

Use of telehealth for paediatric rehabilitation needs of Indigenous children – a scoping review

Rosalie Dostie, Hailey Dunn, Wendie N. Marks, Chantal Camden & Stacey Lovo

To cite this article: Rosalie Dostie, Hailey Dunn, Wendie N. Marks, Chantal Camden & Stacey Lovo (2024) Use of telehealth for paediatric rehabilitation needs of Indigenous children – a scoping review, International Journal of Circumpolar Health, 83:1, 2308944, DOI: [10.1080/22423982.2024.2308944](https://doi.org/10.1080/22423982.2024.2308944)

To link to this article: <https://doi.org/10.1080/22423982.2024.2308944>



© 2024 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.



[View supplementary material](#)



Published online: 06 Feb 2024.



[Submit your article to this journal](#)



Article views: 1075



[View related articles](#)



[View Crossmark data](#)

Use of telehealth for paediatric rehabilitation needs of Indigenous children – a scoping review

Rosalie Dostie ^a, Hailey Dunn ^b, Wendie N. Marks ^c, Chantal Camden ^a and Stacey Lovo ^b

^aSchool of rehabilitation, Faculty of Medicine and Health Sciences, Université de Sherbrooke, Sherbrooke, Qc, Canada; ^bSchool of rehabilitation sciences, College of Medicine, Saskatchewan University, Saskatoon, SK, Canada; ^cDepartment of Pediatrics, University, Saskatoon, SK, Canada

ABSTRACT

Telerehabilitation is proposed as a promising avenue to enhance service accessibility for Indigenous communities, yet its application for Indigenous children remains relatively unexplored. This scoping review followed the PRISMA-ScR framework to explore current knowledge on the use of telerehabilitation for Indigenous children. Ten scholarly databases, seven grey literature databases, reference searches, and expert consultations were utilised to identify relevant studies. Included articles discussed the use of telerehabilitation provided by rehabilitation professionals (e.g. occupational therapist (OT), physical therapist (PT), speech and language pathologist (SLP) to Indigenous children and/or caregivers. Seven studies were included. Telerehabilitation was explored in different ways, the most common being real-time videoconferencing by SLPs. While some studies explicitly acknowledged cultural responsiveness within both the research process and the intervention, most were not designed for Indigenous children and their caregivers; rather, these participants were included with non-Indigenous participants. Successful implementation and sustainability of telerehabilitation services requires addressing technological limitations, understanding, and respecting diverse worldviews, and co-developing services to meet the unique needs of Indigenous families. Telerehabilitation has been rarely used with Indigenous children and when it was, little attention was given to cultural considerations. These findings emphasise that future telerehabilitation interventions should be truly community-led to ensure cultural relevance.

ARTICLE HISTORY

Received 4 December 2023
Revised 11 January 2024
Accepted 18 January 2024



KEYWORDS


Telerehabilitation;
Indigenous peoples;
paediatrics; virtual care;
physiotherapy; occupational
therapy; speech and
language pathology

Introduction

Indigenous children worldwide are known to have poorer health and social outcomes than non-Indigenous children [1,2]. The insufficiency and inadequacy of health services, including rehabilitation services, available to them plays a major role in maintaining these disparities [3]. Early detection and intervention are crucial to ensure that all children have the same opportunities to optimise developmental outcomes. It is known that insufficient access or delayed services have detrimental effects on children's development and the quality of life of their families, highlighting the significance of high-quality early intervention as needed to positively influence cognitive, social, and emotional development [4]. Challenges in accessing rehabilitation services for Indigenous children stem from various factors, including geography and travel barriers when communities are located in remote or rural areas, inadequate infrastructure, shortages in the healthcare

workforce, disparities in funding and resources, and systemic racism [4,5]. Adverse experiences related to racism, feelings of not being heard and listened to, mistrust and fear are many reasons why Indigenous families do not engage in mainstream healthcare systems [3,6]. These access barriers can result in reduced availability to rehabilitation professionals, limited-service options, and long waiting lists for assessments and treatments. Furthermore, cultural and language barriers also hinder the provision of adequate rehabilitation services for Indigenous children [3,4]. To overcome health inequities experienced by Indigenous children, comprehensive interventions targeting early childhood development as well as providing specific education to parents to enhance their capacity to meet the children's rehabilitation needs at home have been suggested [7,8]. Supported by compelling evidence, an increasing number of rehabilitation professionals are adopting family-centred practices aimed

CONTACT Rosalie Dostie  Rosalie.dostie@usherbrooke.ca  School of rehabilitation, Sherbrooke University, 3001 12 Ave N, Sherbrooke J1H 5N4, Canada

 Supplemental data for this article can be accessed online at <https://doi.org/10.1080/22423982.2024.2308944>

© 2024 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited. The terms on which this article has been published allow the posting of the Accepted Manuscript in a repository by the author(s) or with their consent.

at assisting parents in establishing a nurturing family environment conducive to positive experiences [9]. Furthermore, family-centred care is particularly relevant in the context of Indigenous children's development, as it emphasises the needs of families as a whole, rather than focusing solely on individual needs [8]. The implementation of holistic services that acknowledge the strengths of Indigenous families and Indigenous knowledges holds the potential to enhance the quality of services offered to these families [8].

Within the wider scope of paediatric rehabilitation, the issues of service gaps and extended waiting time are also a cause for concern, as delays in receiving services are recognised to have adverse consequences on children's development and well-being, while also affecting the well-being of their family members [10,11]. Recent research has underscored the significance of telerehabilitation as a valuable tool for expanding access to services by providing timely [12], effective [13] and acceptable rehabilitation services for children with multiple diagnoses, chronic conditions, and developmental disabilities [14–16]. Telerehabilitation involves the use of various communication technologies such as audio, video, and other digital communication platforms to provide remote rehabilitation services. It can enable rehabilitation professionals such as physiotherapists (PT), occupational therapists (OT) and speech and language pathologists (SLP) to interact with families and children in real-time or asynchronously, allowing for the

assessment of their condition, the delivery of therapy or treatment, and the monitoring of progress from a distance [17]. Through the utilisation of telerehabilitation, professionals have the capacity to deliver services directly to children within their homes, schools, community centres or local healthcare centres, eliminating the need for extensive travel. It is important to note that the studies referenced were primarily conducted with non-Indigenous children, and as such, the applicability of these findings to Indigenous children remains uncertain. Beavis and Flett [18] reported the potential for telerehabilitation to bridge service gaps, markedly enhance access to rehabilitation services for Indigenous children, and contribute to the reduction of healthcare access disparities they often encounter. There is a growing body of evidence on the use of telehealth for Indigenous populations [19–24], however, little is known about its specific use for Indigenous children and youth and especially regarding rehabilitation needs. This scoping review will aim at mapping current knowledge on the use of telerehabilitation with Indigenous children.

Methodology

A scoping review methodology was chosen to map current knowledge, describe the current use of telerehabilitation for Indigenous children, examine how research is undertaken in this particular field and identify knowledge

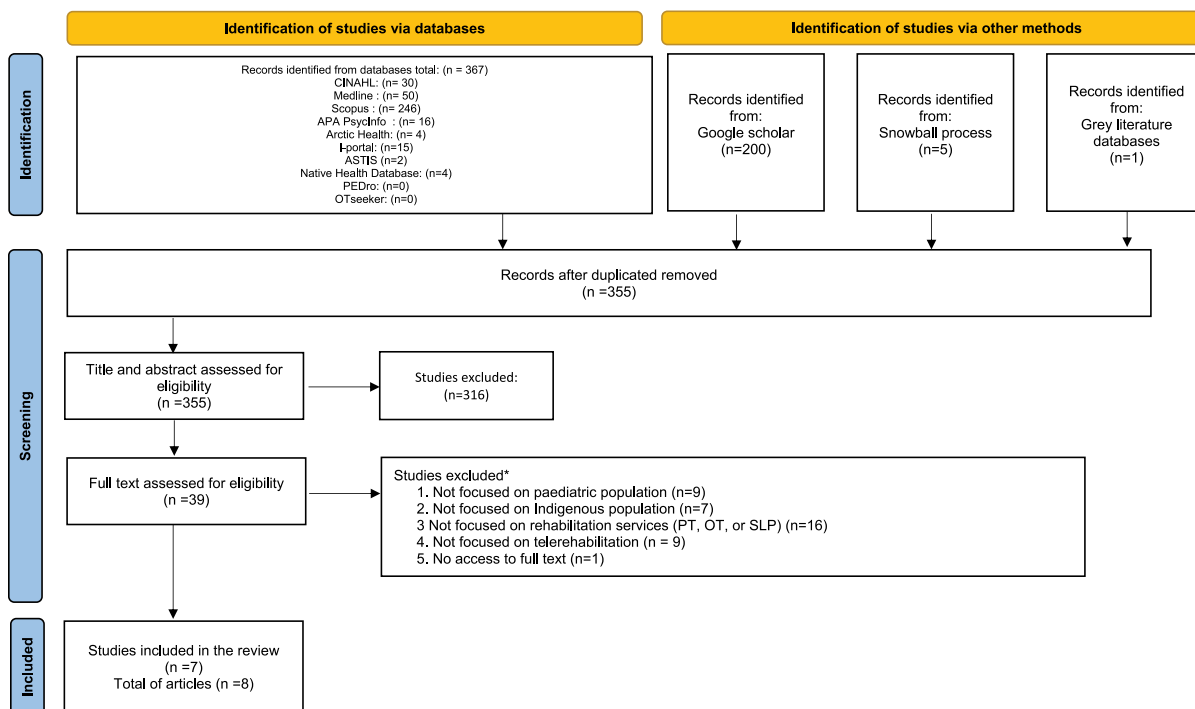


Figure 1. PRISMA flow diagram.

gaps [25–27]. Recommendations for future research will also be identified. To conduct the research, the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) guidelines were followed [25–27]. No study protocol exists for this review.

The research team collaborating on this scoping review comprises individuals with diverse expertise and backgrounds, which has enriched the discussions throughout the entire process. RD is a paediatric physiotherapist and HD is a physiotherapist. They are both doctoral students. Their doctoral studies focus on enhancing access to culturally responsive rehabilitation services for Indigenous children, and they are examining the potential role of telerehabilitation in achieving this goal. WM is an Indigenous scholar currently investigating the effects of intergenerational trauma on children's health. CC is an established researcher in the fields of paediatric rehabilitation and telerehabilitation, particularly concerning access to early intervention. Lastly, SL brings extensive experience in collaborative work with Indigenous communities, having nurtured relationships and conducted collaborative research in the area of telerehabilitation with Indigenous communities for 10 years.

Identifying the research question

The principal question that led this review was: what do we know about the use of telerehabilitation to serve Indigenous children and their families? We are interested in understanding:

- What kind of technology has been used and in which setting?
- What kind of intervention has been delivered or is desired by Indigenous peoples?
- Which professionals have been involved?
- What cultural considerations have been taken regarding the research project and the intervention itself?
- What have been the outcomes of telerehabilitation with Indigenous children and their caregivers?
- What facilitators and obstacles have been perceived by Indigenous families and rehabilitation professionals?

Information sources and search strategy

We worked with an experienced librarian to develop the research strategy. The strategy aimed to identify both published and unpublished literature. Multiple

spelling variations, hyphenation and Boolean operators were used to search for terms associated with paediatric, rehabilitation, telehealth and Indigenous populations. Following an iterative process, we conducted an initial search in Medline to analyse keywords used in titles and abstracts [25]. This helped us further develop our keywords for the systematic search. Ten databases were systematically searched: 1. CINAHL, 2. Medline, 3. APA PsycInfo, 4. SCOPUS, 5. PEDro, 6. OTseeker, 7. I-Portal Indigenous studies (<https://iportal.usask.ca/>), 8. Arctic Health (<https://arctichealth.org/>), 9. Arctic Sciences and technology information system (ASTIS) (<https://www.aina.ucalgary.ca/astis/>), 10. Native Health Database (<https://nativehealthdatabase.net/>). It should be noted that ASTIS comprised articles published up to 2019. We conducted initial searches of these databases in December 2022. After reviewing the articles, we refined the search strategy by adding additional keywords in English and French [25]. The final systematic search conducted in April 2023 allowed us to ensure the comprehensiveness of our search and included new published evidence and grey literature. Prior to submission in December 2023, we reran the final search to ascertain the absence of any new published evidence meeting the predetermined inclusion criteria, resulting in the identification of no additional references. In addition, a manual search of the first 200 relevancy-ranked results hits on Google Scholar was completed. To complete the grey literature search, six other grey literature databases were explored (National Rehabilitation Information Center, Center for International Rehabilitation Research Information and Exchange (CIRRE), Grey Literature Report, Open Grey, Health Sciences Online and MedlinePlus) [28]. The grey literature search was conducted in April 2023. As part of the snowball process, we conducted a manual search of references for all included articles and reached out to researchers and authors of included articles on an international scale. This approach allowed us to seek additional relevant work and maximise the scope of our research. The complete search strategy is available in the supplementary material.

Eligibility criteria

All documents providing any kind of information about the use of telerehabilitation for Indigenous children and/or their caregivers were included. We did not apply any time restriction to the search to find all published papers related to the subject. The inclusion criteria for documents were as follow: 1) discuss the use of a telerehabilitation intervention delivered in a synchronous and asynchronous manner 2) include

Indigenous children (i.e. 0–21 years of age) and/or their Indigenous caregiver; 3) refer to rehabilitation professionals such as an occupational therapist and/or a physical therapist, and/or a speech language pathologist; 4) present the perspective of individuals (e.g. healthcare professionals, caregivers, community members, support staff) on the use of telerehabilitation to Indigenous children and/or their caregiver(s). Related to our inclusion criteria regarding Indigenous peoples, the United Nations notes that there is no universally accepted definition of Indigenous peoples, as the right to self-identification prevails. We acknowledge that Indigenous Peoples uphold distinctive cultures and traditions in their interactions with both people and the environment. Over the years, they have maintained diverse social, cultural, economic, and political traits, and their communities exist across various continents [29]). Consistent with our commitment to recognise the inherent uniqueness of all Indigenous peoples, we included studies that involved participants who self-identified as Indigenous. To conclude, the only exclusion criteria were publication in a language other than French or English.

Selection of sources of evidence

All identified references were imported into Zotero ©, a reference management software. Titles and abstracts were independently screened by RD and HB. Overall, the agreement for selected and rejected articles was 95% and the Cohen's Kappa was $k=0.68$, which signifies substantiated strength of agreement between screeners [30]. RD did the full-text review and HB verified 3 articles to ensure coherence and consensus in the screening process. Additionally, SL was consulted to ensure coherence of inclusion and exclusion. A similar process was followed during data extraction.

Data charting process and data items

The data extraction grid was co-created by RD and HB using Microsoft Excel and verified by the senior author SL. Extraction categories include information pertaining to characteristics of studies (e.g. country, aim, design), characteristics of participants (e.g. age of children, condition), characteristics of the intervention (e.g. type of intervention, technology used, health professionals involved), information about cultural consideration (e.g. information about community direction of project and planning, community consultation, prioritisation of Indigenous knowledge and methodologies, the use of cultural protocols, ethical considerations regarding the participation of Indigenous participants, cultural

training offered to health care professionals) and information about study data collection and results (e.g. tools used to collect data, intervention outcomes, facilitators and barriers to telerehabilitation). RD and HB independently extracted data from one article and then met to discuss improvements to the extraction grid. They then independently extracted data from the remaining articles.

Critical appraisal of individual sources of evidence and synthesis of results

Consequently with PRISMA-ScR guidelines and the aim of this scoping review, we did not systematically appraise the methodological qualities of included studies [25–27]. Rather, we charted the data according to meaningful categories stated above. We used descriptive analysis approach to analyse characteristics of included studies and a narrative synthesis for additional textual information.

Results

The search yielded a total of 845 references, including 355 unique references after removal of duplicates. Following abstracts and titles screening, 39 were included for full-text review. Seven studies met our inclusion criteria including one study with two articles (see Figure 1).

Characteristics of studies and participants

Studies included in this review were published between 2008 and 2023 and were conducted within high-income countries: Australia ($n=3$), New Zealand ($n=1$), Canada ($n=3$) (see Table 1). Three studies aimed to explore the use of telerehabilitation with Indigenous children alone: the first explored the impact of cultural differences on the utility of a paediatric telerehabilitation program [31]; the second examined the feasibility of using technology to conduct speech and language assessments with Indigenous children [32]; and the third aimed at developing and implementing hybrid education support services by OT, PT and SLP to children attending school in the remote region of Nunavut [33]. Three studies aimed to explore the use of telerehabilitation with children without being specific to Indigenous participants. Among those, one study sought to conduct a realist evaluation to identify conditions which facilitated the use of telerehabilitation for families and children with neurodisability and aimed to include a sub analysis of Indigenous participants [38]. Two of the three studies did not have a specific focus

on investigating the use of telerehabilitation in Indigenous paediatrics, but they did include Indigenous participants in their sample. One of these studies explored the experience of an OT-led paediatric burn telehealth clinic [34], while the other focused on a school-based telerehabilitation SLP intervention [35,36]. In the last included study, authors worked closely with 11 Indigenous communities to understand the impacts of health inequities on rehabilitation services. Through these collaborations, they identified essential rehabilitation needs for Indigenous children and emphasised the necessity for culturally responsive telerehabilitation services for all ages [37].

There was significant diversity in the study participants across the eight included articles. Child participants ranged in age from 0 to 18 years. Health conditions seen in child participants included speech and language or communication disorders [32,35,36], as well as visual and hearing impairments [31], burn injuries [34], and neurodevelopmental disabilities including autism, developmental delay, cerebral palsy, and chromosomal abnormalities [38]. Most of the studies included both non-Indigenous and Indigenous children, with only one study exclusively involving Indigenous children [32]. Among the studies that featured both Indigenous and non-Indigenous children, Indigenous children were often in the minority in terms of ethnic representation [34,38,35,38]; except for one study where they constituted the majority [33]. Some studies also included Indigenous caregivers as participants, alongside children [34,37,38] while others focused on the perspectives of support staff (e.g. school professionals, therapy assistants) [36] and rehabilitation professionals [33].

Delivering paediatric rehabilitation to Indigenous children using telerehabilitation

Seven studies described the use of videoconference technologies to provide the telerehabilitation service [31–36,38]. One study also mentioned the use of email and sharing of other virtual resources (PDF, CD-ROMs and online games) with families and participants as a part of the intervention [36]. In the included communities-directed needs assessment by Reichert et al. (2023)[37], participants discussed how the use of virtual care would be beneficial for the community but did not specify a type of virtual care technology. In three studies [31,33,34], a hybrid care model was employed. These studies employed various approaches to hybrid care. In some cases, telerehabilitation enabled specialised rehabilitation professionals to support local healthcare professionals who offered in-person services

[34]. In other instances, the same rehabilitation professionals would travel to the community to provide in-person services while also offering telerehabilitation [33]. Additionally, one service model required families to travel to the healthcare centre [31].

Speech-language pathology was the primary rehabilitation service delivered via virtual care [31–33,35,36]. Only one study exclusively included OT [34] and three studies looked at various rehabilitation services including PT, OT and SLP [33,37,38]. Four of the included studies evaluated the use of telerehabilitation in a school setting [31,33,35,36].

Cultural considerations

The engagement and inclusion of Indigenous voices and knowledges varied significantly among the studies included. Cultural considerations can be categorised into two distinct areas: 1) Considerations pertaining to the research process, and 2) Considerations pertaining to the intervention (see Table 2).

Considerations pertaining to the research process

In the context of the research process, two studies acknowledged following methodological choices that diverged from conventional Westernised research approaches. Phillips et al. [34] sought ethical approval directly with appropriate Indigenous councils and conducted interviews in the form of yarn (a culturally sensitive data collection process). Reichert et al. [37] stands out among the included studies as a unique community-led initiative. They adhered to the First Nations principles of ownership, control, access, and possession (OCAP®). OCAP® principles are designed to uphold information governance and the sovereignty of First Nations over their data, guiding how data are collected, protected, and used [39]). Furthermore, in the study by Reichert et al. [37], the Health Services Board of the Tribal council played a pivotal role from the project's inception, providing essential community approval and guidance. The research team was exceptionally diverse, consisting of both researchers and community members, such as members of the Tribal Council, respected Elders, Knowledge Keepers, and local community health directors. The recruitment and consent procedures were overseen by the community health service department, ensuring the safety of the process. Data were collected through sharing circles in accordance with community protocols that included gifting tobacco to Elders prior to the circle and beginning with a prayer. Additionally, semi-structured interviews were provided for those who preferred that method, primarily to

ensure that all individuals had the opportunity to participate while adhering to social distancing measures. The questions for the sharing circle were designed collaboratively by the research team and Indigenous community leaders. Any individual within the community, including those who required rehabilitation services, family members, caregivers, healthcare professionals, or staff members, had the opportunity to participate. It's important to note that the project by Achtemichuk et al. [33] was not a formal research project, but rather a program developed in partnership with the University of Manitoba and Inuit communities to address their unique needs. It did not follow a conventional research process, which is why the process they followed is not detailed above. This program and the study conducted by Reichert et al. [37] are particularly notable for being genuinely community driven.

Considerations pertaining to the intervention

Among the studies included in the analysis, seven focused on evaluating rehabilitation programs or interventions for children, both Indigenous and non-Indigenous. In Australia, the Royal Institute for Deaf and Blind Children introduced various telerehabilitation programs to assist children nationwide. While these programs demonstrated success with non-Indigenous children, they faced challenges when used with Indigenous families. Consequently, consultations with Indigenous communities became imperative. These consultations led to program modifications to better align with the needs of Indigenous children and their caregivers. However, the details of how these consultations were conducted were not specified [31].

Apart from the program by Achtemichuk et al. [33], none of the other interventions or evaluation were specifically developed for Indigenous children. Achtemichuk et al. [33] engaged with Indigenous remote schools when they voiced needs to increase OT and SLP support to children. The five-years process allowed them to develop, implement and evaluate a program that would specifically answer local community needs. Over the course of this project, they added PT services to the program and moved the service structure from a traditional healthcare referral-based program to a Response-to-Intervention model of tiered support. This allowed the provision of timely services to more children, increased collaboration between all involved parties and building of local capacities with school teams. The program evolved into a hybrid one in which the therapist would visit communities at least once a year and then provide support through virtual

therapy. Involved staff received training on Inuit health principles, trauma-informed care and additional training and support when needed. To further ensure the provision of culturally safe care, referral forms were revised to focused on a strengths-based approach, relationship building was prioritised with children and their caregivers and dynamic assessments were prioritised while standardised assessment tools were used with caution [33]. Except for the aforementioned study, there is no evidence of specialised training provided to professionals for the delivery of culturally responsive care. In addition, a study conducted in New Zealand underscored the obligatory nature of cultural competence training for all rehabilitation professionals within the country but no specific details regarding the content of the training was provided [38].

Outcomes

Authors deemed telerehabilitation interventions as effective, feasible and acceptable to caregivers and professionals involved using both qualitative and quantitative methods of analysis. To measure the effectiveness of school-based telerehabilitation, a goal attainment scaling (GAS) was used [35]. Goals were established after discussion with the family with the SLP and teacher of the children and rated according to the expected probability of the child attaining the goal. They targeted specific communication skills such as speech sound production, expressive language or speech fluency. While results specific to Indigenous children were not reported, nearly half of the children (47%) included in this study were Indigenous. A total of 45 goals were scored by the participating children. Of the 19 participating children, 42% achieved all their goals and 79% achieved at least one goal. For 82% of these goals, children made some progress. In another study, school staff were questioned regarding their satisfaction with virtual therapies, while 40% of school staff reported being neither satisfied nor unsatisfied, others reported general satisfaction with OT at 68%, PT at 45%, and SLP at 75%. Satisfaction appeared lower for PT services due to the difficulty of clearly defining the PT's role and establishing a long-distance relationship because of minimal school visits caused by COVID-19 restrictions. This study also reported a considerable increase in school staff comfort over a 2-year period (from 44% to 72%), as well as improved access to necessary technology (from 42% to 83%) [33].

Caregivers' viewpoints on telerehabilitation were also explored across the studies. However, it is worth noting that the majority of the interviews conducted with caregivers included few Indigenous caregivers.

Specifically, out of eight interviews in the study by Phillips et al. [34], only two involved Indigenous caregivers. Likewise, the study by Fairweather et al. [35] had no Indigenous caregivers among its five interviews, while the study by Graham et al. [38] included just one Indigenous caregiver out of eight interviews. Telerehabilitation advantages were highlighted such as convenience [35,38], cost reduction [35], increased access to skilled professionals [31,34,38], reduced commuting [34] and allowing for the participation of all family members [34,35]. Caregivers expressed feeling respected, understood and listened to during the process [38]. The Family-centred Care (FCC) approach was generally regarded as a crucial element, fostering a sense of competence and empowerment among caregivers in caring for their children [31,34,38]. Nonetheless, it is important to approach this finding cautiously, as one Indigenous mother expressed concerns about this model, finding it overwhelming and indicating she struggled to comprehend when professionals used complex terminology. This same mother expressed a desire for the presence of an Indigenous liaison officer during appointments [34]. Additionally, in another study, a Māori caregiver specifically stated a preference for in-person services, as it enables the development of trust and relationship-building [38]. Caregivers who participated in their children's school-based telerehabilitation sessions also voiced feeling more confident in their ability to facilitate home exercises and felt that technology was a motivator for their child [35]. Concerns about technology familiarity were raised by both caregivers and clinicians [34,35], while the latter recognised the potential of telerehabilitation to enhance access [38]. Rural clinicians particularly appreciated the support of specialised professionals through telerehabilitation consultations and the opportunity to build capacities [34]. Clinicians and caregivers alike viewed telerehabilitation as an additional tool rather than a primary intervention, favouring hybrid approaches when possible [38].

Barriers

Technological challenges posed significant obstacles in delivering seamless telerehabilitation services, including poor internet connectivity, unreliable telecommunications infrastructure, and limited access to necessary devices and equipment [32,34–36,38]. Healthcare providers may have also faced challenges due to unfamiliarity or lack of experience in employing various communication technologies for delivering healthcare services [34]. Privacy was a concern and required attention, as some emphasised that telerehabilitation should not be used in situations where

confidentiality cannot be guaranteed [35,38]. Effective communication among all stakeholders, including professionals, school staff, therapist assistants and caregivers, was also challenging at times [35]. Moreover, differences in worldviews and cultural perspectives can impede the provision of rehabilitation services to Indigenous families. Diverse cultural perspectives and understandings of health and child development may have affected the perceived urgency or importance of seeking rehabilitation services, such as in cases of chronic ear disease [31]. Variances in time perception between Indigenous communities and healthcare providers may have complicated the scheduling and coordination of telerehabilitation services [31]. Language barriers and lack of culturally responsive communication methods and therapy materials may have prevented effective provision of rehabilitation services to Indigenous families [34]. Additionally, in one study, the only Indigenous caregiver included expressed a preference for developing relationships and receiving care in face-to-face interactions rather than through telehealth services [38] which may explain why some community members were hesitant to engage in videoconferencing until a sense of trust and rapport is established with the healthcare provider [31]. Addressing the specific needs of Indigenous families is essential when planning and delivering rehabilitation services. This includes concerns such as leaving other children behind, missing school or work, and experiencing lengthy waiting times without updates from the service providers [37]. Additionally, telerehabilitation may not be suitable in certain situations, such as during crises or significant family changes [38].

Facilitators

The most frequently cited crucial element for the success of telerehabilitation interventions with Indigenous children was the presence of local support to facilitate intervention delivery and follow-ups. Across the studies, the individuals present in-person with the child assumed various roles and forms. Phillips et al. [34] described that local allied health assistants were hired to support families in coordinating appointments, moderating technological problems that might arise, assisting families in completing questionnaires or taking pictures or complete outcomes measures with children and families. Sometimes a local OT would also assist the child and learn from the specialised off-site OT [34]. McCarthy [31] explained that children participating in the telerehabilitation program would be accompanied by a school staff member, who also learned strategies for improving speech and language communication skills. The staff member's roles were to support the child during therapy, act as a liaison person with RIDBC and local professionals, transfer skills from therapy to other contexts,

Table 1. Characteristics of included studies.

Author, year, Country	Age of children	Health condition	Study participants	Indigenous children or Caregivers directly involved in data collection	Rehabilitation professionals	Technology used	Study outcomes/Aim	Data collection tool
[34]. Australia <i>Indigenous populations (distinction not specified)</i>	7 mo to 14 yo	Burn injury	35 families seen at the OTPB clinic, 8 sampled for interviews	2 Indigenous caregivers	OT	Videoconference, but any type of technology available to families could have been used	Explore experience of caregivers and clinicians with the telerehabilitation burn clinic	Semi-structured interviews and yam for Indigenous caregivers
[32]. Canada (Ontario) <i>Ojib-Cree</i>	4 yo to 13 yo	Speech and language difficulties	7 children from one Indigenous community	7 Indigenous children	SLP	Videoconference	Examine the feasibility of SLP assessment with Indigenous children using videoconference	Age-appropriate evaluation tools (e.g. Peabody Picture Vocabulary Test-3 rd edition, Preschool Language Scale-4 th edition, sub-test of the Clinical Evaluation of Language Fundamentals, 4 th edition, Expressive One Word Picture Vocabulary Test, Goldman Fristoe Test of Articulation) and observations Semi-structured interviews
[36]. Australia (New-South Wales) <i>Aboriginal (distinction not specified)</i>	3 yo to 12 yo	Communication difficulties	School principals (n = 4), deputy principal (n = 1) and therapy assistants (n = 6)	Not applicable	SLP	Videoconference	Examine perceptions of staff about feasibility and acceptability of school-based telehealth in rural and remote regions	
[35]. Australia (New-South Wales) <i>Aboriginal (distinction not specified)</i>	3 yo to 12 yo	Communication difficulties	40 children, 5 caregivers	19 Indigenous children 0 Indigenous caregivers	SLP	Videoconference	Evaluate the effectiveness, feasibility and acceptability of school-based telehealth in rural and remote regions	Effectiveness measured with the Goal attainment scaling (GAS) and semi-structured interviews
[38]. New-Zealand <i>Māori</i>	0 to 16 yo	Neurodisability	Case notes from 15 children, 5 practitioners, 8 caregivers	2 Indigenous children 1 Indigenous practitioner 1 Indigenous caregivers Unknown	PT, OT SLP, and others	Videoconference	Identify conditions (context, process and outcomes) that facilitate telerehabilitation, including sub-analysis for Indigenous children	Semi-structured interviews
[31]. Australia <i>Indigenous (distinction not specified)</i>	0 to 18 yo	Earing and visual impairment	52 surveys returned anonymously		SLP	Videoconference	Better understand the impact of cultural differences on program use	Surveys

(Continued)

Table 1. (Continued).

Author, year, Country Indigenous populations	Age of children	Health condition	Study participants	Indigenous children or Caregivers directly involved in data collection	Rehabilitation professionals	Technology used	Study outcomes/Aim	Data collection tool
[37]. Canada (Saskatchewan) Lakota, Saulteaux, Dakota, Cree and Assiniboine Nations	NA	NA	38 community members, family members and allied health professionals	Not specified	PT, OT, SLP	Virtual Care, type of technology not specified	Explore impacts of health inequities to inform needs for rehabilitation services and ensure care is community-directed and culturally responsive	Sharing circles and semi-structured interviews
[33]. Canada (Nunavut) Inuit	School aged	Developmental challenges	School Staff and rehabilitation professionals	Not applicable	PT, OT, SLP	Videoconference	Developing and implementing an hybrid education support services	Surveys and focus groups

provide follow up and monitor progress [31]. On-site support was also used in school-based programs including teachers [33,35,36], therapy assistants, early intervention workers, volunteers, or caregivers [35,36] who were charged to assist participating children. On-site supporters appreciated having the extra help from the off-site therapist to build capacities and better support the child's progress [31,36]. Having a community-based facilitator or Indigenous liaison officer involved in the telerehabilitation process can help bridge communication gaps, provide cultural guidance, and support the engagement of Indigenous families services [31,34]. Notably, the presence of Indigenous staff working with Indigenous children and families is perceived as beneficial [36].

Provider engagement was perceived to be essential for a positive telerehabilitation experience in some studies. Continuity of care, with the same healthcare professional involved throughout the process, enhances engagement and satisfaction among clients [34]. Furthermore, providers who demonstrate a willingness to explore and utilise telehealth technologies and approaches facilitate the adoption and acceptance of telerehabilitation services [38]. In a school-based setting, the involvement of all stakeholders (caregivers and school staff) in the determination of meaningful therapeutic goals was crucial to ensure the success of the therapy [35].

Additionally, to enhance uptake and engagement, proactive efforts to familiarise Indigenous families with the telerehabilitation program are recommended. This can involve trial videoconference sessions to introduce equipment and demonstrate its usage, assistance with scheduling and booking videoconferencing facilities, arranging transport to and from videoconference sessions, facilitating home follow-up sessions through videoconferencing, and ensuring clear communication with service providers [31]. Involving existing service providers or community members contributed to increased uptake of therapy services and dissemination of knowledge about the impact of hearing loss to the community, ultimately raising community awareness [31]. Finally, offering telerehabilitation services within the school setting was another valuable facilitator. This approach enhanced accessibility and participation for children [31,36] and fostered collaboration between healthcare providers and educational professionals [31].

Discussion

This scoping review allowed us to map the existing body of knowledge concerning paediatric telerehabilitation with Indigenous children and families. Despite previous research

Table 2. Cultural considerations.

Author and year	Methodological choices adapted to research with Indigenous participants	Methodological choices community led	Community consultation	Cultural training for professionals	Cultural consideration for the intervention
[34]	✓				
[32]					
[36]					
[35]					
[38]				✓	
[31]			✓		✓
[37]		✓	✓	NA	NA
[33]	NA	NA	✓	✓	✓

NA: Not applicable

supporting the potential of telerehabilitation to bridge the access gap for Indigenous children, this review confirmed a paucity of research. Research conducted has included non-Indigenous children and Indigenous children in the same studies rather than developing and implementing culturally responsive interventions in partnership with communities, exclusively for Indigenous children. Our findings emphasise the paucity of research on community-directed telerehabilitation research for paediatrics and the urgent need for further investigation in this area.

The most notable gap in the literature is the almost total absence of community consultation and community-led direction. Except from the study by Reichert et al. [37] and the program by Achtemichuk et al. [33], there is very little information provided in other studies as to whether true community-direction occurred in planning, implementation and evaluation of intervention. Most of the studies included did not involve direct partnerships with Indigenous communities; instead, they primarily concentrated on the general paediatric population. Our findings revealed that, in the majority of cases, researchers opted to develop interventions for Indigenous children without actively engaging in collaborative planning and development with Indigenous communities. When it comes to research projects, conducting research from an ethical standpoint is crucial to achieving decolonised research and producing results that are responsive and relevant to the specific population. Moreover, to ensure health equity and sovereignty, it is imperative that Indigenous communities are integral partners in the entire planning process, rather than simply recipients of care developed by Western providers [40,41].

While telehealth has been studied and implemented in various contexts for Indigenous populations [19–24], there is a notable gap in our understanding regarding its utilisation for Indigenous children. Ensuring the successful adoption of technology by end-users necessitates collaboration, especially in comprehending their specific needs [21]. This seems to be particularly true for Indigenous children and their caregivers, as their views on a child's development, quality of life, functions, abilities, perception of accessible services and daily needs are deeply rooted in the unique

worldviews and life experiences of each Indigenous community and differ greatly from non-Indigenous families [3,42,43].

There is a consensus that community-directed, culturally responsive care and its success resides in the collaborative development of telehealth interventions. This involves conducting a needs assessment and ensuring continuous involvement of Indigenous stakeholders throughout all phases of the process [21,44,45].

Our results show that videoconferencing was the virtual technology most frequently used and discussed. While virtual health methods have long been proposed as a means to reduce healthcare access disparities for Indigenous peoples living in remote and rural areas by bridging geographic gaps [46,47], it is important to explore the desired technology for paediatric telerehabilitation services. Families and communities may have varying preferences influenced by available technology and cultural preferences. Additionally, other factors warrant considerations when discussing the desired types of technologies as concerns have been raised about the potential exacerbation of access inequities for Indigenous populations. This includes issues related to associated costs, access to an Internet network, computer hardware, and the required level of digital literacy [18,45]. Finally, researchers and program developers must keep in mind that while videoconferencing can effectively complement in-person services, travel and direct contact with the community remain essential [32]. In-person relationship building is of utmost importance to ensure the provision of culturally responsive care [38]. Although supported in the literature as the future norm for the provision of paediatric rehabilitation services [48], the hybrid format was used in fewer than half of the included studies [31,33,34].

Results from this study do not allow us to draw conclusion regarding the potential effectiveness and outcomes related to telerehabilitation for Indigenous children. Most included studies recruited mixed participants (Indigenous and non-Indigenous), delivered the same intervention to all participants and didn't provide group specific information regarding findings. This prevented us from differentiating the results specifically describing the effects of the

intervention on Indigenous children. The mere absence of community-directed projects exclusively for and by Indigenous Peoples could explain this difficulty. In addition, barriers and facilitators highlighted in included studies were often done so in a way that wasn't specific to their few Indigenous participants. This prevents us from specifying whether the facilitators and barriers are specific to paediatric telerehabilitation in general or to Indigenous populations. However, we were able to draw some conclusions and recommendations regarding the potential benefits of school-based telerehabilitation. Results showed the potential of telerehabilitation to overcome some of the access barriers (e.g. equipment, Internet connection, support) for Indigenous children although these studies were conducted in schools where Indigenous and non-Indigenous children attended [31,33,35,36]. Additionally, a FCC approach was recommended as a method of choice for providing rehabilitation services to Indigenous families and their children [8], but further research on family-centred telerehabilitation is needed.

Ensuring the provision of telerehabilitation services that are culturally responsive and safe is of utmost importance. To achieve this, it is crucial to provide training on culturally responsive care and support professionals in creating a culturally safe and supportive environment [21]. Education on Indigenous history, intergenerational trauma, trauma-informed care, building relationships, and cultural humility is essential [37]. Moreover, clarifying the roles of on-site and off-site clinicians and providing support for on-site personnel will help optimise service delivery [34,36]. Additional staff training in using telecommunication equipment and enhancing clinician acceptance of telehealth are also recommended [34]. Engaging and mentoring staff to foster a positive working environment will further contribute to the success of telerehabilitation services [37]. It is crucial to have community developed resources and culturally responsive telehealth intervention strategies, such as those targeting functional goals, and avoiding stressors on patients [37,38]. Having an Indigenous liaison officer or a trained individual present during meetings` when families feel it is necessary would be a valuable addition during the assessment process [31,34,36]. Additionally, feedback measures should be implemented for Indigenous telerehabilitation patients to ensure the opportunity for feedback on the services they receive [37].

Limitations

While our literature search was comprehensive and methodically conducted, it is conceivable that not all pertinent documents were captured in this scoping review. Despite our attempts to encompass grey literature, there is the potential that some telerehabilitation programs may have

been conceived and implemented without formal documentation in accessible literature sources. Although we maintained a high level of agreement among reviewers and engaged a third researcher to resolve inclusion or exclusion disagreements, the possibility of misclassification cannot be entirely ruled out. Another limitation of this scoping resides in the scope of the gathered literature, limited to only three countries. The lack of literature addressing telerehabilitation for Indigenous children in other regions of the world highlights a significant research gap. We anticipate that as the body of literature on telerehabilitation grows, there will be an increase in literature from other regions worldwide. Furthermore, the perspectives of non-Indigenous participants often dominated the findings of the included studies. This prevents us from asserting that the presented results are entirely applicable to Indigenous children. It is essential to bear in mind the absence of community-driven telerehabilitation interventions when interpreting the results of this scoping review.

Conclusion

This study is the first literature review to explore the available literature on how telerehabilitation is used with Indigenous children and families. The studies included were quite diverse, including both Indigenous and non-Indigenous children of varying ages and health conditions. Moreover, essential information concerning cultural considerations within the research process and the intervention was absent in most cases, which hindered our ability to form a comprehensive understanding of the utilisation of telerehabilitation for Indigenous children. However, this point is closely tied to one of the key findings of our scoping review: the lack of community involvement in the development, implementation, and evaluation of telerehabilitation interventions. Future research must move towards co-construction and collaboration with Indigenous communities to ensure Indigenous knowledges are prioritised in all aspects of project development as this is of utmost importance to ensure Indigenous self-determination and sovereignty over their health services

Acknowledgments

We are grateful for the assistance of Florence Nadeau, librarian at Sherbrooke University regarding the research strategy.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

The work of RD is supported by funds from the Chaire de recherche GRANDIR and a research scholarship of the Canadian Institute of Health Research. HD is supported by fund College of Medicine [U of S] and the Saskatchewan Center for Patient-Oriented Research.

Authors details

Rosalie Dostie MPT, MSc, PhD Candidate, School of Rehabilitation, Faculty of Medicine and Health Sciences, Université de Sherbrooke, Sherbrooke, Qc, J1H 5N4, Canada.

Hailey Dunn MPT, PhD Candidate, School of rehabilitation sciences, College of Medicine, Saskatchewan University, Saskatoon, SK S7N 5A2, Canada

Wendie N. Marks PhD, Department of Pediatrics, University, Saskatoon, SK S7N 5A2, Canada,

Chantal Camden, PT PhD, School of Rehabilitation, Faculty of Medicine and Health Sciences, Université de Sherbrooke, Sherbrooke, Qc, J1H 5N4, Canada.

Stacey Lovo BScPT, MSc, PhD, School of rehabilitation sciences, College of Medicine, Saskatchewan University, Saskatoon, SK S7N 5A2, Canada

ORCID

Rosalie Dostie  <http://orcid.org/0000-0003-0276-8083>

Hailey Dunn  <http://orcid.org/0009-0007-1526-3603>

Wendie N. Marks  <http://orcid.org/0000-0003-1918-0016>

Chantal Camden  <http://orcid.org/0000-0002-5503-3403>

Stacey Lovo  <http://orcid.org/0000-0001-6112-5606>

References

- [1] Anderson I, Robson B, Connolly M, et al. Indigenous and tribal peoples' health (the Lancet–Lowitja Institute Global Collaboration): a population study. *Lancet*. 2016;388(10040):131–157. doi: [10.1016/S0140-6736\(16\)00345-7](https://doi.org/10.1016/S0140-6736(16)00345-7)
- [2] DiGiacomo M, Davidson PM, Abbott P, et al. Childhood disability in aboriginal and Torres Strait Islander peoples: a literature review. *Int J Equity Health*. 2013;12(1):7. doi: [10.1186/1475-9276-12-7](https://doi.org/10.1186/1475-9276-12-7)
- [3] Gerlach A. Examiner les approches socialement responsables pour la réadaptation des enfants chez les collectivités, les familles et les enfants autochtones. Prince George, C.-B.: Centre de collaboration nationale de la santé autochtone; 2018. p. 36.
- [4] Greenwood M, Larstone R, Halset R, et al. Exploring the data landscapes of first nations, Inuit, and métis children's early learning and child care (ELCC). Prince George, BC: National Collaborating Centre for Indigenous Health; 2020. p. 80.
- [5] Green A, Abbott P, Luckett T, et al. 'it's quite a complex trail for families now'—provider understanding of access to services for aboriginal children with a disability. *J Child Health Care*. 2021;25(2):194–211. MEDLINE with Full Text. doi: [10.1177/1367493520919305](https://doi.org/10.1177/1367493520919305)
- [6] Lin I, Coffin J, Bullen J, et al. Opportunities and challenges for physical rehabilitation with indigenous populations. *Pain Rep*. 2020;5(5):e838. doi: [10.1097/PR9.0000000000000838](https://doi.org/10.1097/PR9.0000000000000838)
- [7] Halset R, Greenwood M. Le développement des jeunes enfants autochtones au Canada: État actuel des connaissances et orientations futures. Centre de collaboration nationale de la santé autochtone; 2019. p. 76.
- [8] McCalman J, Heyeres M, Campbell S, et al. Family-centred interventions by primary healthcare services for indigenous early childhood wellbeing in Australia, Canada, New Zealand and the United States: a systematic scoping review. *Bmc Pregnancy Childbirth*. 2017;17(1):71. doi: [10.1186/s12884-017-1247-2](https://doi.org/10.1186/s12884-017-1247-2)
- [9] King G, Williams L, Hahn Goldberg S. 2017. Family-oriented services in pediatric rehabilitation: a scoping review and framework to promote parent and family wellness. *Child Care Health Dev*. 43:334–347. doi: [10.1111/cch.12435](https://doi.org/10.1111/cch.12435)
- [10] Blanchet M, Guetiti S, Chayer C, et al. 2021. *Troubles d'apprentissage: Participation aux activités physiques et motrices des enfants -Revue de littérature*. <https://tmvpa.com/attachments/776e1ce1-64f3-4956-8063-5729d126b8e4/D-5481%20RevueLitteraturScientifique-Vfinalepdf.pdf?h=83931adc3f59a5ca54efcd5a94ac58f2>
- [11] Isa SNI, Ishak I, Ab Rahman A, et al. Health and quality of life among the caregivers of children with disabilities: a review of literature. *Asian J Psychiatr*. 2016;23:71–77. doi: [10.1016/j.ajp.2016.07.007](https://doi.org/10.1016/j.ajp.2016.07.007)
- [12] Valentine AZ, Hall SS, Young E, et al. Implementation of Telehealth Services to assess, monitor, and treat neurodevelopmental disorders: systematic review. *J Med Internet Res*. 2021;23(1):e22619. doi: [10.2196/22619](https://doi.org/10.2196/22619)
- [13] Camden C, Pratte G, Fallon F, et al. Diversity of practices in telerehabilitation for children with disabilities and effective intervention characteristics: results from a systematic review. *Disability Rehabil Int Multidiscip J*. 2020;42(24):3424–3436. APA PsycInfo. doi: [10.1080/09638288.2019.1595750](https://doi.org/10.1080/09638288.2019.1595750)
- [14] Dostie R, Gaboury I, Cinar E, et al. Acceptability of pediatric telerehabilitation interventions provided by physical therapists and occupational therapists—A scoping review. *Phys Occup Ther Pediatr*. 2022;1–20. doi: [10.1080/01942638.2022.2064203](https://doi.org/10.1080/01942638.2022.2064203)
- [15] Dostie R, Gaboury I, Trottier N, et al. Acceptability of a Multimodal Telerehabilitation Intervention for Children Ages 3–8 years with motor difficulties: results of a qualitative study. *Dev Neurorehabil*. 2023;26(5):287–301. doi: [10.1080/17518423.2023.2233020](https://doi.org/10.1080/17518423.2023.2233020)
- [16] Little LM, Wallisch A, Pope E, et al. Acceptability and cost comparison of a Telehealth Intervention for Families of Children with Autism. *Infants Young Children*. 2018;31(4):275–286. doi: [10.1097/IYC.0000000000000126](https://doi.org/10.1097/IYC.0000000000000126)
- [17] Hsu N, Monasterio E, Rolin O. Telehealth in pediatric rehabilitation. *Phys Med Rehabil Clin N Am*. 2021;32(2):307–317. doi: [10.1016/j.pmr.2020.12.010](https://doi.org/10.1016/j.pmr.2020.12.010)
- [18] Beavis A, Flett P. Magnifying inequities: reflections on indigenous health and physiotherapy in the context of COVID-19. Canadian Physiotherapy Association; 2020. <https://physiotherapy.ca/blog/magnifying-inequities-reflections-indigenous-health-and-physiotherapy-context-covid-19>
- [19] Choukou M-A, Maddahi A, Polyvyana A, et al. Digital health technology for indigenous older adults: a scoping review. *Int J Med Inform*. 2021;148:104408. doi: [10.1016/j.ijmedinf.2021.104408](https://doi.org/10.1016/j.ijmedinf.2021.104408)
- [20] Fraser S, Mackean T, Grant J, et al. Use of telehealth for health care of indigenous peoples with chronic conditions:

- a systematic review. *Rural Remote Health*. 2017;17(3). doi: 10.22605/RRH4205
- [21] Jones L, Jacklin K, O'Connell ME. Development and use of health-related technologies in indigenous communities: critical review. *J Med Internet Res*. 2017;19(7):1–9. doi: 10.2196/jmir.7520
- [22] Moecke DP, Holyk T, Beckett M, et al. Scoping review of telehealth use by indigenous populations from Australia, Canada, New Zealand, and the United States. *J Telemed Telecare*. 2023;1357633X(2311588):1357633X2311588. doi: 10.1177/1357633X231158835
- [23] Reilly R, Stephens J, Micklem J, et al. Use and uptake of web-based therapeutic interventions amongst indigenous populations in Australia, New Zealand, the United States of America and Canada: a scoping review. *Syst Rev*. 2020;9(1):123. doi: 10.1186/s13643-020-01374-x
- [24] Toombs E, Kowatch KR, Dalicandro L, et al. A systematic review of electronic mental health interventions for indigenous youth: results and recommendations. *J Telemed Telecare*. 2021;27(9):539–552. doi: 10.1177/1357633X19899231
- [25] *JBI Manual for Evidence Synthesis*. JBI; 2020. 10.46658/JBIMES-20-01
- [26] Khalil H, Peters MD, Tricco AC, et al. Conducting high quality scoping reviews—challenges and solutions. *J Clinical Epidemiol*. 2021;130:156–160. doi: 10.1016/j.jcli.nepi.2020.10.009
- [27] Tricco AC, Lillie E, Zarin W, et al. PRISMA extension for scoping reviews (PRISMA-ScR): checklist and explanation. *Ann internal med*. 2018;169(7):467–473. doi: 10.7326/M18-0850
- [28] Paez A. Gray literature: an important resource in systematic reviews: PAEZ. *J Evid Based Med*. 2017;10(3):233–240. doi: 10.1111/jebm.12266
- [29] *Indigenous Peoples at the United Nations*. (n.d.). United Nations. [2024 January 5]. Available from: <https://www.un.org/development/desa/indigenouspeoples/about-us.html>
- [30] Landis JR, Koch GG. The measurement of observer agreement for categorical data. *Biometrics*. 1977;33(1):159–174. doi: 10.2307/2529310
- [31] McCarthy M. Telehealth or tele-education? Providing intensive, ongoing therapy to remote communities. *Stud Health Technol Inform*. 2010;161:104–111.
- [32] Eriks-Brophy A, Quittenbaum J, Anderson D, et al. Part of the problem or part of the solution? Communication assessments of aboriginal children residing in remote communities using videoconferencing. *Clin Ling Phonetics*. 2008;22(8):589–609. doi: 10.1080/02699200802221737
- [33] Achtemichuk M, Dougall K, Collins C, et al. (2023). *Development, implementation and evaluation of a school therapy services programme (occupational therapy, physiotherapy and speech-Language pathology) in Nunavut, Canada*. [Poster presentation]. Canadian Physiotherapy association congress, Quebec.
- [34] Phillips D, Matheson L, Pain T, et al. Evaluation of an occupational therapy led Paediatric Burns Telehealth Review Clinic: exploring the experience of family/carers and clinicians. *Rural Remote Health*. 2022;22(1). doi: 10.22605/RRH6887
- [35] Fairweather GC, Lincoln MA, Ramsden R. Speech-language pathology teletherapy in rural and remote educational settings: decreasing service inequities. *Int J Speech Lang Pathol*. 2016;18(6):592–602. doi: 10.3109/17549507.2016.1143973
- [36] Fairweather GC, Lincoln MA, Ramsden R. Speech-language pathology telehealth in rural and remote schools: the experience of school executive and therapy assistants. *Rural Remote Health*. 2017;17(3):1–13. doi: 10.22605/RRH4225
- [37] Reichert M, Sawatsky R, Favel R, et al. Indigenous community-directed needs assessment for rehabilitation therapy services. *International Journal of Circumpolar Health*. 2023;82(1). Scopus. doi: 10.1080/22423982.2023.2183586
- [38] Graham F, Williman J, Sutherland L, et al. Telehealth delivery of paediatric rehabilitation for children with neurodisability: a mixed methods realist evaluation of contexts, mechanisms and outcomes. *Child Care Health Dev*. 2023;49(1):156–169. MEDLINE with Full Text. doi: 10.1111/cch.13028
- [39] First Nations Information Governance Centre. (n.d.). *The First Nations Principles Of OCAP®*. The First Nations Information Governance Centre; 2023 August 31; Available from: <https://fnigc.ca/ocap-training/>
- [40] Kovach M. *Indigenous methodologies: characteristics, conversations, and contexts*. 2nd ed. Toronto, Ontario: University of Toronto Press; 2021.
- [41] Wallerstein N, Duran B. Community-based participatory research contributions to intervention research: the Intersection of Science and Practice to Improve Health Equity. *Am J Public Health*. 2010;100(S1):S40–S46. doi: 10.2105/AJPH.2009.184036
- [42] Ball J. Promoting equity and dignity for aboriginal children in Canada. IRPP; 2008. <https://irpp.org/research-studies/promoting-equity-and-dignity-for-aboriginal-children-in-canada/>
- [43] Ineese-Nash N. Disability as a colonial construct: the Missing Discourse of Culture in Conceptualizations of Disabled Indigenous Children. *Can J Disability Stud*. 2020;9(3):28–51. doi: 10.15353/cjds.v9i3.645
- [44] El Sayed F, Soar J, Wang Z. Key factors for the development of a culturally appropriate interactive multimedia informative program for aboriginal health workers. *Aust J Indigenous Educ*. 2012;41(2):162–172. doi: 10.1017/jie.2012.19
- [45] Gallegos-Rejas VM, Thomas EE, Kelly JT, et al. A multi-stakeholder approach is needed to reduce the digital divide and encourage equitable access to telehealth. *J Telemed Telecare*. 2023;29(1):73–78. doi: 10.1177/1357633X221107995
- [46] Jennett PA, Hall LA, Hailey D, et al. The socio-economic impact of telehealth: a systematic review. *J Telemed Telecare*. 2003;9(6):311–320. CINAHL Plus with Full Text. doi: 10.1258/135763303771005207
- [47] Mah SS-Y. A case study of telehealth usage in three first nation communities: understanding the role of technology users in health care practice. Vol. xi 2011. p. 251. leaves : ill; 30 cm. 10.11575/PRISM/21139
- [48] Camden C, Silva M. Pediatric telehealth: opportunities created by the COVID-19 and suggestions to Sustain Its Use to Support Families of Children with disabilities. *Phys Occup Ther Pediatr*. 2021;41(1):1–17. MEDLINE with Full Text. doi: 10.1080/01942638.2020.1825032