizational, societal, etc. (56) Only studies published in english and french will be considered. There will be no restriction on publication type: a large scope of empirical and non-empirical studies will be eligible for inclusion, including systematic review, case studies, guidelines, surveys, editorial, commentaries, etc. To be included, the study must deal specifically with TR not telemedicine or e-health in general and focus primarily on the ethical issues associated with these practices of TR, not just a section of the document. We will use the Covidence software to review titles and abstracts identified by the search strategy. The core team (AF, JS, MJD, AH, DK) will review an initial random sample of 50 abstracts and discuss decisions about inclusion and exclusion based on the criteria listed in Table 3.

Table 3 Initial inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
▪ Specific about TR (at distance physiotherapy, occupational therapy, psychology, etc.) ▪ The primary objective of the study is to address ethical issues related to TR. ▪ Any type of publication: original research paper, review, editorial, case report, etc.	▪ Any article not focusing primarily on the ethical issues associated with TR. ▪ If the article discusses issues related to Telemedicine – eHealth in a broad sense without specifically focusing on TR.

After this pilot selection, a discussion will take place to make potential modifications to the inclusion and exclusion criteria. However, it will always be possible to modify the inclusion and exclusion criteria throughout the article selection process to ensure that they provide data relevant to the study. After this initial pilot selection, two researchers (AF, MJD) will carry out the rest of the selection based and the title and the abstract, the full text is only searched if the titles and the abstract do not allow us to know whether the article meets our inclusion criteria (or if the abstract is not available). Uncertainties and discrepancies will be discussed on a

regular basis. In the case of disagreement on the inclusion of an article, the decision will be reached through discussion. If no decision can be reached, a third person (DK) will be consulted to decide whether to include the study. Once we've done the selection by title and abstract, we can ensure our selection by reading the full text. We will use relevance towards our purposes as the main selection criteria. This relevance can be seen as the ability of a document to generate concepts and theories to tackle our compass questions (42). If the literature directly related to ethical issues in TR is scarce, we will consider including some articles that do not deal exclusively with these issues and include book chapters, theses, dissertations, or professional documents. For example, articles dealing with another subject but having a section reserved for these issues, or articles evoking these issues in their discussion section could be included. However, we feel that there is a greater risk of having too many articles to analyse. In this case, we retain the possibility of limiting the year of publication to articles published after 2020 following the COVID crisis.

3. Data extraction

The data will be extracted by two researchers (AF, MJD) to ensure the efficiency of the process. To ensure the accuracy and concordance of the extraction, the first 20% of the whole corpus of articles will be analysed by both researchers to discuss the selected information. To help us extract the data, we will use a list of key questions that will enable us to interrogate the documents and extract the relevant data (see Table 4). Data will be extracted using a template that differs according to the type of article. Certain data will be found in all documents, such as title, year of publication, authors (names and gender), type of study (theorical/empirical), type of method, country of study, etc. We will extract the main information from the included article by writing a brief summary and identifying the positions taken by the authors in relation to the identified issues regarding TR. These positions may be explicitly mentioned in the full text or may be deduced based on the research team's reflection and understanding. The notes taken for

each document will be used to provide additional questions to guide our extraction process. This data extraction process is not a static operation in which data is categorised. It requires critical discussion between the analysts and the team, so that the data can be used to start developing a line of argument that informs the critical synthesis and ethical reflexivity (53).

Table 4 Examples of guiding questions:

- → How is TR defined or conceptualised?
- → What stage of telerehabilitation is considered? (assessment, follow-up, routine care, etc.)
- → Who are the individuals and/or the institution undertaking the research?
- → What ethical or critical lens is used?
- → What is the level of reflection? individual, organizational, community and system?
- → What are the underlying assumptions regarding efficacity and efficiency?
- → What epistemological and methodological views are used in the paper?
- → What is the main idea regarding this paper? The take home message?
- → What are the issues at stake?
- → What are the recommendations for implementation in professional practice?

4. Interpretive Synthesis

The key part of a CIS is to draw up a critical synthesis of the literature identified. It's a highly iterative process involving detailed inspection of documents identifying recurring themes (as described previously) to develop a critique. Such as Wang et al. and Wilson et al. (54,55) we will use a framework in 5 steps:

1. Identifying common themes and concepts based on our summaries of and data extracted from each paper.
2. Developing theoretical constructs based on the emerging themes and concepts.
3. Criticizing the emerging theoretical constructs as a whole and with our full sample of literature to identify conceptual gaps in the available evidence in relation to our principal aims.

4. Conducting additional purposive sampling of included papers and/or conducting additional purposive searches to fill conceptual gaps (if needed) until theoretical saturation is reached.
5. Integrating the theoretical constructs into a 'synthesizing argument' about ethical issues (i.e., an explanatory framework).

These steps will be carried out while keeping a critical eye on the literature and on the credibility of the evidence, contradictions, rationales, discourses, proposed recommendations etc. (52)

5. Ethical criticism using QET

Once the critical synthesis has been completed, what can be called a critical overview of the conceptualization of ethical issues related to TR. This will be discussed using QET. In addition to producing a synthesis, this tool will enable us to provide a genuine ethical critique of unexplored areas or areas that have only been partially explored. The aim of this phase is also to encourage further reflection and research on these currently unexplored topics.

Review Team:

The research team is multidisciplinary and includes experts from different fields to ensure a broad perspective for the study. It includes specialists in TR, technology of implementation, equity in health services (access and utilisation), sociology, and philosophy (ethics). The research team has strong experience of qualitative and mixed methods research. The team includes individuals with varied healthcare professional backgrounds: physiotherapists (PT), occupational therapists (OT), psychologist and neuropsychologist (Psy), speech and language therapist (SLT), bioethicist and sociologist. The team will meet regularly given the interpretative, dynamic, and iterative nature of the methodology.

Reflexivity:

Reflexivity about the research object and the team conducting the project is an important factor in qualitative and mixed research projects (57–59). Dixon-Woods and al. (42) have stated that the CIS is the "product of an authorial voice", so constant reflexivity on the part of the authors of the review is necessary for transparency and credibility about the synthesis process. As proposed by Salmon and al. (53) in their CIS protocol, several methods will be used to encourage reflexivity and to inform this process. To grasp how personal and professional viewpoints could shape our data interpretation, the core review team (AF, JS, AH, DK, MJD) engaged in discussions and documented their perspectives from the outset.

Emotions:

In a CIS, reflexivity concerns both the research object (i.e. the content, the dataset), and the research tool (i.e. our research team, the QET). This reflexivity needs to focus not only on the team's previous opinions and characteristics, but also on its relationship with the data that emerges. Recently, McFerran, Hense, Medcalf, Murphy and Fairchild (49) emphasized the importance of emotions and affects in the researcher's reflexive journey as they navigate through all the data collected. (50). For example, as illustrated by the McFerran's team, frustration can indicate that a column heading can be too narrow, and there is the need for a new one to capture the complexity of the data. Anger can indicate that our opinion or position is challenged and there is a need to identify the cause of this strong emotional reaction (49). Thus, the way we react to data can be used to create new questions for interrogating the data or inductively generate new column heading.

As mentioned by Newman and Melia (60), we understand this process requires "openness to the unexpected and a willingness to take emotional responses seriously and as indicators that something of interest is being touched upon". This implies paying particular attention to oneself as well as to others. In our opinion, this is even more relevant for our study given that emotions

constitute access to a person's values. Knowing that ethical issues are situations where at least one value is compromised, the fact of experiencing emotions in the extraction is perhaps a clue that an ethical issue is present in the research that it might be relevant to address. To illuminate this process of reflecting on the emotions we've shared with others, we'll create an "emotion" column in our extraction grid.

Public and Patient involvement

In addition to the diversity of viewpoints within our team, coming from a diverse background of rehabilitation professions, research methodologies and opinions about TR, it is imperative to involve stakeholder participation. As stated by Kastner et al. (46) about the applicability of a CIS: “Findings can inform new typologies, concepts, models or theory but it may require a further process of interpretation by policymakers and practitioners to inform practice”. Our definition of stakeholders, given the nature of our subject, includes people who have used TR care, policymakers playing a role in public health strategy, and clinicians not affiliated with the project and research processes. Our aim is to draw on their experience, skills and knowledge whenever necessary. This involvement will be of great importance, but it must be integrated in a way that makes sense to them too. We believe that these people could make an important contribution to the development of an extraction grid and the design of a conceptual framework. Their contributions could be valued throughout the review process, particularly for issues related to the individual realm for patients and clinicians, or to the organizational realm for policymakers. We are strongly engaged in staying aware of the opportunities and challenges of involving both patients and the public in rehabilitation research.

Discussion:

TR services are rapidly being integrated into healthcare systems, representing a significant evolution in the delivery of care. This rapid change creates complex and interconnects ethical

issues, even if some reflections already exist, it is conceivable that partial reflections on pitfalls produce harmful repercussions for certain populations or in certain contexts. By applying the CIS, we will be able to perceive the prisms of reflection currently used and potential conceptual blind spots on this theme. The final aim is to produce a new theoretical conceptualisation and identify limitations of current approaches in order to better address ethical issues in TR. We present some of the anticipated strengths and limitations of our study.

Strengths:

Given the characteristics of the literature on ethical issues, a CIS can be used to generate a conceptual theorisation that can provide the necessary reflections prior to the implementation of TR care and services. This conceptual analysis will provide practical insights for advancing a more in-depth understanding of the issues at the core of TR practices. For example, policymakers could use this framework to assess if the multiple issues have been considered prior to the introduction of TR care and services.

Challenges and potential limitations:

The greatest expected difficulty is linked to the quantity of documents potentially included, which will require a major data extraction process. To address our study objectives, the CIS is not intended to be systematic. If an article does not bring new information to our synthesis, then it may not be included, even though it may meet our inclusion criteria. Another major expected challenge is the process of synthesizing the results of a complex and diverse set of documents. To address this challenge, the CIS approach will be enriched with ongoing input from our interdisciplinary research team to help synthesize the findings. This team and its thinking are described in more detail in the previous section “Review Team and Reflexivity".

Dissemination:

The review will serve as a contribution to the overall research project: "Avoiding pitfalls in virtual care: paving the road for more ethical and equitable policies and practices in rehabilitation" lead by A. Hudon and D. Kairy and coordinated by J. Sigouin to inform the development and implementation of TR for rehabilitation professionals. The dissemination plan for the review report encompasses a multifaceted approach, which is anticipated to involve not only the publication of findings in a peer-reviewed journal but also presentations at local, national, and/or international research meetings and workshops. As the objective is to implement practical and policy improvements, it is essential to connect with policymakers.

Ethics and dissemination:

Ethical approval is not necessary for this review as we are examining and synthesizing data from previously published literature. This CIS protocol was registered with Open Science Framework (registration DOI: https://doi.org/10.17605/OSF.IO/T3RS4).

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Author statement:

AF, JS, AH, DK were the driving force behind the design of the objectives and methodology. AF played a leading role in writing the protocol. MJD had a significant role in discussions on the ethical aspects of the protocol. All the authors contributed to the conceptualization and methodology and provided valuable feedback on the protocol manuscript.

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Declaration of interest:

The authors have declared that no competing interests exist.

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Additional File 1: Literature Search Strategy

Medline: Ovid MEDLINE(R) ALL <1946 to April 17, 2024>	
1	Telerehabilitation/
2	(((digital or web or online or virtual or internet or remote) adj2 rehab*) or telerehab* or tele-rehab* or telept or tele-pt or telespeech or tele-speech or teletherap* or tele-therap* or erehabilitation or e-rehabilitation).tw,kf.
3	1 or 2
4	Telemedicine/
5	Remote Consultation/
6	exp Videoconferencing/
7	Internet-Based Intervention/
8	(((digital or web or online or virtual or internet or remote) adj2 (intervention* or consult* or therap*)) or online health* or virtual care or videoconferenc* or video conferenc* or telemedicine or tele-medicine or telehealth* or tele health* or ehealth* or e-health* or teleconsultation* or tele-consultation* or econsultation* or e-consultation* or telecare or tele-care or teleintervention* or tele-intervention* or teletreatment* or tele-treatment* or telepractice* or tele-practice*).tw,kf.
9	or/4-8
10	*Speech-Language Pathology/ or *Audiologists/ or *Language Therapy/ or *Speech Therapy/
11	(((speech or language or voice) adj2 therap*) or ((speech or language) adj2 patholog*) or audiologist*).ti,kf.
12	(((speech or language or voice) adj2 therap*) or ((speech or language) adj2 patholog*) or audiologist*).ab. /freq=2
13	or/10-12
14	9 and 13
15	*Occupational Therapy/ or *Occupational Therapists/ or *occupational therapy department, hospital/
16	(ergotherap* or (occupational adj2 therap*)).ti,kf.
17	(ergotherap* or (occupational adj2 therap*)).ab. /freq=2
18	or/15-17
19	9 and 18
20	*Physical Therapy Modalities/ or *Physical Therapists/ or *Physical Therapy Specialty/ or *physical therapy department, hospital/
21	(rehab* or physiotherap* or (physical adj2 therap*)).ti,kf.
22	(rehab* or physiotherap* or (physical adj2 therap*)).ab. /freq=2
23	or/20-22
24	9 and 23
25	*Neuropsychology/ or *Psychology/
26	(neuropsycholog* or psycholog*).ti,kf.
27	(neuropsycholog* or psycholog*).ab. /freq=2
28	or/25-27
29	9 and 28
30	exp morals/ or exp social responsibility/ or exp professional competence/ or organizational policy/ or exp guideline/ or professional practice/ or professional

	autonomy/ or professional practice gaps/ or professional corporations/ or risk assessment/ or exp quality indicators, health care/ or exp professional role/ or guideline adherence/ or patient education as topic/ or exp communication/ or medically underserved area/ or patient safety/ or patient harm/ or exp health promotion/ or exp health services accessibility/ or moral development/ or exp prejudice/ or paternalism/ or exp patient rights/ or exp health policy/ or exp Computer Security/ or exp health inequities/
31	(ethic* or bioethic* or "conflict of interest" or professionalism or "professional misconduct*" or "social responsabilit*" or "professional competence*" or "organizational polic*" or "organisational polic*" or "resource guide*" or moral* or "professional practice gap*" or "professional corporation*" or risk* or "quality indicator* health care" or "professional role*" or "scope of practice*" or guideline* or "patient education" or "communication*" or "medically underserved area*" or "patient safety" or "patient harm*" or "good clinical practice*" or "organizational structure*" or "organisational structure*" or equit* or equalit* or "healthcare disparit*" or "health services accessibilit*" or virtue* or value* or "confidentialit*" or prejudice* or paternalism or "patient right*" or "informed consent*" or "treatment refusal*" or "health polic*" or "care polic*" or "computer securit*" or "data securit*" or "data anonym*" or blockchain or beneficen* or maleficen or "non-maleficen*" or justic* or autonom* or equit* or inequit* or disparit* or (internet adj3 access) or (information* adj3 (access* or disseminat*))).tw,kf.
32	30 or 31
33	3 or 14 or 19 or 24 or 29
34	32 and 33
35	limit 34 to (yr="2020 -Current" and (english or french))

Embase: Embase <1974 to 2024 April 17>	
1	Telerehabilitation/
2	(((digital or web or online or virtual or internet or remote) adj2 rehab*) or telerehab* or tele-rehab* or telept or tele-pt or telespeech or tele-speech or teletherap* or tele-therap* or erehabilitation or e-rehabilitation).ab,kf,ti.
3	1 or 2
4	telemedicine/
5	teleconsultation/
6	videoconferencing/
7	webcast/
8	web-based intervention/
9	(((digital or web or online or virtual or internet or remote) adj2 (intervention* or consult* or therap*)) or online health* or virtual care or videoconferenc* or video conferenc* or telemedicine or tele-medicine or telehealth* or tele health* or ehealth* or e-health* or teleconsultation* or tele-consultation* or econsultation* or e-

	consultation* or telecare or tele-care or teleintervention* or tele-intervention* or teletreatment* or tele-treatment* or telepractice* or tele-practice*).ab,kf,ti.
10	or/4-9
11	*speech disorder/ or *audiologist/ or *language therapy/ or *speech therapy/
12	(((speech or language or voice) adj2 therap*) or ((speech or language) adj2 patholog*) or audiologist*).ti,kf.
13	(((speech or language or voice) adj2 therap*) or ((speech or language) adj2 patholog*) or audiologist*).ab. /freq=2
14	or/11-13
15	9 and 14
16	*occupational therapy/ or *occupational therapist/ or *hospital department/
17	(ergotherap* or (occupational adj2 therap*)).ti,kf.
18	(ergotherap* or (occupational adj2 therap*)).ab. /freq=2
19	or/16-18
20	9 and 19
21	*physiotherapy/ or *physiotherapist/ or *hospital department/
22	(rehab* or physiotherap* or (physical adj2 therap*)).ti,kf.
23	(rehab* or physiotherap* or (physical adj2 therap*)).ab. /freq=2
24	or/21-23
25	9 and 24
26	*neuropsychology/ or *psychology/ or *psychologist/
27	(neuropsycholog* or psycholog*).ti,kf.
28	(neuropsycholog* or psycholog*).ab. /freq=2
29	or/26-28
30	9 and 29
31	exp morality/ or conscience/ or exp ethics/ or professional misconduct/ or professional competence/ or clinical competence/ or organizational policy/ or practice guideline/ or practice gap/ or professional practice/ or exp social justice/ or risk assessment/ or health care quality/ or exp professional standard/ or protocol compliance/ or patient education/ or access to information/ or internet access/ or digital divide/ or exp interpersonal communication/ or health care planning/ or exp patient safety/ or exp health promotion/ or exp health care access/ or exp prejudice/ or social discrimination/ or implicit bias/ or paternalism/ or exp patient right/ or exp health care policy/ or exp computer security/ or exp health disparity/
32	(ethic* or bioethic* or "conflict of interest" or professionalism or "professional misconduct*" or "social responsabilit*" or "professional competence*" or "organizational polic*" or "organisational polic*" or "resource guide*" or moral* or "professional practice gap*" or "professional corporation*" or risk* or "quality indicator* health care" or "professional role*" or "scope of practice*" or guideline* or "patient education" or "communication*" or "medically underserved area*" or "patient safety" or "patient harm*" or "good clinical practice*" or "organizational structure*" or "organisational structure*" or equit* or equalit* or "healthcare disparit*" or "health services accessibilit*" or virtue* or value* or "confidentialit*" or prejudice* or paternalism or "patient right*" or "informed consent*" or "treatment refusal*" or "health polic*" or "care polic*" or "computer securit*" or "data securit*" or "data anonym*" or blockchain or beneficen* or maleficen or "non-maleficen*" or justic* or autonom* or equit* or inequit* or disparit* or (internet adj3 access) or (information* adj3 (access* or disseminat*))).ab,kf,ti.
33	31 or 32

34	3 or 15 or 20 or 25 or 30
35	33 and 34
36	limit 35 to ((english or french) and yr="2020 -Current")

APA PsycInfo <1806 to April Week 1 2024>	
1	telepsychiatry/ or telepsychology/ or telerehabilitation/
2	(((digital or web or online or virtual or internet or remote) adj2 rehab*) or telerehab* or tele-rehab* or telept or tele-pt or telespeech or tele-speech or teletherap* or tele-therap* or erehabilitation or e-rehabilitation).ab,id,ti.
3	1 or 2
4	telemedicine/ or online therapy/ or exp teleconferencing/ or teleconsultation/
5	(((digital or web or online or virtual or internet or remote) adj2 (intervention* or consult* or therap*)) or online health* or virtual care or videoconferenc* or video conferenc* or telemedicine or tele-medicine or telehealth* or tele health* or ehealth* or e-health* or teleconsultation* or tele-consultation* or econsultation* or e-consultation* or telecare or tele-care or teleintervention* or tele-intervention* or teletreatment* or tele-treatment* or telepractice* or tele-practice* or teleconferenc*).ab,id,ti.
6	4 or 5
7	*language therapy/ or *speech language pathology/ or *speech therapy/ or *speech therapists/
8	(((speech or language or voice) adj2 therap*) or ((speech or language) adj2 patholog*) or audiologist*).id,ti.
9	(((speech or language or voice) adj2 therap*) or ((speech or language) adj2 patholog*) or audiologist*).ab. /freq=2
10	7 or 8 or 9
11	6 and 10
12	*occupational therapy/ or *occupational therapists/
13	(ergotherap* or (occupational adj2 therap*)).id,ti.
14	(ergotherap* or (occupational adj2 therap*)).ab. /freq=2
15	12 or 13 or 14
16	6 and 15
17	*physical therapy/ or *physical therapists/
18	(rehab* or physiotherap* or (physical adj2 therap*)).id,ti.
19	(rehab* or physiotherap* or (physical adj2 therap*)).ab. /freq=2
20	17 or 18 or 19
21	6 and 20
22	*neuropsychology/ or *psychologists/ or *psychology/
23	(neuropsycholog* or psycholog*).id,ti.
24	(neuropsycholog* or psycholog*).ab. /freq=2

25	22 or 23 or 24
26	6 and 25
27	morality/ or exp ethics/ or conscience/ or moral development/ or exp social responsibility/ or virtue/ or exp professional competence/ or exp policy making/ or treatment guidelines/ or "quality of care"/ or exp professional organizations/ or risk assessment/ or exp professional role/ or client education/ or exp communication/ or exp information seeking/ or digital divide/ or digital literacy/ or internet access/ or patient safety/ or health promotion/ or exp health care access/ or exp health disparities/ or moral development/ or exp prejudice/ or ageism/ or implicit bias/ or exp social justice/ or exp social discrimination/ or paternalism/ or exp client rights/ or health care policy/ or computer security/
28	(ethic* or bioethic* or "conflict of interest" or professionalism or "professional misconduct*" or "social responsabilit*" or "professional competence*" or "organizational polic*" or "organisational polic*" or "resource guide*" or moral* or "professional practice gap*" or "professional corporation*" or risk* or "quality indicator* health care" or "professional role*" or "scope of practice*" or guideline* or "patient education" or "communication*" or "medically underserved area*" or "patient safety" or "patient harm*" or "good clinical practice*" or "organizational structure*" or "organisational structure*" or equit* or equalit* or "healthcare disparit*" or "health services accessibilit*" or virtue* or value* or "confidentialit*" or prejudice* or paternalism or "patient right*" or "informed consent*" or "treatment refusal*" or "health polic*" or "care polic*" or "computer securit*" or "data securit*" or "data anonym*" or blockchain or beneficen* or maleficen or "non-maleficen*" or justic* or autonom* or equit* or inequit* or disparit* or (internet adj3 access) or (information* adj3 (access* or disseminat*))).ab,id,ti.
29	27 or 28
30	3 or 11 or 16 or 21 or 26
31	29 and 30
32	limit 31 to ((english or french) and yr="2020 -Current")

Cinahl Complete	
S17	S15 AND S16 Opérateurs de restriction - Date de publication: 20200101-; Langue: English, French
S16	S1 OR S6 OR S8 OR S10 OR S12
S15	S13 OR S14
S14	TI ((ethic* OR "conflict of interest" OR professionalism OR "professional misconduct*" OR "social responsabilit*" OR "professional competence*" OR "organizational polic*" OR "resource guide*" OR moral* OR "social norm*" OR "professional practice gap*" OR "professional corporation*" OR risk* OR "quality indicator health care" OR "professional role*" OR "sick role*" OR "scope of practice*" OR "guideline adherence*" OR "health promotion" OR "wellness program*" OR "patient education" OR communication* OR "communication

	barrier*" OR "socioeconomic factor*" OR "minority group*" OR "social isolation" OR "social marginalization" OR "social vulnerabilit*" OR "culturally competent care" OR "rural population*" OR "medically underserved area*" OR "patient safety" OR "patient harm*" OR "distance learning" OR "good clinical practice*" OR "organizational structure*" OR equit* OR equalit* OR "healthcare disparit*" OR "health services accessibility" OR virtue* OR value* OR "confidentialit*" OR prejudice* OR paternalism OR "patient right*" OR "informed consent*" OR "treatment refusal*" OR "health polic*" OR "care polic*" OR "computer securit*" OR "data securit*" OR beneficen* OR "non-maleficen*" OR justic* OR autonom* OR inequit* OR (internet N3 access) OR (information* N3 (access* OR disseminat*)))) OR AB ((ethic* OR "conflict of interest" OR professionalism OR "professional misconduct*" OR "social responsabilit*" OR "professional competence*" OR "organizational polic*" OR "resource guide*" OR moral* OR "social norm*" OR "professional practice gap*" OR "professional corporation*" OR risk* OR "quality indicator health care" OR "professional role*" OR "sick role*" OR "scope of practice*" OR "guideline adherence*" OR "health promotion" OR "wellness program*" OR "patient education" OR "communication*" OR "communication barrier*" OR "socioeconomic factor*" OR "minority group*" OR "social isolation" OR "social marginalization" OR "social vulnerabilit*" OR "culturally competent care" OR "rural population*" OR "medically underserved area*" OR "patient safety" OR "patient harm*" OR "distance learning" OR "good clinical practice*" OR "organizational structure*" OR equit* OR equalit* OR "healthcare disparit*" OR "health services accessibility" OR virtue* OR value* OR confidentialit* OR prejudice* OR paternalism OR "patient right*" OR "informed consent*" OR "treatment refusal*" OR "health polic*" OR "care polic*" OR "computer securit*" OR "data securit*" OR beneficen* OR "non-maleficen*" OR justic* OR autonom* OR inequit* OR (internet N3 access) OR (information* N3 (access* OR disseminat*)))) OR SU ((ethic* OR "conflict of interest" OR professionalism OR "professional misconduct*" OR "social responsabilit*" OR "professional competence*" OR "organizational polic*" OR "resource guide*" OR moral* OR "social norm*" OR "professional practice gap*" OR "professional corporation*" OR risk* OR "quality indicator health care" OR "professional role*" OR "sick role*" OR "scope of practice*" OR "guideline adherence*" OR "health promotion" OR "wellness program*" OR "patient education" OR communication* OR "communication barrier*" OR "socioeconomic factor*" OR "minority group*" OR "social isolation" OR "social marginalization" OR "social vulnerabilit*" OR "culturally competent care" OR "rural population*" OR "medically underserved area*" OR "patient safety" OR "patient harm*" OR "distance learning" OR "good clinical practice*" OR "organizational structure*" OR equit* OR equalit* OR "healthcare disparit*" OR "health services accessibility" OR virtue* OR value* OR confidentialit* OR prejudice* OR paternalism OR "patient right*" OR "informed consent*" OR "treatment refusal*" OR "health polic*" OR "care polic*" OR "computer securit*" OR "data securit*" OR beneficen* OR "non-maleficen*" OR justic* OR autonom* OR inequit* OR (internet N3 access) OR (information* N3 (access* OR disseminat*))))
S13	(MH "Morals+") OR (MH "Paternalism") OR (MH "Prejudice+") OR (MH "Ethics+") OR (MH "Professional Misconduct") OR (MH "Professional Competence") OR (MH "Clinical Competence") OR (MH "Organizational Policies") OR (MH "Practice Guidelines") OR (MH "Professional Organizations") OR (MH "Risk Assessment") OR (MH "Clinical Indicators") OR (MH "Professional Role+")

	OR (MH "Scope of Practice") OR (MH "Guideline Adherence") OR (MH "Patient Education") OR (MH "Access to Information+") OR (MH "Communication+") OR (MH "Medically Underserved Area") OR (MH "Patient Safety") OR (MH "Internet Access") OR (MH "Health Inequities") OR (MH "Health Status Disparities+") OR (MH "Health Promotion") OR (MH "Health Services Accessibility+") OR (MH "Beneficence") OR (MH "Professional Autonomy") OR (MH "Relational Autonomy") OR (MH "Social Justice+") OR (MH "Patient Rights+") OR (MH "Health Policy") OR (MH "Data Security") OR (MH "Blockchain")
S12	S4 AND S11
S11	(MM "Psychology+") OR (MM "Neuropsychology") OR (MM "Psychologists") OR TI ((neuropsycholog* OR psycholog*)) OR AB ((neuropsycholog* OR psycholog*)) OR SU ((neuropsycholog* OR psycholog*))
S10	S4 AND S9
S9	((MM "Physical Therapy") OR (MM "Physical Therapists") OR (MM "Physical Therapy Service")) OR TI ((rehab* OR physiotherap* OR (physical N2 therap*))) OR AB ((rehab* OR physiotherap* OR (physical N2 therap*))) OR SU ((rehab* OR physiotherap* OR (physical N2 therap*)))
S8	S4 AND S7
S7	(((MM "Occupational Therapy") OR (MM "Occupational Therapists") OR (MM "Occupational Therapy Service"))) OR TI ((ergotherap* OR (occupational N2 therap*))) OR AB ((ergotherap* OR (occupational N2 therap*))) OR SU ((ergotherap* OR (occupational N2 therap*)))
S6	S4 AND S5
S5	(((MM "Speech-Language Pathology") OR (MM "Speech-Language Pathologists") OR (MM "Audiology") OR (MM "Audiologists") OR (MM "Speech Therapy") OR (MM "Language Therapy"))) OR TI ((((speech OR language OR voice) N2 therap*) OR ((speech OR language) N2 patholog*) OR audiologist*)) OR AB ((((speech OR language OR voice) N2 therap*) OR ((speech OR language) N2 patholog*) OR audiologist*)) OR SU ((((speech OR language OR voice) N2 therap*) OR ((speech OR language) N2 patholog*) OR audiologist*))
S4	S2 OR S3
S3	TI ((((digital OR web OR online OR virtual OR internet OR remote) N2 (intervention* OR consult* OR therap*)) OR "online health*" OR "virtual care" OR videoconferenc* OR "video conferenc*" OR telemedicine OR "tele-medicine" OR telehealth* OR "tele health*" OR ehealth* OR "e-health*" OR teleconsultation* OR "tele-consultation*" OR econsultation* OR "e-consultation*" OR telecare OR "tele-care" OR teleintervention* OR "tele-intervention*" OR teletreatment* OR "tele-treatment*" OR telepractice* OR "tele-practice*")) OR AB ((((digital OR web OR online OR virtual OR internet OR remote) N2 (intervention* OR consult* OR therap*)) OR "online health*" OR "virtual care" OR videoconferenc* OR "video conferenc*" OR telemedicine OR "tele-medicine" OR telehealth* OR "tele health*" OR ehealth* OR "e-health*" OR teleconsultation* OR "tele-consultation*" OR econsultation* OR "e-consultation*" OR telecare OR "tele-care" OR teleintervention* OR "tele-intervention*" OR teletreatment* OR "tele-treatment*" OR telepractice* OR "tele-practice*")) OR SU ((((digital OR web OR online OR virtual OR internet OR remote) N2 (intervention* OR consult* OR therap*)) OR "online health*" OR "virtual care" OR videoconferenc* OR "video conferenc*" OR telemedicine OR "tele-medicine" OR telehealth* OR "tele health*" OR ehealth* OR "e-health*" OR teleconsultation* OR "tele-consultation*" OR econsultation* OR "e-consultation*" OR telecare OR "tele-care" OR teleintervention* OR "tele-

	intervention*" OR teletreatment* OR "tele-treatment*" OR telepractice* OR "tele-practice*"))
S2	((MH "Telehealth") OR (MH "Telemedicine") OR (MH "Remote Consultation")) OR (MH "Videoconferencing+") OR (MH "Internet-Based Intervention")
S1	(MH "Telerehabilitation") OR TI ((((digital OR web OR online OR virtual OR internet OR remote) N2 rehab*) OR telerehab* OR "tele-rehab*" OR telept OR "tele-pt" OR telespeech OR "tele-speech" OR teletherap* OR "tele-therap*" OR erehabilitation OR "e-rehabilitation")) OR AB ((((digital OR web OR online OR virtual OR internet OR remote) N2 rehab*) OR telerehab* OR "tele-rehab*" OR telept OR "tele-pt" OR telespeech OR "tele-speech" OR teletherap* OR "tele-therap*" OR erehabilitation OR "e-rehabilitation")) OR SU ((((digital OR web OR online OR virtual OR internet OR remote) N2 rehab*) OR telerehab* OR "tele-rehab*" OR telept OR "tele-pt" OR telespeech OR "tele-speech" OR teletherap* OR "tele-therap*" OR erehabilitation OR "e-rehabilitation"))

Web of Science	
1	TS=(((digital OR web OR online OR virtual OR internet OR remote) NEAR/2 rehab*) OR telerehab* OR "tele-rehab*" OR telept OR "tele-pt" OR telespeech OR "tele-speech" OR teletherap* OR "tele-therap*" OR erehabilitation OR "e-rehabilitation")
2	TS=((((digital OR web OR online OR virtual OR internet OR remote) NEAR/2 (intervention* OR consult* OR therap*)) OR "online health*" OR "virtual care" OR videoconferenc* OR "video conferenc*" OR telemedicine OR "tele-medicine" OR telehealth* OR "tele health*" OR ehealth* OR "e-health*" OR teleconsultation* OR "tele-consultation*" OR econsultation* OR "e-consultation*" OR telecare OR "tele-care" OR teleintervention* OR "tele-intervention*" OR teletreatment* OR "tele-treatment*" OR telepractice* OR "tele-practice*"))
3	TS=((((speech OR language OR voice) NEAR/2 therap*) OR ((speech OR language) NEAR/2 patholog*) OR audiologist*))
4	#2 AND #3
5	TS=(ergotherap* OR (occupational NEAR/2 therap*))
6	#2 AND #5
7	TS=(rehab* OR physiotherap* OR (physical N2 therap*))
8	#2 AND #7
9	TS=(neuropsycholog* OR psycholog*)
10	#2 AND #9
11	TS=(ethic* OR "conflict of interest" OR professionalism OR "professional misconduct*" OR "social responsabilit*" OR "professional competence*" OR "organizational polic*" OR "resource guide*" OR moral* OR "social norm*" OR "professional practice gap*" OR "professional corporation*" OR risk* OR "quality indicator health care" OR "professional role*" OR "sick role*" OR "scope of practice*" OR "guideline adherence*" OR "health promotion" OR "wellness

	program*" OR "patient education" OR communication* OR "communication barrier*" OR "socioeconomic factor*" OR "minority group*" OR "social isolation" OR "social marginalization" OR "social vulnerabilit*" OR "culturally competent care" OR "rural population*" OR "medically underserved area*" OR "patient safety" OR "patient harm*" OR "distance learning" OR "good clinical practice*" OR "organizational structure*" OR equit* OR equalit* OR "healthcare disparit*" OR "health services accessibility" OR virtue* OR value* OR "confidentialit*" OR prejudice* OR paternalism OR "patient right*" OR "informed consent*" OR "treatment refusal*" OR "health polic*" OR "care polic*" OR "computer securit*" OR "data securit*" OR beneficen* OR "non-maleficen*" OR justic* OR autonom* OR inequit* OR (internet NEAR/3 access) OR (information* NEAR/3 (access* OR disseminat*)))
12	#10 AND #11
13	#12 and 2020 or 2021 or 2022 or 2023 or 2024 or 2025 (Publication Years) and English or French (Languages)

Additional File 2: Data extraction Framework

1. **Data extractor:**
2. **Title:**
3. **Authors:**
4. **Document characteristics:**
    - Year of publication:
    - Journal of publication:
    - Type of paper:
    - Methods:
    - Years of data collection:
    - Localisation of the team/of the study (if different):
    - Fundings:

5. **Questions for extracting key results:**

Who are the individuals undertaking the research? (i.e., researchers, clinicians, politicians?)	
What stage of telerehabilitation is considered? (i.e., assessment, follow-up, routine care)	
What ethical or critical lens is used? (i.e., principism, virtue ethics, deontological ethics)	
What is the level of reflection? individual, organizational, community and system?	
What are the underlying assumptions regarding efficacity and efficiency?	
What epistemological and methodological views are used in the paper?	
What are the issues at stake?	

What are the recommendations for implementation in professional practice?	

6. **Describe the focus of the document** (using one phrase if possible)

7. **Summary of key findings or insights from the document**

8. **Personal comments on the document**

9. **Emotions when reading the document/extracting data**

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What are the ethical issues related to telerehabilitation? A critical interpretive synthesis protocol

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What are the ethical issues related to telerehabilitation? A critical interpretive synthesis protocol

Arthur Filleul [1,2*] ; Marie-Josée Drolet [2,3] ; Jennifer Sigouin[1] ; Anne Hudon[1,2,4] ; Dahlia Kairy[1,4]

1. Centre for Interdisciplinary Research in Rehabilitation of Greater Montreal (CRIR), Montréal, Québec, Canada
2. Centre de recherche en éthique (CRÉ), Montréal, Québec, Canada
3. Occupational therapy Department, Université du Québec à Trois-Rivières (UQTR), Trois-Rivières, Québec, Canada
4. School of rehabilitation, Faculty of medicine, Université de Montréal, Montreal, Quebec, Canada

***Corresponding Author:** Arthur Filleul

Email: arthur.filleul@umontreal.ca (AF)

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Abstract

Introduction: Telerehabilitation (also known as virtual rehabilitation) refers to the use of telecommunication technologies to deliver remote rehabilitation services synchronously or asynchronously to patients. Systematic reviews seem to validate the efficacy and efficiency of telerehabilitation services for diverse patient conditions, while offering in addition potential cost savings in healthcare. However, integrating telerehabilitation into clinical settings raises several ethical issues, including the risk of exacerbating existing health inequities in the provision of care. Despite the apparent scarcity of the literature addressing ethical issues related to telerehabilitation, some of these fundamental concerns have already been discussed in health ethics publications.

Objective: The main objectives of this study are therefore to first scrutinize what has been published to date and secondly to critically examine the way in which these dimensions have been conceptualised, especially the philosophical and ethical conceptions on which they are based.

Methods: To meet these objectives, we will conduct a Critical Interpretive Synthesis (CIS). By using an iterative and interactive process, a CIS aims to critically examine the literature and develop a theoretical understanding grounded in review studies. As per the steps described by Dixon-Woods, we will start by conducting a systematic search of the literature within five selected databases: CINAHL, EMBASE, MEDLINE, Web of Science and PsycINFO. The search strategy will be based on two main concepts: 1) telerehabilitation and 2) ethic. This systematic search will be completed by other research strategy: searching the list of references of selected articles and contacting experts within and outside our team's expertise. Search results will be imported within the Covidence software to be assessed for relevance. We will include all empirical and non-empirical articles that specifically investigate or discuss ethical

dimensions of telerehabilitation. Only studies published in English and French will be included. The search and selection of the articles will be carried out interactively and inductively throughout the stages of extraction and development of a theoretical understanding of the data to fill emerging conceptual gaps. The analysis and critical synthesis will be led by the first author but carried out by our multidisciplinary research team. This study, through its critical dimension, has the potential to provide a more comprehensive overview of the many ethical issues surrounding telerehabilitation.

Ethics and dissemination: This review does not require ethical approval. We aim to publish the results in a peer-reviewed journal and do presentations at local, national, and/or international research meetings and workshops for all stakeholders.

Strengths and limitations of this study

- Critical interpretive synthesis (CIS) draws on qualitative research traditions and is distinguished from other approaches to literature synthesis by its iterative, interactive, and evolving approach.
- This CIS will provide a better understanding of how ethical issues in rehabilitation have been defined to date.
- This review will also help identify blind spots in ethical reflection, whether on issues that have already been defined or on those that have yet to be identified.
- A key challenge is synthesizing results from a diverse set of documents. To address this, the CIS approach will be supported by continuous input from our interdisciplinary team.

Introduction

Technology has transformed various facets of life, including medicine, giving rise to innovative forms of care such as telemedicine and telehealth. While telehealth encompasses health information available on tech platforms, telemedicine can be defined as "the practice of medical consultation between physicians and patients using telecommunication systems over some distance" [1–3]. Telerehabilitation (TR) is a telemedicine branch involving remote rehabilitation services (see all the definitions in Table 1) [4]. TR can refer to any part of rehabilitation services: assessment, diagnosis, treatment, education, follow-up, and is provided remotely synchronously or asynchronously, via video and/or audio formats and/or texts [5]. TR can be used by many rehabilitation professionals, including audiologists, neuropsychologists, occupational therapists, physiotherapists, psychologists, rehabilitation physicians, speech therapists [6]. The COVID-19 pandemic, through the need for social distancing measures, has led to the widespread adoption of TR care, even if it existed before the pandemic [7]. This large-scale experiment was carried out under emergency conditions, leaving limited time for reflection and thus several unconsidered questions.

Table 1: Key terms and definition

Telemedicine	"The provision of online healthcare services when the distance between a service provider and a patient matter" [2]
Telehealth	"The use of a technology-based virtual platform to deliver various aspects of health information, prevention, monitoring, and medical care." [8]
Telerehabilitation	"A branch of telemedicine that uses telecommunication technologies to deliver rehabilitation services synchronously or asynchronously to patients at a distance." [9]
Ethical issue	"Any situation that may compromise, in whole or in part, the respect of at least one moral value considered legitimate and desirable" [10]

Recent studies have shown that TR can be more or no-less effective than in-person rehabilitation for patients suffering from various pathologies such as musculoskeletal (e.g., post orthopaedic surgery, chronic pain) [11–13], neurological (e.g., stroke, traumatic brain injury) [14–18], cardiopulmonary [19–21] and other health conditions [4]. Above all, TR is often cited as a means of improving accessibility and continuity of care, for populations structurally made vulnerable [22] such as people with disabilities or geographically remote populations [4,23–26]. TR could therefore have the potential to guarantee the quality of care while saving health resources and reducing wait times.

Although some research results seem very promising, they remain controversial and inconsistent. For example, the effectiveness of TR seems to be compromised when the experimental trials come to an end and give way to real-life deployment, without the considerable resources and monitoring of the experimental phases [27]. TR can also affect the quality of care, as clinicians and patients report significant barriers, including insufficient infrastructure, limited resources and a restricted digital health culture [28]. Regarding improved accessibility, while there may be a benefit in terms of cost and travel time (both from an economic perspective and with regard of the individual's energy resources), emerging data shows that urban and relatively young patients are most likely to use telehealth applications [29]. These are people who already easier access to rehabilitation, therefore TR has the potential not to reduce, but to exacerbate pre-existing biases [30] such as inequalities in health, particularly in terms of access to care.

From a more global perspective, TR is fully in line with a neoliberal Western socio-political context. It provides a justification for the implementation of austerity policies over the last few decades, aimed at reducing healthcare budgets while maintaining a so-called "high quality of care" [31,32]. As Botrugno shows by tracing the European political agenda behind the

implementation of tele-health care and services, the arguments put forward are primarily economic in nature before assuming an ethical dimension [33]. In this context, TR may be seen as a desirable way of satisfying economic and political objectives: “do more with less”. Because of this global context, the focus on ethical issues may be partial and may not cover the whole spectrum [34]. While the rationale for implementing TR is appealing, it is essential to approach it with a critical and ethical reflection. We must avoid the trap of technological determinism, which posits technology as the primary driver of social transformation, dictating the direction and pace of progress; equally, we must resist technological fatalism, which promotes passive acceptance of technological developments as unavoidable and beyond the reach of human agency [35]. Instead, we need to carefully consider the ethical implications to ensure that the values that underpin rehabilitation practices such as justice, safety and patient well-being remain primordial [34,36,37].

TR can be considered to have ethical stakes, since some situations are potentially compromising, in whole or in part, respect for at least one moral value (such as justice, responsibility, safety, etc.) [10]. Several issues have already been raised in connection with TR [34,38]. There are many theoretical frameworks (casuistry, four box method, etc.) and moral theories (consequentialism, deontology, virtue ethics, etc.) for identifying and discussing ethical issues. Among them, principalism has been widely adopted to study ethical issues in healthcare practice, largely because it avoids the complex debates of moral philosophy at the theoretical level. It allows us to quickly focus on the tensions between 4 main principles: autonomy, beneficence, justice, and non-maleficence. If we consider ethical issues related to TR through the lens of *principalism* as defined by Beauchamps & Childress [39], it appears that the four principles are in jeopardy. The principle of *justice* can be compromised, particularly regarding equity of access to rehabilitation services. This seems particularly relevant for people living with cognitive disorders that limit their use of technology, or people living in isolated

areas, people lacking access to the Internet, people unfamiliar with technological devices or lacking the financial means to access TR services. TR therefore implies ethical issues relating to distributive justice, as location, gender, acquaintance with technologies, culture and other social aspects can influence decisions on the allocation and provision of TR. The principle of *non-maleficence* may be threatened if TR practices lead to under-supervision and limited control by the clinician. This can lead to a direct risk of falls when working on balance or functional exercises at home (transfers to bath for example). Lack of proximity can also lead to the failure to recognize physical, cognitive or emotional fatigue when the person is working on language exercises or occupational organization tasks. Remote activities may indirectly deprive patients of effective and useful rehabilitation methods, this would compromise the principle of *beneficence*. TR can also jeopardize the principle of *beneficence* in view of the impossibility of "hands-on" and face-to-face evaluation [28]. Indeed, therapists may miss important clinical signs or symptoms, leading to misdiagnosis or inappropriate treatment decisions. In addition, a person may not feel sufficiently confident to share all the relevant information required for the rehabilitation professional to understand a particular situation. In certain cases, physical presence is necessary for direct assessment, which may not be fully considered during remote consultations. Regarding the principles of *autonomy*, decision-making on the rehabilitation modality, whether physical or remote, can lead to paternalistic situations, where clinicians or a third party decide without consulting the patient's opinion. Also, during remote sessions, the professional may be less able to fully appreciate the patient's concerns and thus support his or her free consent and decision-making autonomy. Such situations have the potential to violate the patient's values and expectations. Thus, TR services raise many ethical issues that may jeopardize many values and ethical principles.

To provide guidance in our analysis of the ethical issues involved in TR, we will use the Quadripartite Ethical Tool (QET), an ethical analysis tool derived from the field of

rehabilitation [40–43]. This tool is designed to help researchers, clinicians and students integrate ethical knowledge into their analysis of ethical issues and contribute to fostering ethical reflections based on pertinent philosophical and axiological foundations. The innovative aspect of the QET is that it encompasses the three main contemporary ethical theories (deontologism, utilitarianism, and virtue ethics) and an axiological ontology (professional values) [40]. It thus provides four distinct but complementary ethical lenses through which to conduct ethical analyses and support ethically sound decision-making. We will use this tool not as a framework for analysis, but as a means of shedding different ethical lights on what has been considered up to now and how it has been done. This will enable us to discuss the relevance (i.e. the quality of ethical knowledge mobilized) and comprehensiveness (i.e. the attempt to provide a broad reflexive balance) of the conceptualisation of ethical issues relating to TR.

The need for a Critical Interpretive Synthesis:

RT raises a number of different issues that need to be carefully considered in order to determine whether its use is appropriate in a given context and, if so, how it should be implemented. Several issues have already been raised in connection with TR [34,38]. But as these issues are complex, interconnected and broad, as well as influenced by socio-cultural, economic and technological contexts, it is important to ask how these issues have been conceptualised in the literature so far. This is why we believe it is crucial to take a critical view of how the ethical issues associated with TR activities have been shaped to develop an in-depth conceptual thinking.

Review objectives:

The aims of this critical synthesis are to:

1. Explore what ethical issues are discussed in connection with TR (e.g. what ethical values or principles are compromised? at what level? for whom?).

2. Understand how these issues are conceptualised (e.g. what ethical lens? by whom? on what ethical foundations or assumptions?)

If our first objective seems clear and obvious, we recognize that the second comment may seem vaguer and more conceptual, but it's important to us for two reasons. First, ethical issues can be examined through different “lenses” or ethical frameworks, such as care ethics (prioritizing relationships and empathy), consequentialism (evaluating outcomes), deontological ethics (focusing on duties and rules), or virtue ethics (focusing on the character and intentions of individuals) or). Different ethical lenses can lead to different conclusions about the ethical implications of telerehabilitation, such as issues relating to patient privacy, consent or quality of care. It is therefore important to identify those used to date in literature to understand if there are any gaps in current reflection. Secondly, ethical issues related to telerehabilitation are likely to be perceived differently by different stakeholders, such as healthcare providers, patients, policymakers or technology developers. Each group may have its own interests, values and ethical concerns. Understanding who conceptualizes ethical issues enables us to critically assess how these different perspectives influence the way issues are framed and addressed.

Materials and methods:

We'll employ a critical interpretive synthesis (CIS) approach for the literature review. This method was introduced by Dixon-Woods in 2006 in an article focusing on the concept of access to healthcare [44]. Unlike conventional systematic reviews, which are designed to compile, aggregate, and summarise data on predetermined concepts, CIS examines the literature with a critical lens. CIS allows the use of a wide range of sources (qualitative and quantitative) if they are deemed relevant, without the need to assess data quality. It avoids limiting data integration based on the quality of the source or the methods employed. The processes of question

formulation, research, selection, data extraction, critique and synthesis are iterative and interactive [44,45]. The aim is not to search the literature for the effectiveness or ineffectiveness of a treatment, as in a systematic review, or even to understand the extent and gaps in the literature, as in a scoping review, but rather to understand the assumptions underlying the concepts used. This allows us to question assumptions, ideologies and methods that are frequently used and often taken for granted in the literature regarding a subject, especially in fields with a large and complex body of literature [45]. This is particularly important when addressing ethical issues, as it allows researchers to question prevailing norms and values, leading to a more nuanced understanding of the challenges in TR. Because CIS emphasizes theory development, critical orientation, and flexibility, we believe it suits our objective of developing a more comprehensive understanding of the ethical issues related to TR [46]. The presentation of a research framework may be relevant, although a systematic even if a PICO may be too specific, we opted for a PCC as in a scoping review [47]. Our population is thus made up of users and providers of rehabilitation services, our concept addresses ethical issues and our context is telerehabilitation. While a CIS begins with an initial broad question, this question will evolve and must be seen as a compass more than an anchor [48]; ours will be: "How are ethical issues currently described and conceptualised in the field of TR?".

5 steps proposal and quality framework

Though CIS offers considerable flexibility, it also presents the drawback of introducing ambiguity in the application and reporting of the review in research [49]. To improve the transparency and systematicity of the CIS, the study will be based on the criteria proposed by Depraetere et al. [46] (see Table 2). Although this framework helps to improve the quality of our research, there are currently no widely accepted guidelines for a CIS protocol. We therefore propose the following 5 steps: (1) Search Strategy, (2) Study selection, (3) Data extraction, (4)

Interpretive Synthesis (5) Ethical criticism using QET. These steps have been adapted from the original Dixon-Woods methodological document [44], methodological articles [45,46,49–53] and available examples of CIS protocols [54–58].

Table 2 Assessment criteria of CIS according to Depraetere and al. (2020) [46]

Key feature	Description of the evaluation criteria for obtaining score 1
1. Data Extraction	Recurring themes/concepts are identified and the analysis technique (based on the meta-ethnography, including an inductive approach) is clearly described.
2. Synthesising argument	A synthesising argument is described and the applied analysis technique (i.e. examining the relationship between the concepts, refining the identified concepts, creating higher-order construct and constructing a conceptual/theoretical framework) is described. The analysis technique is based on the meta-ethnography and includes an inductive approach.
3. Inclusion of various methods	Selected studies are specified (either in text, table or in appendix where the number of different research results included in the review are described) and include various research results (i.e. quantitative and qualitative and/or mixed methods).
4. Flexible inclusion criteria	Selection strategy is described either by specifying inclusion criteria that allow for the inclusion of both qualitative and quantitative research results. Or by specifying that the selection of sources is based on relevance to the research question without utilizing specific criteria.
5. Quality appraisal	Quality appraisal is described and based on likely relevance and contribution to the theory that is being developed. Some form of quality appraisal may occur, and methodologically weak studies may be excluded. However, emphasis is placed on likely relevance and is also described as such by the authors.
6. Two-staged sampling process	Sampling strategy is reported (including a description about the number of sources found and selected in text and/or in flow chart) and includes a two-staged sampling process starting with purposive sampling, followed by theoretical sampling to add, test and elaborate the emerging analysis.

7. Broad searching strategy	At least three searching methods are clearly described (e.g., database search, reference chaining, expert consultation (e.g., professional librarian, team member familiar with the field, information specialist)) including a description of the used search terms, which databases were searched, etc. If experts were consulted (in addition to database search), the search strategy is automatically considered as broad.

1. Search Strategy

Our literature search will begin with a structured research strategy on the ethical issues related to TR (Additional File 1: Literature Search Strategy). An initial extended search strategy combining index terms and keywords from the text was developed by the research team with the help of two rehabilitation librarians to ensure that all relevant synonyms used were included. We will perform research across five data bases: CINAHL, EMBASE, MEDLINE, PsycINFO and Web of Science. To enhance our database searches, we will employ additional strategies. These include examining the reference lists of included studies, drawing on the diverse expertise within our research team to identify relevant literature regarding TR, and reaching out to external experts if needed. For example, experts from each rehabilitation profession could be consulted if there is a need to study issues specific to each profession. To this end, our project, which is part of the "Avoiding pitfalls in virtual care: paving the road for more ethical and equitable policies and practices in rehabilitation" project (CIHR project grant #178354), relies on teams working on rapids reviews raising ethical issues specific to each profession. The CIS does not require the inclusion of all relevant literature, as its aim is to develop concepts and theories rather than exhaustively summarize all data. If an article does not bring new information to our synthesis, then it may not be included, even though it may meet our inclusion criteria. However, to ensure that the proposed synthesis and theorization arise from conceptual gaps in the literature rather than flaws in the search strategy, purposive search will be conducted when synthesizing and analysing emerging theories throughout our investigation. The

purposive search will be in collaboration with the project team and based on our collective best understanding of the literature.

2. Study selection

The research will be structured to include documents on ethical issues on TR in general, as well as documents relating to more specific considerations in one of the professions as long as their related specifically to TR. In the same way, papers dealing with all realms of these issues will be included: individual, organizational, societal, etc. [59]. Only studies published in English and French will be considered. There will be no restriction on publication type: a large scope of empirical and non-empirical studies will be eligible for inclusion, including systematic review, case studies, guidelines, surveys, editorial, commentaries, etc. To be included, the study must deal specifically with TR not telemedicine or e-health in general and focus primarily on the ethical issues associated with these practices of TR, not just a section of the document. We will use the Covidence software to review titles and abstracts identified by the search strategy. Two researchers (AF, JS) will review an initial random sample of 50 abstracts and discuss decisions about inclusion and exclusion based on the criteria listed in Table 3.

Table 3 Initial inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
▪ Specific about TR (at distance physiotherapy, occupational therapy, psychology, etc.) ▪ The primary objective of the study is to address ethical issues related to TR. ▪ Any type of publication: original research paper, review, editorial, case report, etc.	▪ Any article not focusing primarily on the ethical issues associated with TR. ▪ If the article discusses issues related to Telemedicine – eHealth in a broad sense without specifically focusing on TR.

After this pilot selection, a discussion will take place with the core team (AF, JS, MJD, AH, DK) to make potential modifications to the inclusion and exclusion criteria. However, it will

always be possible to modify the inclusion and exclusion criteria throughout the article selection process to ensure that they provide data relevant to the study. After this initial pilot selection, two researchers (AF, JS) will carry out the rest of the selection based and the title and the abstract, the full text is only searched if the titles and the abstract do not allow us to know whether the article meets our inclusion criteria (or if the abstract is not available). Uncertainties and discrepancies will be discussed on a regular basis. In the case of disagreement on the inclusion of an article, the decision will be reached through discussion. If no decision can be reached, a third person (DK) will be consulted to decide whether to include the study. Once we have done the selection by title and abstract, we will confirm our selection by reading the full text. We will use relevance for our stated purposes as the main selection criteria. This relevance can be seen as the ability of a document to generate concepts and theories to tackle our compass questions [44]. If the literature directly related to ethical issues in TR is scarce, we will consider including articles that do not deal exclusively with these issues and include book chapters, theses, dissertations, or professional documents. For example, articles dealing with another subject but having a section reserved for these issues, or articles evoking these issues in their discussion section could be included. However, we feel that there is a greater risk of having too many articles to analyse. In this case, we retain the possibility of limiting the year of publication to articles published after 2020 following the COVID crisis.

3. Data extraction

The data will be extracted by two researchers (AF, MJD) to ensure the efficiency of the process. To ensure the accuracy and concordance of the extraction, the first 20% of the whole corpus of articles will be analysed by both researchers to discuss the selected information. To help us extract the data, we will use a list of key questions that will enable us to interrogate the documents and extract the relevant data (see Table 4). Data will be extracted using a template that differs according to the type of article (Additional File 2: Data extraction Framework).

Some data will be found in all documents, such as title, year of publication, authors (names and gender), type of study (theorical/empirical), type of method, country of study, etc. We will extract the main information from the included article by writing a brief summary and identifying the positions taken by the authors in relation to the identified issues regarding TR. These positions may be explicitly mentioned in the full text or may be deduced based on the research team's reflection and understanding. The notes taken for each document will be used to provide additional questions to guide our extraction process. This data extraction process is not a static operation in which data is categorised. It requires critical discussion between the analysts and the team, so that the data can be used to start developing a line of argument that informs the critical synthesis and ethical reflexivity [56].

Table 4 Examples of guiding questions:

- → How is TR defined or conceptualised?
- → What stage of telerehabilitation is considered? (assessment, follow-up, routine care, etc.)
- → Who are the individuals and/or the institution undertaking the research?
- → What ethical or critical lens is used?
- → What is the level of reflection? individual, organizational, community and system?
- → What are the underlying assumptions regarding efficacy and efficiency?
- → What epistemological and methodological views are used in the paper?
- → What is the main idea regarding this paper? The take home message?
- → What are the ethical issues at stake?
- → What are the recommendations for implementation in professional practice?

4. Interpretive evidence synthesis

The key part of a CIS is to draw up a critical synthesis of the literature identified. It's a highly iterative process involving detailed inspection of documents identifying recurring themes (as described previously) to develop a critique. Such as Wang et al. and Wilson et al. [57,58], we will use a framework in 5 steps:

1. Identifying common themes and concepts based on our summaries of and data extracted from each paper.

2. Developing theoretical constructs based on the emerging themes and concepts.
3. Criticizing the emerging theoretical constructs as a whole and with our full sample of literature to identify conceptual gaps in the available evidence in relation to our principal aims.
4. Conducting additional purposive sampling of included papers and/or conducting additional purposive searches to fill conceptual gaps (if needed) until theoretical saturation is reached.
5. Integrating the theoretical constructs into a 'synthesizing argument' about ethical issues (i.e., an explanatory framework).

These steps will be carried out while keeping a critical eye on the literature and on the credibility of the evidence, contradictions, rationales, discourses, proposed recommendations, etc. [55]. Theoretical saturation, i.e. the point at which no news articles are included, will be discussed by the team and transparently explained in the presentation of results. As this concept can be criticized when defined simply as "not adding new ideas", our theoretical saturation will be based on the more pragmatic concept of robustness of the synthesis argument presented [60]. Our discussion of robustness will address questions such as: does the synthesis argument address the central explanatory questions? Does the synthesis argument reflect the concept and not a single study, a group of studies or individual cases? Is it valid in spite of new studies on the same concept?

5. Ethical criticism using Quadripartite Ethical Tool (QET)

Once the critical synthesis has been completed, what can be called a critical overview of the conceptualization of ethical issues related to TR. This will be discussed using QET [61]. This tool is designed to help researchers, clinicians and students integrate ethical knowledge into

their analysis of ethical issues and contribute to the promotion of ethical reflection based on relevant philosophical and axiological foundations. In addition to producing a synthesis, this tool will enable us to provide a genuine ethical critique of unexplored areas or areas that have only been partially explored. The aim of this phase is also to encourage further reflection and research on these currently unexplored topics.

Review Team:

The research team is multidisciplinary and includes experts from different fields to ensure a broad perspective for the study. It includes specialists in TR, technology of implementation, equity in health services (access and utilisation), sociology, and philosophy (ethics). The research team has strong experience of qualitative and mixed methods research. The team includes individuals with varied healthcare professional backgrounds: physiotherapists (PT), occupational therapists (OT), psychologist and neuropsychologist (Psy), speech and language therapist (SLT), bioethicist and sociologist. The team will meet regularly given the interpretative, dynamic, and iterative nature of the methodology.

Reflexivity:

Reflexivity about the research object and the team conducting the project is an important factor in qualitative and mixed research projects [62–64]. Dixon-Woods and al. [44] have stated that the CIS is the "product of an authorial voice", so constant reflexivity on the part of the authors of the review is necessary for transparency and credibility about the synthesis process. As proposed by Salmon and al. [56] in their CIS protocol, several methods will be used to encourage reflexivity and to inform this process. To grasp how personal and professional viewpoints could shape our data interpretation, the core review team (AF, JS, AH, DK, MJD) engaged in discussions and documented their perspectives from the outset.

Emotions:

In a CIS, reflexivity concerns both the research object (i.e. the content, the dataset), and the research tool (i.e. our research team, the QET). This reflexivity needs to focus not only on the team's previous opinions and characteristics, but also on its relationship with the data that emerges. Recently, McFerran, Hense, Medcalf, Murphy and Fairchild [52] emphasized the importance of emotions and affects in the researcher's reflexive journey as they navigate through all the data collected [53]. For example, as illustrated by the McFerran's team, frustration can indicate that a column heading can be too narrow, and there is the need for a new one to capture the complexity of the data. Anger can indicate that our opinion or position is challenged and there is a need to identify the cause of this strong emotional reaction [52]. Thus, the way we react to data can be used to create new questions for interrogating the data or inductively generate new column heading.

As mentioned by Newman and Melia [65], we understand this process requires "openness to the unexpected and a willingness to take emotional responses seriously and as indicators that something of interest is being touched upon". This implies paying particular attention to oneself as well as to others. In our opinion, this is even more relevant for our study given that emotions constitute access to a person's values. Knowing that ethical issues are situations where at least one moral value is compromised, the fact of experiencing emotions in the extraction is perhaps a clue that an ethical issue is present in the research that it might be relevant to address. To illuminate this process of reflecting on the emotions we've shared with others, we'll create an "emotion" column in our extraction grid.

Public and Patient involvement

In addition to the diversity of viewpoints within our team, coming from a diverse background of rehabilitation professions, research methodologies and opinions about TR, it is imperative to involve stakeholder participation. As stated by Kastner et al. [49] about the applicability of a

CIS: "Findings can inform new typologies, concepts, models or theory but it may require a further process of interpretation by policymakers and practitioners to inform practice". Our definition of stakeholders, given the nature of our subject, includes people who have used TR care, policymakers playing a role in public health strategy, and clinicians not affiliated with the project and research processes. Our aim is to draw on their experience, skills and knowledge whenever necessary. This involvement will be of great importance, but it must be integrated in a way that makes sense to them too. We believe that these people could make an important contribution to the development of an extraction grid and the design of a conceptual framework. Their contributions could be valued throughout the review process, particularly for issues related to the individual realm for patients and clinicians, or to the organizational realm for policymakers. We have already included professional representatives and clinicians in the project, and their feedback will be solicited as we create the critical synthesis argument. In short, we will include them in our collective reflection when the extraction team presents the literature to the whole team. We are strongly engaged in staying aware of the opportunities and challenges of involving both patients and the public in rehabilitation research.

Discussion:

TR services are rapidly being integrated into healthcare systems, representing a significant evolution in the delivery of care. This rapid change creates complex and interconnects ethical issues, even if some reflections already exist, it is conceivable that partial reflections on pitfalls produce harmful repercussions for certain populations or in certain contexts. By applying the CIS, we will be able to perceive the prisms of reflection currently used and potential conceptual blind spots on this theme. The final aim is to produce a new theoretical conceptualisation and identify limitations of current approaches in order to better address ethical issues in TR. We present some of the anticipated strengths and limitations of our study.

Strengths:

Given the characteristics of the literature on ethical issues, a CIS can be used to generate a conceptual theorisation that can provide the necessary reflections prior to the implementation of TR care and services. This conceptual analysis will provide practical insights for advancing a more in-depth understanding of the issues at the core of TR practices. For example, policymakers could use this framework to assess if the multiple issues have been considered prior to the introduction of TR care and services.

Challenges and potential limitations:

The greatest expected difficulty is linked to the quantity of documents potentially included, which will require extensive data extraction. To address our study objectives, the CIS is not intended to be systematic. If an article does not bring new information to our synthesis, then it may not be included, even though it may meet our inclusion criteria. Another major expected challenge is the process of synthesizing the results of a complex and diverse set of documents. To address this challenge, the CIS approach will be enriched with ongoing input from our interdisciplinary research team to help synthesize the findings. This team and its thinking are described in more detail in the previous section “Review Team and Reflexivity".

Dissemination:

The review will serve as a contribution to the overall research project: “Avoiding pitfalls in virtual care: paving the road for more ethical and equitable policies and practices in rehabilitation” lead by A. Hudon and D. Kairy and coordinated by J. Sigouin to inform the development and implementation of TR for rehabilitation professionals. The dissemination plan for the review report encompasses a multifaceted approach, which is anticipated to involve not only the publication of findings in a peer-reviewed journal but also presentations at local, national, and/or international research meetings and workshops. As the objective is to implement practical and policy improvements, it is essential to connect with policymakers.

Ethics and dissemination:

Ethical approval is not necessary for this review as we are examining and synthesizing data from previously published literature. This CIS protocol was registered with Open Science Framework (registration DOI: https://doi.org/10.17605/OSF.IO/T3RS4).

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Author statement:

AF, JS, AH, DK were the driving force behind the design of the objectives and methodology. AF played a leading role in writing the protocol. MJD had a significant role in discussions on the ethical aspects of the protocol. All the authors contributed to the conceptualization and methodology and provided valuable feedback on the protocol manuscript. AF acted as guarantor.

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Declaration of interest:

The authors have declared that no competing interests exist.

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Additional File 1: Literature Search Strategy

Medline: Ovid MEDLINE(R) ALL <1946 to April 17, 2024>	
1	Telerehabilitation/
2	(((digital or web or online or virtual or internet or remote) adj2 rehab*) or telerehab* or tele-rehab* or telept or tele-pt or telespeech or tele-speech or teletherap* or tele-therap* or erehabilitation or e-rehabilitation).tw,kf.
3	1 or 2
4	Telemedicine/
5	Remote Consultation/
6	exp Videoconferencing/
7	Internet-Based Intervention/
8	(((digital or web or online or virtual or internet or remote) adj2 (intervention* or consult* or therap*)) or online health* or virtual care or videoconferenc* or video conferenc* or telemedicine or tele-medicine or telehealth* or tele health* or ehealth* or e-health* or teleconsultation* or tele-consultation* or econsultation* or e-consultation* or telecare or tele-care or teleintervention* or tele-intervention* or teletreatment* or tele-treatment* or telepractice* or tele-practice*).tw,kf.
9	or/4-8
10	*Speech-Language Pathology/ or *Audiologists/ or *Language Therapy/ or *Speech Therapy/
11	(((speech or language or voice) adj2 therap*) or ((speech or language) adj2 patholog*) or audiologist*).ti,kf.
12	(((speech or language or voice) adj2 therap*) or ((speech or language) adj2 patholog*) or audiologist*).ab. /freq=2
13	or/10-12
14	9 and 13
15	*Occupational Therapy/ or *Occupational Therapists/ or *occupational therapy department, hospital/
16	(ergotherap* or (occupational adj2 therap*)).ti,kf.
17	(ergotherap* or (occupational adj2 therap*)).ab. /freq=2
18	or/15-17
19	9 and 18
20	*Physical Therapy Modalities/ or *Physical Therapists/ or *Physical Therapy Specialty/ or *physical therapy department, hospital/
21	(rehab* or physiotherap* or (physical adj2 therap*)).ti,kf.
22	(rehab* or physiotherap* or (physical adj2 therap*)).ab. /freq=2
23	or/20-22
24	9 and 23
25	*Neuropsychology/ or *Psychology/
26	(neuropsycholog* or psycholog*).ti,kf.
27	(neuropsycholog* or psycholog*).ab. /freq=2
28	or/25-27
29	9 and 28
30	exp morals/ or exp social responsibility/ or exp professional competence/ or organizational policy/ or exp guideline/ or professional practice/ or professional

	autonomy/ or professional practice gaps/ or professional corporations/ or risk assessment/ or exp quality indicators, health care/ or exp professional role/ or guideline adherence/ or patient education as topic/ or exp communication/ or medically underserved area/ or patient safety/ or patient harm/ or exp health promotion/ or exp health services accessibility/ or moral development/ or exp prejudice/ or paternalism/ or exp patient rights/ or exp health policy/ or exp Computer Security/ or exp health inequities/
31	(ethic* or bioethic* or "conflict of interest" or professionalism or "professional misconduct*" or "social responsabilit*" or "professional competence*" or "organizational polic*" or "organisational polic*" or "resource guide*" or moral* or "professional practice gap*" or "professional corporation*" or risk* or "quality indicator* health care" or "professional role*" or "scope of practice*" or guideline* or "patient education" or "communication*" or "medically underserved area*" or "patient safety" or "patient harm*" or "good clinical practice*" or "organizational structure*" or "organisational structure*" or equit* or equalit* or "healthcare disparit*" or "health services accessibilit*" or virtue* or value* or "confidentialit*" or prejudice* or paternalism or "patient right*" or "informed consent*" or "treatment refusal*" or "health polic*" or "care polic*" or "computer securit*" or "data securit*" or "data anonym*" or blockchain or beneficen* or maleficen or "non-maleficen*" or justic* or autonom* or equit* or inequit* or disparit* or (internet adj3 access) or (information* adj3 (access* or disseminat*))).tw,kf.
32	30 or 31
33	3 or 14 or 19 or 24 or 29
34	32 and 33
35	limit 34 to (yr="2020 -Current" and (english or french))

Embase: Embase <1974 to 2024 April 17>	
1	Telerehabilitation/
2	(((digital or web or online or virtual or internet or remote) adj2 rehab*) or telerehab* or tele-rehab* or telept or tele-pt or telespeech or tele-speech or teletherap* or tele-therap* or erehabilitation or e-rehabilitation).ab,kf,ti.
3	1 or 2
4	telemedicine/
5	teleconsultation/
6	videoconferencing/
7	webcast/
8	web-based intervention/
9	(((digital or web or online or virtual or internet or remote) adj2 (intervention* or consult* or therap*)) or online health* or virtual care or videoconferenc* or video conferenc* or telemedicine or tele-medicine or telehealth* or tele health* or ehealth* or e-health* or teleconsultation* or tele-consultation* or econsultation* or e-

	consultation* or telecare or tele-care or teleintervention* or tele-intervention* or teletreatment* or tele-treatment* or telepractice* or tele-practice*).ab,kf,ti.
10	or/4-9
11	*speech disorder/ or *audiologist/ or *language therapy/ or *speech therapy/
12	(((speech or language or voice) adj2 therap*) or ((speech or language) adj2 patholog*) or audiologist*).ti,kf.
13	(((speech or language or voice) adj2 therap*) or ((speech or language) adj2 patholog*) or audiologist*).ab. /freq=2
14	or/11-13
15	9 and 14
16	*occupational therapy/ or *occupational therapist/ or *hospital department/
17	(ergotherap* or (occupational adj2 therap*)).ti,kf.
18	(ergotherap* or (occupational adj2 therap*)).ab. /freq=2
19	or/16-18
20	9 and 19
21	*physiotherapy/ or *physiotherapist/ or *hospital department/
22	(rehab* or physiotherap* or (physical adj2 therap*)).ti,kf.
23	(rehab* or physiotherap* or (physical adj2 therap*)).ab. /freq=2
24	or/21-23
25	9 and 24
26	*neuropsychology/ or *psychology/ or *psychologist/
27	(neuropsycholog* or psycholog*).ti,kf.
28	(neuropsycholog* or psycholog*).ab. /freq=2
29	or/26-28
30	9 and 29
31	exp morality/ or conscience/ or exp ethics/ or professional misconduct/ or professional competence/ or clinical competence/ or organizational policy/ or practice guideline/ or practice gap/ or professional practice/ or exp social justice/ or risk assessment/ or health care quality/ or exp professional standard/ or protocol compliance/ or patient education/ or access to information/ or internet access/ or digital divide/ or exp interpersonal communication/ or health care planning/ or exp patient safety/ or exp health promotion/ or exp health care access/ or exp prejudice/ or social discrimination/ or implicit bias/ or paternalism/ or exp patient right/ or exp health care policy/ or exp computer security/ or exp health disparity/
32	(ethic* or bioethic* or "conflict of interest" or professionalism or "professional misconduct*" or "social responsabilit*" or "professional competence*" or "organizational polic*" or "organisational polic*" or "resource guide*" or moral* or "professional practice gap*" or "professional corporation*" or risk* or "quality indicator* health care" or "professional role*" or "scope of practice*" or guideline* or "patient education" or "communication*" or "medically underserved area*" or "patient safety" or "patient harm*" or "good clinical practice*" or "organizational structure*" or "organisational structure*" or equit* or equalit* or "healthcare disparit*" or "health services accessibilit*" or virtue* or value* or "confidentialit*" or prejudice* or paternalism or "patient right*" or "informed consent*" or "treatment refusal*" or "health polic*" or "care polic*" or "computer securit*" or "data securit*" or "data anonym*" or blockchain or beneficen* or maleficen or "non-maleficen*" or justic* or autonom* or equit* or inequit* or disparit* or (internet adj3 access) or (information* adj3 (access* or disseminat*))).ab,kf,ti.
33	31 or 32

34	3 or 15 or 20 or 25 or 30
35	33 and 34
36	limit 35 to ((english or french) and yr="2020 -Current")

APA PsycInfo <1806 to April Week 1 2024>	
1	telepsychiatry/ or telepsychology/ or telerehabilitation/
2	(((digital or web or online or virtual or internet or remote) adj2 rehab*) or telerehab* or tele-rehab* or telept or tele-pt or telespeech or tele-speech or teletherap* or tele-therap* or erehabilitation or e-rehabilitation).ab,id,ti.
3	1 or 2
4	telemedicine/ or online therapy/ or exp teleconferencing/ or teleconsultation/
5	(((digital or web or online or virtual or internet or remote) adj2 (intervention* or consult* or therap*)) or online health* or virtual care or videoconferenc* or video conferenc* or telemedicine or tele-medicine or telehealth* or tele health* or ehealth* or e-health* or teleconsultation* or tele-consultation* or econsultation* or e-consultation* or telecare or tele-care or teleintervention* or tele-intervention* or teletreatment* or tele-treatment* or telepractice* or tele-practice* or teleconferenc*).ab,id,ti.
6	4 or 5
7	*language therapy/ or *speech language pathology/ or *speech therapy/ or *speech therapists/
8	(((speech or language or voice) adj2 therap*) or ((speech or language) adj2 patholog*) or audiologist*).id,ti.
9	(((speech or language or voice) adj2 therap*) or ((speech or language) adj2 patholog*) or audiologist*).ab. /freq=2
10	7 or 8 or 9
11	6 and 10
12	*occupational therapy/ or *occupational therapists/
13	(ergotherap* or (occupational adj2 therap*)).id,ti.
14	(ergotherap* or (occupational adj2 therap*)).ab. /freq=2
15	12 or 13 or 14
16	6 and 15
17	*physical therapy/ or *physical therapists/
18	(rehab* or physiotherap* or (physical adj2 therap*)).id,ti.
19	(rehab* or physiotherap* or (physical adj2 therap*)).ab. /freq=2
20	17 or 18 or 19
21	6 and 20
22	*neuropsychology/ or *psychologists/ or *psychology/
23	(neuropsycholog* or psycholog*).id,ti.
24	(neuropsycholog* or psycholog*).ab. /freq=2

25	22 or 23 or 24
26	6 and 25
27	morality/ or exp ethics/ or conscience/ or moral development/ or exp social responsibility/ or virtue/ or exp professional competence/ or exp policy making/ or treatment guidelines/ or "quality of care"/ or exp professional organizations/ or risk assessment/ or exp professional role/ or client education/ or exp communication/ or exp information seeking/ or digital divide/ or digital literacy/ or internet access/ or patient safety/ or health promotion/ or exp health care access/ or exp health disparities/ or moral development/ or exp prejudice/ or ageism/ or implicit bias/ or exp social justice/ or exp social discrimination/ or paternalism/ or exp client rights/ or health care policy/ or computer security/
28	(ethic* or bioethic* or "conflict of interest" or professionalism or "professional misconduct*" or "social responsabilit*" or "professional competence*" or "organizational polic*" or "organisational polic*" or "resource guide*" or moral* or "professional practice gap*" or "professional corporation*" or risk* or "quality indicator* health care" or "professional role*" or "scope of practice*" or guideline* or "patient education" or "communication*" or "medically underserved area*" or "patient safety" or "patient harm*" or "good clinical practice*" or "organizational structure*" or "organisational structure*" or equit* or equalit* or "healthcare disparit*" or "health services accessibilit*" or virtue* or value* or "confidentialit*" or prejudice* or paternalism or "patient right*" or "informed consent*" or "treatment refusal*" or "health polic*" or "care polic*" or "computer securit*" or "data securit*" or "data anonym*" or blockchain or beneficen* or maleficen or "non-maleficen*" or justic* or autonom* or equit* or inequit* or disparit* or (internet adj3 access) or (information* adj3 (access* or disseminat*))).ab,id,ti.
29	27 or 28
30	3 or 11 or 16 or 21 or 26
31	29 and 30
32	limit 31 to ((english or french) and yr="2020 -Current")

Cinahl Complete	
S17	S15 AND S16 Opérateurs de restriction - Date de publication: 20200101-; Langue: English, French
S16	S1 OR S6 OR S8 OR S10 OR S12
S15	S13 OR S14
S14	TI ((ethic* OR "conflict of interest" OR professionalism OR "professional misconduct*" OR "social responsabilit*" OR "professional competence*" OR "organizational polic*" OR "resource guide*" OR moral* OR "social norm*" OR "professional practice gap*" OR "professional corporation*" OR risk* OR "quality indicator health care" OR "professional role*" OR "sick role*" OR "scope of practice*" OR "guideline adherence*" OR "health promotion" OR "wellness program*" OR "patient education" OR communication* OR "communication

	barrier*" OR "socioeconomic factor*" OR "minority group*" OR "social isolation" OR "social marginalization" OR "social vulnerabilit*" OR "culturally competent care" OR "rural population*" OR "medically underserved area*" OR "patient safety" OR "patient harm*" OR "distance learning" OR "good clinical practice*" OR "organizational structure*" OR equit* OR equalit* OR "healthcare disparit*" OR "health services accessibility" OR virtue* OR value* OR "confidentialit*" OR prejudice* OR paternalism OR "patient right*" OR "informed consent*" OR "treatment refusal*" OR "health polic*" OR "care polic*" OR "computer securit*" OR "data securit*" OR beneficen* OR "non-maleficen*" OR justic* OR autonom* OR inequit* OR (internet N3 access) OR (information* N3 (access* OR disseminat*)))) OR AB ((ethic* OR "conflict of interest" OR professionalism OR "professional misconduct*" OR "social responsabilit*" OR "professional competence*" OR "organizational polic*" OR "resource guide*" OR moral* OR "social norm*" OR "professional practice gap*" OR "professional corporation*" OR risk* OR "quality indicator health care" OR "professional role*" OR "sick role*" OR "scope of practice*" OR "guideline adherence*" OR "health promotion" OR "wellness program*" OR "patient education" OR "communication*" OR "communication barrier*" OR "socioeconomic factor*" OR "minority group*" OR "social isolation" OR "social marginalization" OR "social vulnerabilit*" OR "culturally competent care" OR "rural population*" OR "medically underserved area*" OR "patient safety" OR "patient harm*" OR "distance learning" OR "good clinical practice*" OR "organizational structure*" OR equit* OR equalit* OR "healthcare disparit*" OR "health services accessibility" OR virtue* OR value* OR confidentialit* OR prejudice* OR paternalism OR "patient right*" OR "informed consent*" OR "treatment refusal*" OR "health polic*" OR "care polic*" OR "computer securit*" OR "data securit*" OR beneficen* OR "non-maleficen*" OR justic* OR autonom* OR inequit* OR (internet N3 access) OR (information* N3 (access* OR disseminat*)))) OR SU ((ethic* OR "conflict of interest" OR professionalism OR "professional misconduct*" OR "social responsabilit*" OR "professional competence*" OR "organizational polic*" OR "resource guide*" OR moral* OR "social norm*" OR "professional practice gap*" OR "professional corporation*" OR risk* OR "quality indicator health care" OR "professional role*" OR "sick role*" OR "scope of practice*" OR "guideline adherence*" OR "health promotion" OR "wellness program*" OR "patient education" OR communication* OR "communication barrier*" OR "socioeconomic factor*" OR "minority group*" OR "social isolation" OR "social marginalization" OR "social vulnerabilit*" OR "culturally competent care" OR "rural population*" OR "medically underserved area*" OR "patient safety" OR "patient harm*" OR "distance learning" OR "good clinical practice*" OR "organizational structure*" OR equit* OR equalit* OR "healthcare disparit*" OR "health services accessibility" OR virtue* OR value* OR confidentialit* OR prejudice* OR paternalism OR "patient right*" OR "informed consent*" OR "treatment refusal*" OR "health polic*" OR "care polic*" OR "computer securit*" OR "data securit*" OR beneficen* OR "non-maleficen*" OR justic* OR autonom* OR inequit* OR (internet N3 access) OR (information* N3 (access* OR disseminat*))))
S13	(MH "Morals+") OR (MH "Paternalism") OR (MH "Prejudice+") OR (MH "Ethics+") OR (MH "Professional Misconduct") OR (MH "Professional Competence") OR (MH "Clinical Competence") OR (MH "Organizational Policies") OR (MH "Practice Guidelines") OR (MH "Professional Organizations") OR (MH "Risk Assessment") OR (MH "Clinical Indicators") OR (MH "Professional Role+")

	OR (MH "Scope of Practice") OR (MH "Guideline Adherence") OR (MH "Patient Education") OR (MH "Access to Information+") OR (MH "Communication+") OR (MH "Medically Underserved Area") OR (MH "Patient Safety") OR (MH "Internet Access") OR (MH "Health Inequities") OR (MH "Health Status Disparities+") OR (MH "Health Promotion") OR (MH "Health Services Accessibility+") OR (MH "Beneficence") OR (MH "Professional Autonomy") OR (MH "Relational Autonomy") OR (MH "Social Justice+") OR (MH "Patient Rights+") OR (MH "Health Policy") OR (MH "Data Security") OR (MH "Blockchain")
S12	S4 AND S11
S11	(MM "Psychology+") OR (MM "Neuropsychology") OR (MM "Psychologists") OR TI ((neuropsycholog* OR psycholog*)) OR AB ((neuropsycholog* OR psycholog*)) OR SU ((neuropsycholog* OR psycholog*))
S10	S4 AND S9
S9	((MM "Physical Therapy") OR (MM "Physical Therapists") OR (MM "Physical Therapy Service")) OR TI ((rehab* OR physiotherap* OR (physical N2 therap*))) OR AB ((rehab* OR physiotherap* OR (physical N2 therap*))) OR SU ((rehab* OR physiotherap* OR (physical N2 therap*)))
S8	S4 AND S7
S7	(((MM "Occupational Therapy") OR (MM "Occupational Therapists") OR (MM "Occupational Therapy Service"))) OR TI ((ergotherap* OR (occupational N2 therap*))) OR AB ((ergotherap* OR (occupational N2 therap*))) OR SU ((ergotherap* OR (occupational N2 therap*)))
S6	S4 AND S5
S5	(((MM "Speech-Language Pathology") OR (MM "Speech-Language Pathologists") OR (MM "Audiology") OR (MM "Audiologists") OR (MM "Speech Therapy") OR (MM "Language Therapy"))) OR TI ((((speech OR language OR voice) N2 therap*) OR ((speech OR language) N2 patholog*) OR audiologist*)) OR AB ((((speech OR language OR voice) N2 therap*) OR ((speech OR language) N2 patholog*) OR audiologist*)) OR SU ((((speech OR language OR voice) N2 therap*) OR ((speech OR language) N2 patholog*) OR audiologist*))
S4	S2 OR S3
S3	TI ((((digital OR web OR online OR virtual OR internet OR remote) N2 (intervention* OR consult* OR therap*)) OR "online health*" OR "virtual care" OR videoconferenc* OR "video conferenc*" OR telemedicine OR "tele-medicine" OR telehealth* OR "tele health*" OR ehealth* OR "e-health*" OR teleconsultation* OR "tele-consultation*" OR econsultation* OR "e-consultation*" OR telecare OR "tele-care" OR teleintervention* OR "tele-intervention*" OR teletreatment* OR "tele-treatment*" OR telepractice* OR "tele-practice*")) OR AB ((((digital OR web OR online OR virtual OR internet OR remote) N2 (intervention* OR consult* OR therap*)) OR "online health*" OR "virtual care" OR videoconferenc* OR "video conferenc*" OR telemedicine OR "tele-medicine" OR telehealth* OR "tele health*" OR ehealth* OR "e-health*" OR teleconsultation* OR "tele-consultation*" OR econsultation* OR "e-consultation*" OR telecare OR "tele-care" OR teleintervention* OR "tele-intervention*" OR teletreatment* OR "tele-treatment*" OR telepractice* OR "tele-practice*")) OR SU ((((digital OR web OR online OR virtual OR internet OR remote) N2 (intervention* OR consult* OR therap*)) OR "online health*" OR "virtual care" OR videoconferenc* OR "video conferenc*" OR telemedicine OR "tele-medicine" OR telehealth* OR "tele health*" OR ehealth* OR "e-health*" OR teleconsultation* OR "tele-consultation*" OR econsultation* OR "e-consultation*" OR telecare OR "tele-care" OR teleintervention* OR "tele-

	intervention*" OR teletreatment* OR "tele-treatment*" OR telepractice* OR "tele-practice*"))
S2	((MH "Telehealth") OR (MH "Telemedicine") OR (MH "Remote Consultation")) OR (MH "Videoconferencing+") OR (MH "Internet-Based Intervention")
S1	(MH "Telerehabilitation") OR TI ((((digital OR web OR online OR virtual OR internet OR remote) N2 rehab*) OR telerehab* OR "tele-rehab*" OR telept OR "tele-pt" OR telespeech OR "tele-speech" OR teletherap* OR "tele-therap*" OR erehabilitation OR "e-rehabilitation")) OR AB ((((digital OR web OR online OR virtual OR internet OR remote) N2 rehab*) OR telerehab* OR "tele-rehab*" OR telept OR "tele-pt" OR telespeech OR "tele-speech" OR teletherap* OR "tele-therap*" OR erehabilitation OR "e-rehabilitation")) OR SU ((((digital OR web OR online OR virtual OR internet OR remote) N2 rehab*) OR telerehab* OR "tele-rehab*" OR telept OR "tele-pt" OR telespeech OR "tele-speech" OR teletherap* OR "tele-therap*" OR erehabilitation OR "e-rehabilitation"))

Web of Science	
1	TS=(((digital OR web OR online OR virtual OR internet OR remote) NEAR/2 rehab*) OR telerehab* OR "tele-rehab*" OR telept OR "tele-pt" OR telespeech OR "tele-speech" OR teletherap* OR "tele-therap*" OR erehabilitation OR "e-rehabilitation")
2	TS=((((digital OR web OR online OR virtual OR internet OR remote) NEAR/2 (intervention* OR consult* OR therap*)) OR "online health*" OR "virtual care" OR videoconferenc* OR "video conferenc*" OR telemedicine OR "tele-medicine" OR telehealth* OR "tele health*" OR ehealth* OR "e-health*" OR teleconsultation* OR "tele-consultation*" OR econsultation* OR "e-consultation*" OR telecare OR "tele-care" OR teleintervention* OR "tele-intervention*" OR teletreatment* OR "tele-treatment*" OR telepractice* OR "tele-practice*"))
3	TS=((((speech OR language OR voice) NEAR/2 therap*) OR ((speech OR language) NEAR/2 patholog*) OR audiologist*))
4	#2 AND #3
5	TS=(ergotherap* OR (occupational NEAR/2 therap*))
6	#2 AND #5
7	TS=(rehab* OR physiotherap* OR (physical N2 therap*))
8	#2 AND #7
9	TS=(neuropsycholog* OR psycholog*)
10	#2 AND #9
11	TS=(ethic* OR "conflict of interest" OR professionalism OR "professional misconduct*" OR "social responsabilit*" OR "professional competence*" OR "organizational polic*" OR "resource guide*" OR moral* OR "social norm*" OR "professional practice gap*" OR "professional corporation*" OR risk* OR "quality indicator health care" OR "professional role*" OR "sick role*" OR "scope of practice*" OR "guideline adherence*" OR "health promotion" OR "wellness

	program*" OR "patient education" OR communication* OR "communication barrier*" OR "socioeconomic factor*" OR "minority group*" OR "social isolation" OR "social marginalization" OR "social vulnerabilit*" OR "culturally competent care" OR "rural population*" OR "medically underserved area*" OR "patient safety" OR "patient harm*" OR "distance learning" OR "good clinical practice*" OR "organizational structure*" OR equit* OR equalit* OR "healthcare disparit*" OR "health services accessibility" OR virtue* OR value* OR "confidentialit*" OR prejudice* OR paternalism OR "patient right*" OR "informed consent*" OR "treatment refusal*" OR "health polic*" OR "care polic*" OR "computer securit*" OR "data securit*" OR beneficen* OR "non-maleficen*" OR justic* OR autonom* OR inequit* OR (internet NEAR/3 access) OR (information* NEAR/3 (access* OR disseminat*)))
12	#10 AND #11
13	#12 and 2020 or 2021 or 2022 or 2023 or 2024 or 2025 (Publication Years) and English or French (Languages)

Additional File 2: Data extraction Framework

1. **Data extractor:**
2. **Title:**
3. **Authors:**
4. **Document characteristics:**
    - Year of publication:
    - Journal of publication:
    - Type of paper:
    - Methods:
    - Years of data collection:
    - Localisation of the team/of the study (if different):
    - Fundings:

5. **Questions for extracting key results:**

Who are the individuals undertaking the research? (i.e., researchers, clinicians, politicians?)	
What stage of telerehabilitation is considered? (i.e., assessment, follow-up, routine care)	
What ethical or critical lens is used? (i.e., principism, virtue ethics, deontological ethics)	
What is the level of reflection? individual, organizational, community and system?	
What are the underlying assumptions regarding efficacity and efficiency?	
What epistemological and methodological views are used in the paper?	
What are the issues at stake?	

What are the recommendations for implementation in professional practice?	

6. **Describe the focus of the document** (using one phrase if possible)

7. **Summary of key findings or insights from the document**

8. **Personal comments on the document**

9. **Emotions when reading the document/extracting data**

BMJ Open

What are the ethical issues related to telerehabilitation? A critical interpretive synthesis protocol

Journal:	*BMJ Open*
Manuscript ID	bmjopen-2025-099728.R2
Article Type:	Protocol
Date Submitted by the Author:	08-Apr-2025
Complete List of Authors:	Filleul, Arthur; Institut de recherches cliniques de Montreal, Unité de recherche en éthique pragmatique de la santé; Centre for Interdisciplinary Research in Rehabilitation of Greater Montreal; Université de Montréal, Bioéthique; Centre de recherche en éthique (CRÉ) Drolet, Marie-Josée; Universite du Quebec a Trois-Rivieres, Département d'ergothérapie; Centre de recherche en éthique (CRÉ) Sigouin, Jennifer; Centre for Interdisciplinary Research in Rehabilitation of Greater Montreal Hudon , Anne ; Université de Montréal Faculté de Médecine, École de réadaptation; Centre for Interdisciplinary Research in Rehabilitation of Greater Montreal; Centre de recherche en éthique (CRÉ) Kairy, Dahlia; Centre for Interdisciplinary Research in Rehabilitation of Greater Montreal; Université de Montréal Faculté de Médecine, École de réadaptation
Primary Subject Heading:	Rehabilitation medicine
Secondary Subject Heading:	Ethics, Health policy, Health informatics, Public health, Qualitative research
Keywords:	ETHICS (see Medical Ethics), REHABILITATION MEDICINE, Telemedicine < BIOTECHNOLOGY & BIOINFORMATICS

What are the ethical issues related to telerehabilitation? A critical interpretive synthesis protocol

Arthur Filleul [1,2*] ; Marie-Josée Drolet [2,3] ; Jennifer Sigouin[1] ; Anne Hudon[1,2,4] ; Dahlia Kairy[1,4]

1. Centre for Interdisciplinary Research in Rehabilitation of Greater Montreal (CRIR), Montréal, Québec, Canada
2. Centre de recherche en éthique (CRÉ), Montréal, Québec, Canada
3. Occupational therapy Department, Université du Québec à Trois-Rivières (UQTR), Trois-Rivières, Québec, Canada
4. School of rehabilitation, Faculty of medicine, Université de Montréal, Montreal, Quebec, Canada

***Corresponding Author:** Arthur Filleul

Email: arthur.filleul@umontreal.ca (AF)

Key-words: critical interpretive synthesis; ethics; rehabilitation; telerehabilitation.

Word-count: 7939 words

Abstract

Introduction: Telerehabilitation (also known as virtual rehabilitation) refers to the use of telecommunication technologies to deliver remote rehabilitation services synchronously or asynchronously to patients. Systematic reviews seem to validate the efficacy and efficiency of telerehabilitation services for diverse patient conditions, while offering in addition potential cost savings in healthcare. However, integrating telerehabilitation into clinical settings raises several ethical issues, including the risk of exacerbating existing health inequities in the provision of care. Despite the apparent scarcity of the literature addressing ethical issues related to telerehabilitation, some of these fundamental concerns have already been discussed in health ethics publications. The main objectives of this study are therefore to first scrutinize what has been published to date and secondly to critically examine the way in which these dimensions have been conceptualised, especially the philosophical and ethical conceptions on which they are based.

Methods and analysis: To meet these objectives, we will conduct a Critical Interpretive Synthesis (CIS). By using an iterative and interactive process, a CIS aims to critically examine the literature and develop a theoretical understanding grounded in review studies. As per the steps described by Dixon-Woods, we will start by conducting a systematic search of the literature within five selected databases: CINAHL, EMBASE, MEDLINE, Web of Science and PsycINFO. The search strategy will be based on two main concepts: 1) telerehabilitation and 2) ethic. This systematic search will be completed by other research strategy: searching the list of references of selected articles and contacting experts within and outside our team's expertise. Search results will be imported within the Covidence software to be assessed for relevance. We will include all empirical and non-empirical articles that specifically investigate or discuss ethical dimensions of telerehabilitation. Only studies published in English and French will be included. The search and selection of the articles will

be carried out interactively and inductively throughout the stages of extraction and development of a theoretical understanding of the data to fill emerging conceptual gaps. The analysis and critical synthesis will be led by the first author but carried out by our multidisciplinary research team. This study, through its critical dimension, has the potential to provide a more comprehensive overview of the many ethical issues surrounding telerehabilitation.

Ethics and dissemination: This review does not require ethical approval. We aim to publish the results in a peer-reviewed journal and do presentations at local, national, and/or international research meetings and workshops for all stakeholders.

Strengths and limitations of this study

- Critical interpretive synthesis (CIS) draws on qualitative research traditions and is distinguished from other approaches to literature synthesis by its iterative, interactive, and evolving approach.
- This CIS will provide a better understanding of how ethical issues in rehabilitation have been defined to date.
- This review will also help identify blind spots in ethical reflection, whether on issues that have already been defined or on those that have yet to be identified.
- A key challenge is synthesizing results from a diverse set of documents. To address this, the CIS approach will be supported by continuous input from our interdisciplinary team.

Introduction

Technology has transformed various facets of life, including medicine, giving rise to innovative forms of care such as telemedicine and telehealth. While telehealth encompasses health

information available on tech platforms, telemedicine can be defined as "the practice of medical consultation between physicians and patients using telecommunication systems over some distance" [1–3]. Telerehabilitation (TR) is a telemedicine branch involving remote rehabilitation services (see all the definitions in Table 1) [4]. TR can refer to any part of rehabilitation services: assessment, diagnosis, treatment, education, follow-up, and is provided remotely synchronously or asynchronously, via video and/or audio formats and/or texts [5]. TR can be used by many rehabilitation professionals, including audiologists, neuropsychologists, occupational therapists, physiotherapists, psychologists, rehabilitation physicians, speech therapists [6]. The COVID-19 pandemic, through the need for social distancing measures, has led to the widespread adoption of TR care, even if it existed before the pandemic [7]. This large-scale experiment was carried out under emergency conditions, leaving limited time for reflection and thus several unconsidered questions.

Table 1: Key terms and definition

Telemedicine	"The provision of online healthcare services when the distance between a service provider and a patient matter" [2]
Telehealth	"The use of a technology-based virtual platform to deliver various aspects of health information, prevention, monitoring, and medical care." [8]
Telerehabilitation	"A branch of telemedicine that uses telecommunication technologies to deliver rehabilitation services synchronously or asynchronously to patients at a distance." [9]
Ethical issue	"Any situation that may compromise, in whole or in part, the respect of at least one moral value considered legitimate and desirable" [10]

Recent studies have shown that TR can be more or no-less effective than in-person rehabilitation for patients suffering from various pathologies such as musculoskeletal (e.g., post orthopaedic surgery, chronic pain) [11–13], neurological (e.g., stroke, traumatic brain injury) [14–18], cardiopulmonary [19–21] and other health conditions [4]. Above all, TR is often cited as a means of improving accessibility and continuity of care, for populations structurally made vulnerable [22] such as people with disabilities or geographically remote populations [4,23–26]. TR could therefore have the potential to guarantee the quality of care while saving health resources and reducing wait times.

Although some research results seem very promising, they remain controversial and inconsistent. For example, the effectiveness of TR seems to be compromised when the experimental trials come to an end and give way to real-life deployment, without the considerable resources and monitoring of the experimental phases [27]. TR can also affect the quality of care, as clinicians and patients report significant barriers, including insufficient infrastructure, limited resources and a restricted digital health culture [28]. Regarding improved accessibility, while there may be a benefit in terms of cost and travel time (both from an economic perspective and with regard of the individual's energy resources), emerging data shows that urban and relatively young patients are most likely to use telehealth applications [29]. These are people who already easier access to rehabilitation, therefore TR has the potential not to reduce, but to exacerbate pre-existing biases [30] such as inequalities in health, particularly in terms of access to care.

From a more global perspective, TR is fully in line with a neoliberal Western socio-political context. It provides a justification for the implementation of austerity policies over the last few decades, aimed at reducing healthcare budgets while maintaining a so-called "high quality of care" [31,32]. As Botrugno shows by tracing the European political agenda behind the implementation of tele-health care and services, the arguments put forward are primarily

economic in nature before assuming an ethical dimension [33]. In this context, TR may be seen as a desirable way of satisfying economic and political objectives: “do more with less”. Because of this global context, the focus on ethical issues may be partial and may not cover the whole spectrum [34]. While the rationale for implementing TR is appealing, it is essential to approach it with a critical and ethical reflection. We must avoid the trap of technological determinism, which posits technology as the primary driver of social transformation, dictating the direction and pace of progress; equally, we must resist technological fatalism, which promotes passive acceptance of technological developments as unavoidable and beyond the reach of human agency [35]. Instead, we need to carefully consider the ethical implications to ensure that the values that underpin rehabilitation practices such as justice, safety and patient well-being remain primordial [34,36,37].

TR can be considered to have ethical stakes, since some situations are potentially compromising, in whole or in part, respect for at least one moral value (such as justice, responsibility, safety, etc.) [10]. Several issues have already been raised in connection with TR [34,38]. There are many theoretical frameworks (casuistry, four box method, etc.) and moral theories (consequentialism, deontology, virtue ethics, etc.) for identifying and discussing ethical issues. Among them, principalism has been widely adopted to study ethical issues in healthcare practice, largely because it avoids the complex debates of moral philosophy at the theoretical level. It allows us to quickly focus on the tensions between 4 main principles: autonomy, beneficence, justice, and non-maleficence. If we consider ethical issues related to TR through the lens of *principalism* as defined by Beauchamps & Childress [39], it appears that the four principles are in jeopardy. The principle of *justice* can be compromised, particularly regarding equity of access to rehabilitation services. This seems particularly relevant for people living with cognitive disorders that limit their use of technology, or people living in isolated areas, people lacking access to the Internet, people unfamiliar with technological devices or

lacking the financial means to access TR services. TR therefore implies ethical issues relating to distributive justice, as location, gender, acquaintance with technologies, culture and other social aspects can influence decisions on the allocation and provision of TR. The principle of *non-maleficence* may be threatened if TR practices lead to under-supervision and limited control by the clinician. This can lead to a direct risk of falls when working on balance or functional exercises at home (transfers to bath for example). Lack of proximity can also lead to the failure to recognize physical, cognitive or emotional fatigue when the person is working on language exercises or occupational organization tasks. Remote activities may indirectly deprive patients of effective and useful rehabilitation methods, this would compromise the principle of *beneficence*. TR can also jeopardize the principle of *beneficence* in view of the impossibility of "hands-on" and face-to-face evaluation [28]. Indeed, therapists may miss important clinical signs or symptoms, leading to misdiagnosis or inappropriate treatment decisions. In addition, a person may not feel sufficiently confident to share all the relevant information required for the rehabilitation professional to understand a particular situation. In certain cases, physical presence is necessary for direct assessment, which may not be fully considered during remote consultations. Regarding the principles of *autonomy*, decision-making on the rehabilitation modality, whether physical or remote, can lead to paternalistic situations, where clinicians or a third party decide without consulting the patient's opinion. Also, during remote sessions, the professional may be less able to fully appreciate the patient's concerns and thus support his or her free consent and decision-making autonomy. Such situations have the potential to violate the patient's values and expectations. Thus, TR services raise many ethical issues that may jeopardize many values and ethical principles.

To provide guidance in our analysis of the ethical issues involved in TR, we will use the Quadripartite Ethical Tool (QET), an ethical analysis tool derived from the field of rehabilitation [40–43]. This tool is designed to help researchers, clinicians and students

integrate ethical knowledge into their analysis of ethical issues and contribute to fostering ethical reflections based on pertinent philosophical and axiological foundations. The innovative aspect of the QET is that it encompasses the three main contemporary ethical theories (deontologism, utilitarianism, and virtue ethics) and an axiological ontology (professional values) [40]. It thus provides four distinct but complementary ethical lenses through which to conduct ethical analyses and support ethically sound decision-making. We will use this tool not as a framework for analysis, but as a means of shedding different ethical lights on what has been considered up to now and how it has been done. This will enable us to discuss the relevance (i.e. the quality of ethical knowledge mobilized) and comprehensiveness (i.e. the attempt to provide a broad reflexive balance) of the conceptualisation of ethical issues relating to TR.

The need for a Critical Interpretive Synthesis:

RT raises a number of different issues that need to be carefully considered in order to determine whether its use is appropriate in a given context and, if so, how it should be implemented. Several issues have already been raised in connection with TR [34,38]. But as these issues are complex, interconnected and broad, as well as influenced by socio-cultural, economic and technological contexts, it is important to ask how these issues have been conceptualised in the literature so far. This is why we believe it is crucial to take a critical view of how the ethical issues associated with TR activities have been shaped to develop an in-depth conceptual thinking.

Review objectives:

The aims of this critical synthesis are to:

1. Explore what ethical issues are discussed in connection with TR (e.g. what ethical values or principles are compromised? at what level? for whom?).
2. Understand how these issues are conceptualised (e.g. what ethical lens? by whom? on what ethical foundations or assumptions?)

If our first objective seems clear and obvious, we recognize that the second comment may seem vaguer and more conceptual, but it's important to us for two reasons. First, ethical issues can be examined through different "lenses" or ethical frameworks, such as care ethics (prioritizing relationships and empathy), consequentialism (evaluating outcomes), deontological ethics (focusing on duties and rules), or virtue ethics (focusing on the character and intentions of individuals) or). Different ethical lenses can lead to different conclusions about the ethical implications of telerehabilitation, such as issues relating to patient privacy, consent or quality of care. It is therefore important to identify those used to date in literature to understand if there are any gaps in current reflection. Secondly, ethical issues related to telerehabilitation are likely to be perceived differently by different stakeholders, such as healthcare providers, patients, policymakers or technology developers. Each group may have its own interests, values and ethical concerns. Understanding who conceptualizes ethical issues enables us to critically assess how these different perspectives influence the way issues are framed and addressed.

Methods and analysis:

We will employ a critical interpretive synthesis (CIS) approach for the literature review. This method was introduced by Dixon-Woods in 2006 in an article focusing on the concept of access to healthcare [44]. Unlike conventional systematic reviews, which are designed to compile, aggregate, and summarise data on predetermined concepts, CIS examines the literature with a critical lens. CIS allows the use of a wide range of sources (qualitative and quantitative) if they are deemed relevant, without the need to assess data quality. It avoids limiting data integration based on the quality of the source or the methods employed. The processes of question formulation, research, selection, data extraction, critique and synthesis are iterative and interactive [44,45]. The aim is not to search the literature for the effectiveness or ineffectiveness of a treatment, as in a systematic review, or even to understand the extent and gaps in the

literature, as in a scoping review, but rather to understand the assumptions underlying the concepts used. This allows us to question assumptions, ideologies and methods that are frequently used and often taken for granted in the literature regarding a subject, especially in fields with a large and complex body of literature [45]. This is particularly important when addressing ethical issues, as it allows researchers to question prevailing norms and values, leading to a more nuanced understanding of the challenges in TR. Because CIS emphasizes theory development, critical orientation, and flexibility, we believe it suits our objective of developing a more comprehensive understanding of the ethical issues related to TR [46]. The presentation of a research framework may be relevant, although a systematic even if a PICO may be too specific, we opted for a PCC as in a scoping review [47]. Our population is thus made up of users and providers of rehabilitation services, our concept addresses ethical issues and our context is telerehabilitation. While a CIS begins with an initial broad question, this question will evolve and must be seen as a compass more than an anchor [48]; ours will be: "How are ethical issues currently described and conceptualised in the field of TR?".

5 steps proposal and quality framework

Though CIS offers considerable flexibility, it also presents the drawback of introducing ambiguity in the application and reporting of the review in research [49]. To improve the transparency and systematicity of the CIS, the study will be based on the criteria proposed by Depraetere et al. [46] (see Table 2). Although this framework helps to improve the quality of our research, there are currently no widely accepted guidelines for a CIS protocol. We therefore propose the following 5 steps: (1) Search Strategy, (2) Study selection, (3) Data extraction, (4) Interpretive Synthesis (5) Ethical criticism using QET. These steps have been adapted from the original Dixon-Woods methodological document [44], methodological articles [45,46,49–53]

and available examples of CIS protocols [54–58]. The first stage, the research strategy, began in June 2024, and we plan to complete this CIS in December 2025.

Table 2 Assessment criteria of CIS according to Depraetere and al. (2020) [46]

Key feature	Description of the evaluation criteria for obtaining score 1
1. Data Extraction	Recurring themes/concepts are identified and the analysis technique (based on the meta-ethnography, including an inductive approach) is clearly described.
2. Synthesising argument	A synthesising argument is described and the applied analysis technique (i.e. examining the relationship between the concepts, refining the identified concepts, creating higher-order construct and constructing a conceptual/theoretical framework) is described. The analysis technique is based on the meta-ethnography and includes an inductive approach.
3. Inclusion of various methods	Selected studies are specified (either in text, table or in appendix where the number of different research results included in the review are described) and include various research results (i.e. quantitative and qualitative and/or mixed methods).
4. Flexible inclusion criteria	Selection strategy is described either by specifying inclusion criteria that allow for the inclusion of both qualitative and quantitative research results. Or by specifying that the selection of sources is based on relevance to the research question without utilizing specific criteria.
5. Quality appraisal	Quality appraisal is described and based on likely relevance and contribution to the theory that is being developed. Some form of quality appraisal may occur, and methodologically weak studies may be excluded. However, emphasis is placed on likely relevance and is also described as such by the authors.
6. Two-staged sampling process	Sampling strategy is reported (including a description about the number of sources found and selected in text and/or in flow chart) and includes a two-staged sampling process starting with purposive sampling, followed by theoretical sampling to add, test and elaborate the emerging analysis.

7. Broad searching strategy	At least three searching methods are clearly described (e.g., database search, reference chaining, expert consultation (e.g., professional librarian, team member familiar with the field, information specialist)) including a description of the used search terms, which databases were searched, etc. If experts were consulted (in addition to database search), the search strategy is automatically considered as broad.

1. Search Strategy

Our literature search will begin with a structured research strategy on the ethical issues related to TR (Additional File 1: Literature Search Strategy). An initial extended search strategy combining index terms and keywords from the text was developed by the research team with the help of two rehabilitation librarians to ensure that all relevant synonyms used were included. We will perform research across five data bases: CINAHL, EMBASE, MEDLINE, PsycINFO and Web of Science. To enhance our database searches, we will employ additional strategies. These include examining the reference lists of included studies, drawing on the diverse expertise within our research team to identify relevant literature regarding TR, and reaching out to external experts if needed. For example, experts from each rehabilitation profession could be consulted if there is a need to study issues specific to each profession. To this end, our project, which is part of the "Avoiding pitfalls in virtual care: paving the road for more ethical and equitable policies and practices in rehabilitation" project (CIHR project grant #178354), relies on teams working on rapids reviews raising ethical issues specific to each profession. The CIS does not require the inclusion of all relevant literature, as its aim is to develop concepts and theories rather than exhaustively summarize all data. If an article does not bring new information to our synthesis, then it may not be included, even though it may meet our inclusion criteria. However, to ensure that the proposed synthesis and theorization arise from conceptual gaps in the literature rather than flaws in the search strategy, purposive search will be conducted when synthesizing and analysing emerging theories throughout our investigation. The

purposive search will be in collaboration with the project team and based on our collective best understanding of the literature.

2. Study selection

The research will be structured to include documents on ethical issues on TR in general, as well as documents relating to more specific considerations in one of the professions as long as their related specifically to TR. In the same way, papers dealing with all realms of these issues will be included: individual, organizational, societal, etc. [59]. Only studies published in English and French will be considered. There will be no restriction on publication type: a large scope of empirical and non-empirical studies will be eligible for inclusion, including systematic review, case studies, guidelines, surveys, editorial, commentaries, etc. To be included, the study must deal specifically with TR not telemedicine or e-health in general and focus primarily on the ethical issues associated with these practices of TR, not just a section of the document. We will use the Covidence software to review titles and abstracts identified by the search strategy. Two researchers (AF, JS) will review an initial random sample of 50 abstracts and discuss decisions about inclusion and exclusion based on the criteria listed in Table 3.

Table 3 Initial inclusion and exclusion criteria

Inclusion criteria	Exclusion criteria
▪ Specific about TR (at distance physiotherapy, occupational therapy, psychology, etc.) ▪ The primary objective of the study is to address ethical issues related to TR. ▪ Any type of publication: original research paper, review, editorial, case report, etc.	▪ Any article not focusing primarily on the ethical issues associated with TR. ▪ If the article discusses issues related to Telemedicine – eHealth in a broad sense without specifically focusing on TR.

After this pilot selection, a discussion will take place with the core team (AF, JS, MJD, AH, DK) to make potential modifications to the inclusion and exclusion criteria. However, it will

always be possible to modify the inclusion and exclusion criteria throughout the article selection process to ensure that they provide data relevant to the study. After this initial pilot selection, two researchers (AF, JS) will carry out the rest of the selection based and the title and the abstract, the full text is only searched if the titles and the abstract do not allow us to know whether the article meets our inclusion criteria (or if the abstract is not available). Uncertainties and discrepancies will be discussed on a regular basis. In the case of disagreement on the inclusion of an article, the decision will be reached through discussion. If no decision can be reached, a third person (DK) will be consulted to decide whether to include the study. Once we have done the selection by title and abstract, we will confirm our selection by reading the full text. We will use relevance for our stated purposes as the main selection criteria. This relevance can be seen as the ability of a document to generate concepts and theories to tackle our compass questions [44]. If the literature directly related to ethical issues in TR is scarce, we will consider including articles that do not deal exclusively with these issues and include book chapters, theses, dissertations, or professional documents. For example, articles dealing with another subject but having a section reserved for these issues, or articles evoking these issues in their discussion section could be included. However, we feel that there is a greater risk of having too many articles to analyse. In this case, we retain the possibility of limiting the year of publication to articles published after 2020 following the COVID crisis.

3. Data extraction

The data will be extracted by two researchers (AF, MJD) to ensure the efficiency of the process. To ensure the accuracy and concordance of the extraction, the first 20% of the whole corpus of articles will be analysed by both researchers to discuss the selected information. To help us extract the data, we will use a list of key questions that will enable us to interrogate the documents and extract the relevant data (see Table 4). Data will be extracted using a template that differs according to the type of article (Additional File 2: Data extraction Framework).

Some data will be found in all documents, such as title, year of publication, authors (names and gender), type of study (theorical/empirical), type of method, country of study, etc. We will extract the main information from the included article by writing a brief summary and identifying the positions taken by the authors in relation to the identified issues regarding TR. These positions may be explicitly mentioned in the full text or may be deduced based on the research team's reflection and understanding. The notes taken for each document will be used to provide additional questions to guide our extraction process. This data extraction process is not a static operation in which data is categorised. It requires critical discussion between the analysts and the team, so that the data can be used to start developing a line of argument that informs the critical synthesis and ethical reflexivity [56].

Table 4 Examples of guiding questions:

- → How is TR defined or conceptualised?
- → What stage of telerehabilitation is considered? (assessment, follow-up, routine care, etc.)
- → Who are the individuals and/or the institution undertaking the research?
- → What ethical or critical lens is used?
- → What is the level of reflection? individual, organizational, community and system?
- → What are the underlying assumptions regarding efficacy and efficiency?
- → What epistemological and methodological views are used in the paper?
- → What is the main idea regarding this paper? The take home message?
- → What are the ethical issues at stake?
- → What are the recommendations for implementation in professional practice?

4. Interpretive evidence synthesis

The key part of a CIS is to draw up a critical synthesis of the literature identified. It's a highly iterative process involving detailed inspection of documents identifying recurring themes (as described previously) to develop a critique. Such as Wang et al. and Wilson et al. [57,58], we will use a framework in 5 steps:

1. Identifying common themes and concepts based on our summaries of and data extracted from each paper.

2. Developing theoretical constructs based on the emerging themes and concepts.
3. Criticizing the emerging theoretical constructs as a whole and with our full sample of literature to identify conceptual gaps in the available evidence in relation to our principal aims.
4. Conducting additional purposive sampling of included papers and/or conducting additional purposive searches to fill conceptual gaps (if needed) until theoretical saturation is reached.
5. Integrating the theoretical constructs into a 'synthesizing argument' about ethical issues (i.e., an explanatory framework).

These steps will be carried out while keeping a critical eye on the literature and on the credibility of the evidence, contradictions, rationales, discourses, proposed recommendations, etc. [55]. Theoretical saturation, i.e. the point at which no news articles are included, will be discussed by the team and transparently explained in the presentation of results. As this concept can be criticized when defined simply as "not adding new ideas", our theoretical saturation will be based on the more pragmatic concept of robustness of the synthesis argument presented [60]. Our discussion of robustness will address questions such as: does the synthesis argument address the central explanatory questions? Does the synthesis argument reflect the concept and not a single study, a group of studies or individual cases? Is it valid in spite of new studies on the same concept?

5. Ethical criticism using Quadripartite Ethical Tool (QET)

Once the critical synthesis has been completed, what can be called a critical overview of the conceptualization of ethical issues related to TR. This will be discussed using QET [61]. This tool is designed to help researchers, clinicians and students integrate ethical knowledge into

their analysis of ethical issues and contribute to the promotion of ethical reflection based on relevant philosophical and axiological foundations. In addition to producing a synthesis, this tool will enable us to provide a genuine ethical critique of unexplored areas or areas that have only been partially explored. The aim of this phase is also to encourage further reflection and research on these currently unexplored topics.

Review Team:

The research team is multidisciplinary and includes experts from different fields to ensure a broad perspective for the study. It includes specialists in TR, technology of implementation, equity in health services (access and utilisation), sociology, and philosophy (ethics). The research team has strong experience of qualitative and mixed methods research. The team includes individuals with varied healthcare professional backgrounds: physiotherapists (PT), occupational therapists (OT), psychologist and neuropsychologist (Psy), speech and language therapist (SLT), bioethicist and sociologist. The team will meet regularly given the interpretative, dynamic, and iterative nature of the methodology.

Reflexivity:

Reflexivity about the research object and the team conducting the project is an important factor in qualitative and mixed research projects [62–64]. Dixon-Woods and al. [44] have stated that the CIS is the "product of an authorial voice", so constant reflexivity on the part of the authors of the review is necessary for transparency and credibility about the synthesis process. As proposed by Salmon and al. [56] in their CIS protocol, several methods will be used to encourage reflexivity and to inform this process. To grasp how personal and professional viewpoints could shape our data interpretation, the core review team (AF, JS, AH, DK, MJD) engaged in discussions and documented their perspectives from the outset.

Emotions:

In a CIS, reflexivity concerns both the research object (i.e. the content, the dataset), and the research tool (i.e. our research team, the QET). This reflexivity needs to focus not only on the team's previous opinions and characteristics, but also on its relationship with the data that emerges. Recently, McFerran, Hense, Medcalf, Murphy and Fairchild [52] emphasized the importance of emotions and affects in the researcher's reflexive journey as they navigate through all the data collected [53]. For example, as illustrated by the McFerran's team, frustration can indicate that a column heading can be too narrow, and there is the need for a new one to capture the complexity of the data. Anger can indicate that our opinion or position is challenged and there is a need to identify the cause of this strong emotional reaction [52]. Thus, the way we react to data can be used to create new questions for interrogating the data or inductively generate new column heading.

As mentioned by Newman and Melia [65], we understand this process requires "openness to the unexpected and a willingness to take emotional responses seriously and as indicators that something of interest is being touched upon". This implies paying particular attention to oneself as well as to others. In our opinion, this is even more relevant for our study given that emotions constitute access to a person's values. Knowing that ethical issues are situations where at least one moral value is compromised, the fact of experiencing emotions in the extraction is perhaps a clue that an ethical issue is present in the research that it might be relevant to address. To illuminate this process of reflecting on the emotions we have shared with others, we will create an "emotion" column in our extraction grid.

Public and Patient involvement

In addition to the diversity of viewpoints within our team, coming from a diverse background of rehabilitation professions, research methodologies and opinions about TR, it is imperative to involve stakeholder participation. As stated by Kastner et al. [49] about the applicability of a

CIS: "Findings can inform new typologies, concepts, models or theory but it may require a further process of interpretation by policymakers and practitioners to inform practice". Our definition of stakeholders, given the nature of our subject, includes people who have used TR care, policymakers playing a role in public health strategy, and clinicians not affiliated with the project and research processes. Our aim is to draw on their experience, skills and knowledge whenever necessary. This involvement will be of great importance, but it must be integrated in a way that makes sense to them too. We believe that these people could make an important contribution to the development of an extraction grid and the design of a conceptual framework. Their contributions could be valued throughout the review process, particularly for issues related to the individual realm for patients and clinicians, or to the organizational realm for policymakers. We have already included professional representatives and clinicians in the project, and their feedback will be solicited as we create the critical synthesis argument. In short, we will include them in our collective reflection when the extraction team presents the literature to the whole team. We are strongly engaged in staying aware of the opportunities and challenges of involving both patients and the public in rehabilitation research.

Discussion:

TR services are rapidly being integrated into healthcare systems, representing a significant evolution in the delivery of care. This rapid change creates complex and interconnects ethical issues, even if some reflections already exist, it is conceivable that partial reflections on pitfalls produce harmful repercussions for certain populations or in certain contexts. By applying the CIS, we will be able to perceive the prisms of reflection currently used and potential conceptual blind spots on this theme. The final aim is to produce a new theoretical conceptualisation and identify limitations of current approaches in order to better address ethical issues in TR. We present some of the anticipated strengths and limitations of our study.

Strengths:

Given the characteristics of the literature on ethical issues, a CIS can be used to generate a conceptual theorisation that can provide the necessary reflections prior to the implementation of TR care and services. This conceptual analysis will provide practical insights for advancing a more in-depth understanding of the issues at the core of TR practices. For example, policymakers could use this framework to assess if the multiple issues have been considered prior to the introduction of TR care and services.

Challenges and potential limitations:

The greatest expected difficulty is linked to the quantity of documents potentially included, which will require extensive data extraction. To address our study objectives, the CIS is not intended to be systematic. If an article does not bring new information to our synthesis, then it may not be included, even though it may meet our inclusion criteria. Another major expected challenge is the process of synthesizing the results of a complex and diverse set of documents. To address this challenge, the CIS approach will be enriched with ongoing input from our interdisciplinary research team to help synthesize the findings. This team and its thinking are described in more detail in the previous section “Review Team and Reflexivity".

Dissemination:

The review will serve as a contribution to the overall research project: “Avoiding pitfalls in virtual care: paving the road for more ethical and equitable policies and practices in rehabilitation” lead by A. Hudon and D. Kairy and coordinated by J. Sigouin to inform the development and implementation of TR for rehabilitation professionals. The dissemination plan for the review report encompasses a multifaceted approach, which is anticipated to involve not only the publication of findings in a peer-reviewed journal but also presentations at local, national, and/or international research meetings and workshops. As the objective is to implement practical and policy improvements, it is essential to connect with policymakers.

Ethics and dissemination:

Ethical approval is not necessary for this review as we are examining and synthesizing data from previously published literature. This CIS protocol was registered with Open Science Framework (registration DOI: https://doi.org/10.17605/OSF.IO/T3RS4). Data will be managed and stored on a private OneDrive at Université of Montréal, accessible only by team members.

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Author statement:

AF, JS, AH, DK were the driving force behind the design of the objectives and methodology. AF played a leading role in writing the protocol. MJD had a significant role in discussions on the ethical aspects of the protocol. All the authors contributed to the conceptualization and methodology and provided valuable feedback on the protocol manuscript. AF acted as guarantor.

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Declaration of interest:

The authors have declared that no competing interests exist.

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Additional File 1: Literature Search Strategy

Medline: Ovid MEDLINE(R) ALL <1946 to April 17, 2024>	
1	Telerehabilitation/
2	(((digital or web or online or virtual or internet or remote) adj2 rehab*) or telerehab* or tele-rehab* or telept or tele-pt or telespeech or tele-speech or teletherap* or tele-therap* or erehabilitation or e-rehabilitation).tw,kf.
3	1 or 2
4	Telemedicine/
5	Remote Consultation/
6	exp Videoconferencing/
7	Internet-Based Intervention/
8	(((digital or web or online or virtual or internet or remote) adj2 (intervention* or consult* or therap*)) or online health* or virtual care or videoconferenc* or video conferenc* or telemedicine or tele-medicine or telehealth* or tele health* or ehealth* or e-health* or teleconsultation* or tele-consultation* or econsultation* or e-consultation* or telecare or tele-care or teleintervention* or tele-intervention* or teletreatment* or tele-treatment* or telepractice* or tele-practice*).tw,kf.
9	or/4-8
10	*Speech-Language Pathology/ or *Audiologists/ or *Language Therapy/ or *Speech Therapy/
11	(((speech or language or voice) adj2 therap*) or ((speech or language) adj2 patholog*) or audiologist*).ti,kf.
12	(((speech or language or voice) adj2 therap*) or ((speech or language) adj2 patholog*) or audiologist*).ab. /freq=2
13	or/10-12
14	9 and 13
15	*Occupational Therapy/ or *Occupational Therapists/ or *occupational therapy department, hospital/
16	(ergotherap* or (occupational adj2 therap*)).ti,kf.
17	(ergotherap* or (occupational adj2 therap*)).ab. /freq=2
18	or/15-17
19	9 and 18
20	*Physical Therapy Modalities/ or *Physical Therapists/ or *Physical Therapy Specialty/ or *physical therapy department, hospital/
21	(rehab* or physiotherap* or (physical adj2 therap*)).ti,kf.
22	(rehab* or physiotherap* or (physical adj2 therap*)).ab. /freq=2
23	or/20-22
24	9 and 23
25	*Neuropsychology/ or *Psychology/
26	(neuropsycholog* or psycholog*).ti,kf.
27	(neuropsycholog* or psycholog*).ab. /freq=2
28	or/25-27
29	9 and 28
30	exp morals/ or exp social responsibility/ or exp professional competence/ or organizational policy/ or exp guideline/ or professional practice/ or professional

	autonomy/ or professional practice gaps/ or professional corporations/ or risk assessment/ or exp quality indicators, health care/ or exp professional role/ or guideline adherence/ or patient education as topic/ or exp communication/ or medically underserved area/ or patient safety/ or patient harm/ or exp health promotion/ or exp health services accessibility/ or moral development/ or exp prejudice/ or paternalism/ or exp patient rights/ or exp health policy/ or exp Computer Security/ or exp health inequities/
31	(ethic* or bioethic* or "conflict of interest" or professionalism or "professional misconduct*" or "social responsabilit*" or "professional competence*" or "organizational polic*" or "organisational polic*" or "resource guide*" or moral* or "professional practice gap*" or "professional corporation*" or risk* or "quality indicator* health care" or "professional role*" or "scope of practice*" or guideline* or "patient education" or "communication*" or "medically underserved area*" or "patient safety" or "patient harm*" or "good clinical practice*" or "organizational structure*" or "organisational structure*" or equit* or equalit* or "healthcare disparit*" or "health services accessibilit*" or virtue* or value* or "confidentialit*" or prejudice* or paternalism or "patient right*" or "informed consent*" or "treatment refusal*" or "health polic*" or "care polic*" or "computer securit*" or "data securit*" or "data anonym*" or blockchain or beneficen* or maleficen or "non-maleficen*" or justic* or autonom* or equit* or inequit* or disparit* or (internet adj3 access) or (information* adj3 (access* or disseminat*))).tw,kf.
32	30 or 31
33	3 or 14 or 19 or 24 or 29
34	32 and 33
35	limit 34 to (yr="2020 -Current" and (english or french))

Embase: Embase <1974 to 2024 April 17>	
1	Telerehabilitation/
2	(((digital or web or online or virtual or internet or remote) adj2 rehab*) or telerehab* or tele-rehab* or telept or tele-pt or telespeech or tele-speech or teletherap* or tele-therap* or erehabilitation or e-rehabilitation).ab,kf,ti.
3	1 or 2
4	telemedicine/
5	teleconsultation/
6	videoconferencing/
7	webcast/
8	web-based intervention/
9	(((digital or web or online or virtual or internet or remote) adj2 (intervention* or consult* or therap*)) or online health* or virtual care or videoconferenc* or video conferenc* or telemedicine or tele-medicine or telehealth* or tele health* or ehealth* or e-health* or teleconsultation* or tele-consultation* or econsultation* or e-

	consultation* or telecare or tele-care or teleintervention* or tele-intervention* or teletreatment* or tele-treatment* or telepractice* or tele-practice*).ab,kf,ti.
10	or/4-9
11	*speech disorder/ or *audiologist/ or *language therapy/ or *speech therapy/
12	(((speech or language or voice) adj2 therap*) or ((speech or language) adj2 patholog*) or audiologist*).ti,kf.
13	(((speech or language or voice) adj2 therap*) or ((speech or language) adj2 patholog*) or audiologist*).ab. /freq=2
14	or/11-13
15	9 and 14
16	*occupational therapy/ or *occupational therapist/ or *hospital department/
17	(ergotherap* or (occupational adj2 therap*)).ti,kf.
18	(ergotherap* or (occupational adj2 therap*)).ab. /freq=2
19	or/16-18
20	9 and 19
21	*physiotherapy/ or *physiotherapist/ or *hospital department/
22	(rehab* or physiotherap* or (physical adj2 therap*)).ti,kf.
23	(rehab* or physiotherap* or (physical adj2 therap*)).ab. /freq=2
24	or/21-23
25	9 and 24
26	*neuropsychology/ or *psychology/ or *psychologist/
27	(neuropsycholog* or psycholog*).ti,kf.
28	(neuropsycholog* or psycholog*).ab. /freq=2
29	or/26-28
30	9 and 29
31	exp morality/ or conscience/ or exp ethics/ or professional misconduct/ or professional competence/ or clinical competence/ or organizational policy/ or practice guideline/ or practice gap/ or professional practice/ or exp social justice/ or risk assessment/ or health care quality/ or exp professional standard/ or protocol compliance/ or patient education/ or access to information/ or internet access/ or digital divide/ or exp interpersonal communication/ or health care planning/ or exp patient safety/ or exp health promotion/ or exp health care access/ or exp prejudice/ or social discrimination/ or implicit bias/ or paternalism/ or exp patient right/ or exp health care policy/ or exp computer security/ or exp health disparity/
32	(ethic* or bioethic* or "conflict of interest" or professionalism or "professional misconduct*" or "social responsabilit*" or "professional competence*" or "organizational polic*" or "organisational polic*" or "resource guide*" or moral* or "professional practice gap*" or "professional corporation*" or risk* or "quality indicator* health care" or "professional role*" or "scope of practice*" or guideline* or "patient education" or "communication*" or "medically underserved area*" or "patient safety" or "patient harm*" or "good clinical practice*" or "organizational structure*" or "organisational structure*" or equit* or equalit* or "healthcare disparit*" or "health services accessibilit*" or virtue* or value* or "confidentialit*" or prejudice* or paternalism or "patient right*" or "informed consent*" or "treatment refusal*" or "health polic*" or "care polic*" or "computer securit*" or "data securit*" or "data anonym*" or blockchain or beneficen* or maleficen or "non-maleficen*" or justic* or autonom* or equit* or inequit* or disparit* or (internet adj3 access) or (information* adj3 (access* or disseminat*))).ab,kf,ti.
33	31 or 32

34	3 or 15 or 20 or 25 or 30
35	33 and 34
36	limit 35 to ((english or french) and yr="2020 -Current")

APA PsycInfo <1806 to April Week 1 2024>	
1	telepsychiatry/ or telepsychology/ or telerehabilitation/
2	(((digital or web or online or virtual or internet or remote) adj2 rehab*) or telerehab* or tele-rehab* or telept or tele-pt or telespeech or tele-speech or teletherap* or tele-therap* or erehabilitation or e-rehabilitation).ab,id,ti.
3	1 or 2
4	telemedicine/ or online therapy/ or exp teleconferencing/ or teleconsultation/
5	(((digital or web or online or virtual or internet or remote) adj2 (intervention* or consult* or therap*)) or online health* or virtual care or videoconferenc* or video conferenc* or telemedicine or tele-medicine or telehealth* or tele health* or ehealth* or e-health* or teleconsultation* or tele-consultation* or econsultation* or e-consultation* or telecare or tele-care or teleintervention* or tele-intervention* or teletreatment* or tele-treatment* or telepractice* or tele-practice* or teleconferenc*).ab,id,ti.
6	4 or 5
7	*language therapy/ or *speech language pathology/ or *speech therapy/ or *speech therapists/
8	(((speech or language or voice) adj2 therap*) or ((speech or language) adj2 patholog*) or audiologist*).id,ti.
9	(((speech or language or voice) adj2 therap*) or ((speech or language) adj2 patholog*) or audiologist*).ab. /freq=2
10	7 or 8 or 9
11	6 and 10
12	*occupational therapy/ or *occupational therapists/
13	(ergotherap* or (occupational adj2 therap*)).id,ti.
14	(ergotherap* or (occupational adj2 therap*)).ab. /freq=2
15	12 or 13 or 14
16	6 and 15
17	*physical therapy/ or *physical therapists/
18	(rehab* or physiotherap* or (physical adj2 therap*)).id,ti.
19	(rehab* or physiotherap* or (physical adj2 therap*)).ab. /freq=2
20	17 or 18 or 19
21	6 and 20
22	*neuropsychology/ or *psychologists/ or *psychology/
23	(neuropsycholog* or psycholog*).id,ti.
24	(neuropsycholog* or psycholog*).ab. /freq=2

25	22 or 23 or 24
26	6 and 25
27	morality/ or exp ethics/ or conscience/ or moral development/ or exp social responsibility/ or virtue/ or exp professional competence/ or exp policy making/ or treatment guidelines/ or "quality of care"/ or exp professional organizations/ or risk assessment/ or exp professional role/ or client education/ or exp communication/ or exp information seeking/ or digital divide/ or digital literacy/ or internet access/ or patient safety/ or health promotion/ or exp health care access/ or exp health disparities/ or moral development/ or exp prejudice/ or ageism/ or implicit bias/ or exp social justice/ or exp social discrimination/ or paternalism/ or exp client rights/ or health care policy/ or computer security/
28	(ethic* or bioethic* or "conflict of interest" or professionalism or "professional misconduct*" or "social responsabilit*" or "professional competence*" or "organizational polic*" or "organisational polic*" or "resource guide*" or moral* or "professional practice gap*" or "professional corporation*" or risk* or "quality indicator* health care" or "professional role*" or "scope of practice*" or guideline* or "patient education" or "communication*" or "medically underserved area*" or "patient safety" or "patient harm*" or "good clinical practice*" or "organizational structure*" or "organisational structure*" or equit* or equalit* or "healthcare disparit*" or "health services accessibilit*" or virtue* or value* or "confidentialit*" or prejudice* or paternalism or "patient right*" or "informed consent*" or "treatment refusal*" or "health polic*" or "care polic*" or "computer securit*" or "data securit*" or "data anonym*" or blockchain or beneficen* or maleficen or "non-maleficen*" or justic* or autonom* or equit* or inequit* or disparit* or (internet adj3 access) or (information* adj3 (access* or disseminat*))).ab,id,ti.
29	27 or 28
30	3 or 11 or 16 or 21 or 26
31	29 and 30
32	limit 31 to ((english or french) and yr="2020 -Current")

Cinahl Complete	
S17	S15 AND S16 Opérateurs de restriction - Date de publication: 20200101-; Langue: English, French
S16	S1 OR S6 OR S8 OR S10 OR S12
S15	S13 OR S14
S14	TI ((ethic* OR "conflict of interest" OR professionalism OR "professional misconduct*" OR "social responsabilit*" OR "professional competence*" OR "organizational polic*" OR "resource guide*" OR moral* OR "social norm*" OR "professional practice gap*" OR "professional corporation*" OR risk* OR "quality indicator health care" OR "professional role*" OR "sick role*" OR "scope of practice*" OR "guideline adherence*" OR "health promotion" OR "wellness program*" OR "patient education" OR communication* OR "communication

	barrier*" OR "socioeconomic factor*" OR "minority group*" OR "social isolation" OR "social marginalization" OR "social vulnerabilit*" OR "culturally competent care" OR "rural population*" OR "medically underserved area*" OR "patient safety" OR "patient harm*" OR "distance learning" OR "good clinical practice*" OR "organizational structure*" OR equit* OR equalit* OR "healthcare disparit*" OR "health services accessibility" OR virtue* OR value* OR "confidentialit*" OR prejudice* OR paternalism OR "patient right*" OR "informed consent*" OR "treatment refusal*" OR "health polic*" OR "care polic*" OR "computer securit*" OR "data securit*" OR beneficen* OR "non-maleficen*" OR justic* OR autonom* OR inequit* OR (internet N3 access) OR (information* N3 (access* OR disseminat*)))) OR AB ((ethic* OR "conflict of interest" OR professionalism OR "professional misconduct*" OR "social responsabilit*" OR "professional competence*" OR "organizational polic*" OR "resource guide*" OR moral* OR "social norm*" OR "professional practice gap*" OR "professional corporation*" OR risk* OR "quality indicator health care" OR "professional role*" OR "sick role*" OR "scope of practice*" OR "guideline adherence*" OR "health promotion" OR "wellness program*" OR "patient education" OR "communication*" OR "communication barrier*" OR "socioeconomic factor*" OR "minority group*" OR "social isolation" OR "social marginalization" OR "social vulnerabilit*" OR "culturally competent care" OR "rural population*" OR "medically underserved area*" OR "patient safety" OR "patient harm*" OR "distance learning" OR "good clinical practice*" OR "organizational structure*" OR equit* OR equalit* OR "healthcare disparit*" OR "health services accessibility" OR virtue* OR value* OR confidentialit* OR prejudice* OR paternalism OR "patient right*" OR "informed consent*" OR "treatment refusal*" OR "health polic*" OR "care polic*" OR "computer securit*" OR "data securit*" OR beneficen* OR "non-maleficen*" OR justic* OR autonom* OR inequit* OR (internet N3 access) OR (information* N3 (access* OR disseminat*)))) OR SU ((ethic* OR "conflict of interest" OR professionalism OR "professional misconduct*" OR "social responsabilit*" OR "professional competence*" OR "organizational polic*" OR "resource guide*" OR moral* OR "social norm*" OR "professional practice gap*" OR "professional corporation*" OR risk* OR "quality indicator health care" OR "professional role*" OR "sick role*" OR "scope of practice*" OR "guideline adherence*" OR "health promotion" OR "wellness program*" OR "patient education" OR communication* OR "communication barrier*" OR "socioeconomic factor*" OR "minority group*" OR "social isolation" OR "social marginalization" OR "social vulnerabilit*" OR "culturally competent care" OR "rural population*" OR "medically underserved area*" OR "patient safety" OR "patient harm*" OR "distance learning" OR "good clinical practice*" OR "organizational structure*" OR equit* OR equalit* OR "healthcare disparit*" OR "health services accessibility" OR virtue* OR value* OR confidentialit* OR prejudice* OR paternalism OR "patient right*" OR "informed consent*" OR "treatment refusal*" OR "health polic*" OR "care polic*" OR "computer securit*" OR "data securit*" OR beneficen* OR "non-maleficen*" OR justic* OR autonom* OR inequit* OR (internet N3 access) OR (information* N3 (access* OR disseminat*))))
S13	(MH "Morals+") OR (MH "Paternalism") OR (MH "Prejudice+") OR (MH "Ethics+") OR (MH "Professional Misconduct") OR (MH "Professional Competence") OR (MH "Clinical Competence") OR (MH "Organizational Policies") OR (MH "Practice Guidelines") OR (MH "Professional Organizations") OR (MH "Risk Assessment") OR (MH "Clinical Indicators") OR (MH "Professional Role+")

	OR (MH "Scope of Practice") OR (MH "Guideline Adherence") OR (MH "Patient Education") OR (MH "Access to Information+") OR (MH "Communication+") OR (MH "Medically Underserved Area") OR (MH "Patient Safety") OR (MH "Internet Access") OR (MH "Health Inequities") OR (MH "Health Status Disparities+") OR (MH "Health Promotion") OR (MH "Health Services Accessibility+") OR (MH "Beneficence") OR (MH "Professional Autonomy") OR (MH "Relational Autonomy") OR (MH "Social Justice+") OR (MH "Patient Rights+") OR (MH "Health Policy") OR (MH "Data Security") OR (MH "Blockchain")
S12	S4 AND S11
S11	(MM "Psychology+") OR (MM "Neuropsychology") OR (MM "Psychologists") OR TI ((neuropsycholog* OR psycholog*)) OR AB ((neuropsycholog* OR psycholog*)) OR SU ((neuropsycholog* OR psycholog*))
S10	S4 AND S9
S9	((MM "Physical Therapy") OR (MM "Physical Therapists") OR (MM "Physical Therapy Service")) OR TI ((rehab* OR physiotherap* OR (physical N2 therap*))) OR AB ((rehab* OR physiotherap* OR (physical N2 therap*))) OR SU ((rehab* OR physiotherap* OR (physical N2 therap*)))
S8	S4 AND S7
S7	(((MM "Occupational Therapy") OR (MM "Occupational Therapists") OR (MM "Occupational Therapy Service"))) OR TI ((ergotherap* OR (occupational N2 therap*))) OR AB ((ergotherap* OR (occupational N2 therap*))) OR SU ((ergotherap* OR (occupational N2 therap*)))
S6	S4 AND S5
S5	(((MM "Speech-Language Pathology") OR (MM "Speech-Language Pathologists") OR (MM "Audiology") OR (MM "Audiologists") OR (MM "Speech Therapy") OR (MM "Language Therapy"))) OR TI ((((speech OR language OR voice) N2 therap*) OR ((speech OR language) N2 patholog*) OR audiologist*)) OR AB ((((speech OR language OR voice) N2 therap*) OR ((speech OR language) N2 patholog*) OR audiologist*)) OR SU ((((speech OR language OR voice) N2 therap*) OR ((speech OR language) N2 patholog*) OR audiologist*))
S4	S2 OR S3
S3	TI ((((digital OR web OR online OR virtual OR internet OR remote) N2 (intervention* OR consult* OR therap*)) OR "online health*" OR "virtual care" OR videoconferenc* OR "video conferenc*" OR telemedicine OR "tele-medicine" OR telehealth* OR "tele health*" OR ehealth* OR "e-health*" OR teleconsultation* OR "tele-consultation*" OR econsultation* OR "e-consultation*" OR telecare OR "tele-care" OR teleintervention* OR "tele-intervention*" OR teletreatment* OR "tele-treatment*" OR telepractice* OR "tele-practice*")) OR AB ((((digital OR web OR online OR virtual OR internet OR remote) N2 (intervention* OR consult* OR therap*)) OR "online health*" OR "virtual care" OR videoconferenc* OR "video conferenc*" OR telemedicine OR "tele-medicine" OR telehealth* OR "tele health*" OR ehealth* OR "e-health*" OR teleconsultation* OR "tele-consultation*" OR econsultation* OR "e-consultation*" OR telecare OR "tele-care" OR teleintervention* OR "tele-intervention*" OR teletreatment* OR "tele-treatment*" OR telepractice* OR "tele-practice*")) OR SU ((((digital OR web OR online OR virtual OR internet OR remote) N2 (intervention* OR consult* OR therap*)) OR "online health*" OR "virtual care" OR videoconferenc* OR "video conferenc*" OR telemedicine OR "tele-medicine" OR telehealth* OR "tele health*" OR ehealth* OR "e-health*" OR teleconsultation* OR "tele-consultation*" OR econsultation* OR "e-consultation*" OR telecare OR "tele-care" OR teleintervention* OR "tele-

	intervention*" OR teletreatment* OR "tele-treatment*" OR telepractice* OR "tele-practice*"))
S2	((MH "Telehealth") OR (MH "Telemedicine") OR (MH "Remote Consultation")) OR (MH "Videoconferencing+") OR (MH "Internet-Based Intervention")
S1	(MH "Telerehabilitation") OR TI ((((digital OR web OR online OR virtual OR internet OR remote) N2 rehab*) OR telerehab* OR "tele-rehab*" OR telept OR "tele-pt" OR telespeech OR "tele-speech" OR teletherap* OR "tele-therap*" OR erehabilitation OR "e-rehabilitation")) OR AB ((((digital OR web OR online OR virtual OR internet OR remote) N2 rehab*) OR telerehab* OR "tele-rehab*" OR telept OR "tele-pt" OR telespeech OR "tele-speech" OR teletherap* OR "tele-therap*" OR erehabilitation OR "e-rehabilitation")) OR SU ((((digital OR web OR online OR virtual OR internet OR remote) N2 rehab*) OR telerehab* OR "tele-rehab*" OR telept OR "tele-pt" OR telespeech OR "tele-speech" OR teletherap* OR "tele-therap*" OR erehabilitation OR "e-rehabilitation"))

Web of Science	
1	TS=(((digital OR web OR online OR virtual OR internet OR remote) NEAR/2 rehab*) OR telerehab* OR "tele-rehab*" OR telept OR "tele-pt" OR telespeech OR "tele-speech" OR teletherap* OR "tele-therap*" OR erehabilitation OR "e-rehabilitation")
2	TS=((((digital OR web OR online OR virtual OR internet OR remote) NEAR/2 (intervention* OR consult* OR therap*)) OR "online health*" OR "virtual care" OR videoconferenc* OR "video conferenc*" OR telemedicine OR "tele-medicine" OR telehealth* OR "tele health*" OR ehealth* OR "e-health*" OR teleconsultation* OR "tele-consultation*" OR econsultation* OR "e-consultation*" OR telecare OR "tele-care" OR teleintervention* OR "tele-intervention*" OR teletreatment* OR "tele-treatment*" OR telepractice* OR "tele-practice*"))
3	TS=((((speech OR language OR voice) NEAR/2 therap*) OR ((speech OR language) NEAR/2 patholog*) OR audiologist*))
4	#2 AND #3
5	TS=(ergotherap* OR (occupational NEAR/2 therap*))
6	#2 AND #5
7	TS=(rehab* OR physiotherap* OR (physical N2 therap*))
8	#2 AND #7
9	TS=(neuropsycholog* OR psycholog*)
10	#2 AND #9
11	TS=(ethic* OR "conflict of interest" OR professionalism OR "professional misconduct*" OR "social responsabilit*" OR "professional competence*" OR "organizational polic*" OR "resource guide*" OR moral* OR "social norm*" OR "professional practice gap*" OR "professional corporation*" OR risk* OR "quality indicator health care" OR "professional role*" OR "sick role*" OR "scope of practice*" OR "guideline adherence*" OR "health promotion" OR "wellness

	program*" OR "patient education" OR communication* OR "communication barrier*" OR "socioeconomic factor*" OR "minority group*" OR "social isolation" OR "social marginalization" OR "social vulnerabilit*" OR "culturally competent care" OR "rural population*" OR "medically underserved area*" OR "patient safety" OR "patient harm*" OR "distance learning" OR "good clinical practice*" OR "organizational structure*" OR equit* OR equalit* OR "healthcare disparit*" OR "health services accessibility" OR virtue* OR value* OR "confidentialit*" OR prejudice* OR paternalism OR "patient right*" OR "informed consent*" OR "treatment refusal*" OR "health polic*" OR "care polic*" OR "computer securit*" OR "data securit*" OR beneficen* OR "non-maleficen*" OR justic* OR autonom* OR inequit* OR (internet NEAR/3 access) OR (information* NEAR/3 (access* OR disseminat*)))
12	#10 AND #11
13	#12 and 2020 or 2021 or 2022 or 2023 or 2024 or 2025 (Publication Years) and English or French (Languages)

Additional File 2: Data extraction Framework

1. **Data extractor:**
2. **Title:**
3. **Authors:**
4. **Document characteristics:**
    - Year of publication:
    - Journal of publication:
    - Type of paper:
    - Methods:
    - Years of data collection:
    - Localisation of the team/of the study (if different):
    - Fundings:

5. **Questions for extracting key results:**

Who are the individuals undertaking the research? (i.e., researchers, clinicians, politicians?)	
What stage of telerehabilitation is considered? (i.e., assessment, follow-up, routine care)	
What ethical or critical lens is used? (i.e., principism, virtue ethics, deontological ethics)	
What is the level of reflection? individual, organizational, community and system?	
What are the underlying assumptions regarding efficacity and efficiency?	
What epistemological and methodological views are used in the paper?	
What are the issues at stake?	

What are the recommendations for implementation in professional practice?	

6. **Describe the focus of the document** (using one phrase if possible)

7. **Summary of key findings or insights from the document**

8. **Personal comments on the document**

9. **Emotions when reading the document/extracting data**
