

# Unmet needs for physiotherapy services for the pediatric population in Canada: A scoping review protocol

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## Abstract

**Introduction:** Early access to pediatric rehabilitation services is crucial for optimizing function, costs and quality of life. Physiotherapists can provide timely rehabilitation to children in need through a collaborative approach. However, many children with developmental impairments and disabilities in Canada do not receive timely rehabilitation intervention.

**Purpose:** The purpose of this scoping review is to systematically explore the unmet needs for physiotherapy services in the pediatric population in Canada.

**Methods:** A comprehensive literature search will be completed in four electronic databases, including Ovid AMED, Ovid MEDLINE, Ovid EMBASE and EBSCOhost CINAHL. The scoping review will consider all study designs, including quantitative and qualitative methodologies. Two independent reviewers will screen titles and abstracts to determine texts for full review. Two independent reviewers will then extract data from selected texts using a data extraction form. Data extracted from included texts will be collated, summarized and reported in a table format, and augmented with a narrative summary that will relate the results to the objective of the scoping review.

**Conclusions:** The data collected from the proposed scoping review will identify if access barriers for pediatric physiotherapy services exist in Canada, and what the potential sources of these barriers may be. This information will assist clinicians and policy makers in determining if advocacy efforts are required to ensure all children can maximize their functional independence.

## Introduction

The interaction between a child with limitations in their functional abilities, and the environment, can result in disability [1]. Rehabilitation is a process that can improve the child's functional abilities by maximizing the strengths and resources of the child and their family within their environment [1]. Rehabilitation can be provided in various settings, ranging from hospital care to community care [2]. Access to early initiation of rehabilitation for children with disabilities is important as it is associated with better functional and health outcomes, greater reduction in healthcare costs and disability, and better quality of life [2].

Various healthcare professionals are involved in the delivery of rehabilitation services to children. Physiotherapists can provide rehabilitation services to populations of all ages to develop, maintain and restore optimal functional abilities and improve quality of life [3]. In the pediatric population, physiotherapists work collaboratively alongside other professionals such as teachers, educational supports and social workers, to deliver the best care for the child [2]. Additionally, physiotherapists working in pediatric rehabilitation take a family-centered approach, which involves incorporating parents and caregivers as active members in clinical decision-making, as they are the most aware of their child's individual needs [4].

Approximately 20% of Canadian children from birth to three years of age display motor and social developmental delays [5]. Early rehabilitation for children with developmental delays is essential as these early stages represent critical periods of development where optimal functional abilities and educational gains can be achieved [6,7]. Unfortunately, many children with developmental impairments do not

receive early intervention to address these delays. For example, children with cerebral palsy in Canada are often not diagnosed until at least 18 months of age; as a result, these children are missing several months of crucial early rehabilitation intervention [8]. Furthermore, previous beliefs that children with developmental coordination disorder will outgrow their impairments has led to later diagnosis and missed opportunities for early rehabilitation intervention [9,10].

The benefits of rehabilitation in the prevention of disability and the improvement of quality of life in a pediatric population has been established; however, there remains a need for rehabilitation services for children in Canada [11]. This need continues to rise as the number of children surviving with disabilities increases [6]. In Canada, there are several potential barriers to accessing physiotherapy services in a pediatric population. These include factors relating to the severity of disability, socioeconomic status, and availability of resources [6]. The purpose of this paper is to explore the unmet needs for physiotherapy services in a pediatric population in Canada. Pediatrics in this context is defined as children 18 years of age or younger. A scoping review will be utilized as a way to systematically determine the key concepts that underpin the unmet pediatric physiotherapy needs, and to examine this topic broadly to determine the extent and nature of research in this area.

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## Review question

The research question that will guide this scoping review is:

What types of unmet needs have been identified for physiotherapy services for the pediatric population in Canada?

## Inclusion criteria

**Participants:** This review will consider studies that discuss the unmet needs for physiotherapy services for pediatric populations (defined as children 18 years of age or younger).

**Concept:** The concepts that will be studied in this scoping review are the unmet needs for physiotherapy services in pediatrics in Canada. This review will explore the gap in services that exists for pediatrics requiring rehabilitation.

**Context:** This review will include studies completed in any setting or context (i.e. publicly or privately funded) care in Canada, including in school, community or acute care settings.

## Types of sources

This scoping review will consider experimental and quasi-experimental studies. This includes, but is not limited to, randomized controlled trials, non-randomized controlled trials, pre-test post-test studies, single subject design studies and interrupted time-series studies. The scoping review will also consider observational studies. Examples of such study types include case series, case reports, case-control studies, prospective or retrospective cohort studies and cross-sectional studies. Qualitative studies will also be considered, including phenomenology, ethnography, grounded theory, narrative inquiry, interpretive description and action research studies. Additionally, scoping reviews, systematic reviews and meta-analyses, and test and opinion papers will also be considered for inclusion in this scoping review.

**Proposed eligibility criteria:** This review will include articles published in the year 2000 and onwards. This is to ensure that the articles included reflect the current funding model for health and rehabilitation services for pediatrics in Canada. Furthermore, only articles published in English or French will be considered.

## Methods

The methodology proposed by Arksey and O'Malley for scoping reviews will be used to complete this study, in addition to the recommendations by Levac et al. for advancing the methodology of scoping reviews [12,13]. The PRIMSA Extension for Scoping Reviews (PRIMSA-ScR) will guide the reporting of this scoping review protocol (Table 1) and the final scoping review [14,15]. The stages for this scoping review are based on those proposed by Arksey and O'Malley [12]. These stages include:

1. Identify the research question using the Population, Concept and Context framework
2. Publish a protocol for the scoping review
3. Run the search and identify relevant studies for consideration
4. Select studies that meet inclusion criteria for detailed analysis
5. Extract and chart the data
6. Collate, summarize, and report the results

## Search strategy

The search strategy aims to find both published and unpublished studies. A preliminary search was completed in Ovid MEDLINE (1946 to February 2019). In the preliminary search, physiotherapy and pediatrics were the key terms used in the search strategy. Terms used to address capturing the unmet needs for services included, but were not limited to unmet needs, healthcare needs, perceived needs, needs assessment, and needs not met. Terms used to address the Canadian context included: Canada, as well as each province and territory within Canada. Terms used within the titles and abstracts of several relevant articles of interest were analyzed from the results of a preliminary search. Furthermore, the index terms used to describe the articles of interest were used to further inform the development of the search strategy. Additionally, a Health Sciences Librarian was consulted, and additional search terms were included in order to increase the comprehensiveness of the search. A full search strategy for Ovid MEDLINE is included in (Appendix 1).

**Information sources:** Four electronic databases, including Ovid AMED (1985-February 2019), Ovid EMBASE (1996-February 2019), Ovid MEDLINE (1946-February 2019), and EBSCOhost CINAHL (1987-February 2019) will be used for searching the literature.

## Study selection

After the search is completed, all identified articles will be collated and uploaded into a citation management software, Zotero. From here, duplicates will be removed within Zotero prior to uploading the search results to Rayyan QCRI. Screening of titles and abstracts will be done in Rayyan QCRI by two independent reviewers for assessment with regards to the inclusion criteria for the review. Studies that have been identified as meeting the full inclusion criteria will be retrieved in full and uploaded to Rayyan QCRI. Full text studies will then be reviewed and assessed against the inclusion criteria. Studies that do not meet the full criteria will then be excluded and reasons for exclusion will be provided in an appendix in the final scoping review. A chance-correlated measure of agreement between two reviewers, Kappa (K), will be calculated. Disagreements that arise between reviewers, if applicable, will be resolved through discussion or with a third reviewer. A full list of the search results will be reported in the final review in a PRISMA flow diagram.

## Data extraction

Two independent reviewers will extract data from each of the articles selected for inclusion in the scoping review using a data extraction tool developed by the reviewers. Specifically, data on the details of the population, study design and methods, unmet needs identified and key findings relevant to the Population, Concept, Context question will be extracted. A draft of the data extraction form is included in (Figure 1) and will be modified and revised as necessary throughout the data extraction process. Changes in the data extraction form will be stated in the full scoping review. Authors from studies selected for inclusion will be contacted to request missing or data as needed. Finally, any disagreements between reviewers with regards to data extraction will be resolved through discussion or a third reviewer. To address risk of bias, each group of articles will be reviewed by pairs of reviewers and any conflicts will be discussed within the pair in order to come to an agreement. A kappa statistic will be calculated to provide a beyond chance estimate of agreement between reviewers.

**Table 1.** PRISMA Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist

Section	Item	Prisma-ScR Checklist Item	Reported On Page #
TITLE			
Title	1	Identify the report as a scoping review.	1
ABSTRACT			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	9
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	9-11
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	11-12
METHODS			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	N/A because this is a protocol
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	12
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	13
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	29
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	16
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	16
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	33
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	N/A because this is a protocol
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	17
RESULTS			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	N/A because this is a protocol
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	N/A because this is a protocol
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	N/A because this is a protocol
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	N/A because this is a protocol
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	N/A because this is a protocol
DISCUSSION			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	N/A because this is a protocol
Limitations	20	Discuss the limitations of the scoping review process.	N/A because this is a protocol
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	N/A because this is a protocol
FUNDING			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	17

JBI: Joanna Briggs Institute; PRISMA-ScR: Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews

\* Where sources of evidence (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites

† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with information sources (see first footnote)

‡ The frameworks by Arksey and O'Malley [6] and Levac and colleagues [7] and the JBI guidance [4,5] refer to the process of data extraction in a scoping review as data charting

§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

(Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. *Ann Intern Med.* 169: 467- 473.)

Reviewer's Initials:	Date:
<b>Article Identifiers:</b>	
Title:	
First author's last name:	Year:
<b>Article Type:</b>	
<input type="checkbox"/> Experimental <input type="checkbox"/> Non-experimental	
Quantitative Design:	Qualitative Design:
<input type="checkbox"/> Systematic Review/Meta-analysis	<input type="checkbox"/> Phenomenology
<input type="checkbox"/> Scoping Review	<input type="checkbox"/> Ethnography
<input type="checkbox"/> RCT	<input type="checkbox"/> Grounded theory
<input type="checkbox"/> Non-randomized trial	<input type="checkbox"/> Narrative Inquiry/Analysis
<input type="checkbox"/> Cross sectional study	<input type="checkbox"/> Interpretive Description
<input type="checkbox"/> Cohort study	<input type="checkbox"/> Action Research
<input type="checkbox"/> Case controlled/series/report	<input type="checkbox"/> Opinion Papers
<input type="checkbox"/> Other	<input type="checkbox"/> Other
<b>For Experimental Studies Only</b>	
Sample Size	Group Mean Age
Int:    %F    %M	Control:    %F    %M
<b>For Non-Experimental Studies Only</b>	
Sample Size	Group Mean Age
Data Collection:	
<input type="checkbox"/> Face to face, individual	<input type="checkbox"/> Telephone
<input type="checkbox"/> Face to face, group	<input type="checkbox"/> Online
<input type="checkbox"/> Focus group	<input type="checkbox"/> Other
<b>Eligibility:</b>	
<input type="checkbox"/> Age ≤18 years	<input type="checkbox"/> Country of study: Canada
<input type="checkbox"/> English or French language	<input type="checkbox"/> PT services
<b>Research Question:</b>	
Question:	
<b>Article Details</b>	
<b>Population - Age</b>	
<input type="checkbox"/> Infant ≤1 year <input type="checkbox"/> Toddler ages 1-3 <input type="checkbox"/> Preschooler ages 4-6	<input type="checkbox"/> School-aged 7-11 years <input type="checkbox"/> Adolescent ages 12-18
<b>Population- Diagnosis</b>	
<input type="checkbox"/> Cerebral Palsy	<input type="checkbox"/> Muscular Dystrophy
<input type="checkbox"/> Cystic Fibrosis	<input type="checkbox"/> Musculoskeletal dysfunction
<input type="checkbox"/> Developmental Coordination Disorder	<input type="checkbox"/> Chromosomal disorder
<input type="checkbox"/> Cancer	<input type="checkbox"/> Other
<b>Setting:</b>	
<input type="checkbox"/> Community	<input type="checkbox"/> Rehabilitation
<input type="checkbox"/> Acute	<input type="checkbox"/> School based
<b>Unmet Needs- Perspective</b>	
<input type="checkbox"/> Parent	<input type="checkbox"/> Caregiver
<input type="checkbox"/> Child	<input type="checkbox"/> Health Care Professional
<input type="checkbox"/> Teacher	<input type="checkbox"/> Other
<b>Unmet Needs- Reported</b>	
<input type="checkbox"/> Affordability → Finances/Funding	<input type="checkbox"/> Resources- Equipment
<input type="checkbox"/> Availability → Location/physical access	<input type="checkbox"/> Awareness
<input type="checkbox"/> Acceptability → Cultural access	<input type="checkbox"/> Other
<input type="checkbox"/> Resources- Human	
Describes Role of Physiotherapist/ Physiotherapy? <input type="checkbox"/>	
<b>Description of Unmet Needs</b>	
Barriers:	Facilitators:

Figure 1. First draft of the data extraction form that will be used to obtain data from included articles. Scoping Review- Unmet needs for physiotherapy services for children in Canada

## Data presentation

The extracted data will be presented in tables such that the information pertinent to the research question is included and accessible. A narrative summary will augment the results by relating the results to the objective of the scoping review.

## Conclusion

The results of the proposed scoping review will be used to provide a broad view of the extent and nature of the current literature regarding the physiotherapy needs of pediatric populations in Canada. Our dissemination plan for the review will include publication of the results in a relevant journal, as well as presentation of our results to rehabilitation professionals and healthcare policymakers at Canadian conferences. The proposed scoping review will provide insight into potential areas for future investment into physiotherapy service provision in Canada, in order to improve access to rehabilitation for pediatric populations in need and promote further research in this domain.

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## Declaration of conflicting interests

The authors declare that there is no conflict of interest.

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## Authorship and contributorship

### Contributions

All authors contributed to the development of the research question and selection criteria. SW provided expertise on the methodology of developing a scoping review. AS provided expertise on the search strategy. ML, JP and SH drafted the manuscript. All authors read, provided feedback and approved the final manuscript.

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