

The Role of Occupational Therapy in Improving Participation in Activities of Daily Living (Self-Care, Leisure, Productivity) for Adolescents Aged 10-19 with Type 1 Diabetes: A Scoping Review Protocol

INPLASY202440011

doi: 10.37766/inplasy2024.4.0011

Received: 02 April 2024

Published: 03 April 2024

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ADMINISTRATIVE INFORMATION**Support** - CIHR(FRN:190697 and FRN: 1782).**Review Stage at time of this submission** - Preliminary searches.**Conflicts of interest** - None declared.**INPLASY registration number:** INPLASY202440011**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 03 April 2024 and was last updated on 03 April 2024.**INTRODUCTION**

Review question / Objective The current scoping review aims to synthesize the most recent, extant peer-reviewed literature exploring the involvement of OTs and their contribution to improving participation in activities of daily living for adolescents aged 10-19 with T1D, in the following three domains: 1) self-care, 2) leisure, and 3) productivity. The specific objectives include:

1. To conduct a literature search and identify peer-reviewed literature that explores and incorporates OT as a central focus or a component of T1D interventions in adolescents aged 10-19 years and that has been published between January 2015 and March 2024.
2. To synthesize the identified literature (objective 1) on how OTs can play a greater role in supporting adolescents with T1D in the following three domains: self-care, leisure, and productivity.

3. To identify and characterize existing occupational-focused strategies, services, or interventions used by OTs to support participation in activities of daily living for adolescents aged 10-19 with T1D, and their impacts on self-care, leisure, and productivity-related outcomes.

4. Based on the reviewed and synthesized literature, provide recommendations for training, practice, policy, and research to build further or strengthen the role of OTs in supporting the care, social, and occupational well-being of adolescents experiencing T1D.

Identifying the Research Questions

The following overall research question informed our systematic scoping review:

What Specific Roles do Occupational Therapists Have in Improving Participation in Activities of Daily Living (Self-Care, Leisure, Productivity) for Adolescents (aged 10-19) with Type 1 Diabetes?

Further, the following sub-questions will be used to guide the review:

1. What occupation-focused interventions or services are used to support participation in self-

care, leisure, and productivity in adolescents with T1D?

a. What are the key characteristics or components of such occupation-focused interventions or services?

2. What is the impact of occupation-focused interventions or services on the self-care, leisure, and productivity outcomes of adolescents with T1D?

3. What are the opportunities for OT to contribute to enhancing activities of daily living and associated outcomes in adolescents experiencing T1D?

Background Type 1 diabetes (T1D) is one of the most common pediatric diseases in Canada, and its prevalence is increasing (Nakhla et al., 2019). According to the Type 1 Diabetes Index, over 108,000 children under the age of 15 worldwide develop T1D each year (2022) (ref). Although the exact cause of T1D in adolescents remains unknown, current literature suggests the main driving factors are a combination of biological predisposition, as well as environmental, structural, systemic, and individual factors (Los & Wilt, 2023). Through pharmaceutical and technological advancements, such as the discovery of insulin therapy in the 1920s, T1D has become more manageable. However, adolescents with T1D continue to experience challenges and unmet needs related to self-care, leisure, and productivity, which interferes with their ability to achieve the greatest quality of life (Chiang et al., 2018). The modality of insulin delivery, either by subcutaneous injections or an insulin pump, is an individualized choice that is dynamic. Frequent dose adjustments are required to accommodate biological needs such as growth and development, as well as hormonal changes that may occur during adolescence or the transitional period to adulthood (Teló et al., 2018). Additionally, insulin dosages and delivery modalities are influenced by factors, such as lifestyle (e.g., exercise patterns), daily routines (e.g., work), and social and emotional experiences (Scottish Study Group for the Care of the Young Diabetic, 2001).

Managing T1D can be a stressful and challenging task for adolescents. Adolescents with T1D are twice as likely to experience mental and emotional well-being challenges related to eating, mood, and anxiety in comparison to adolescents without T1D (de Wit et al., 2022). Adolescents with T1D are also more likely to have lower levels of self-efficacy and higher levels of perceived stress, which may make disease management even more difficult (Guo et al., 2019). Moreover, social determinants of health (SDOH), such as level of access to social support, family involvement, and socioeconomic position

are all factors that can influence T1D management and impact an adolescent's overall well-being (Hershey et al., 2021). Challenges are also likely to arise in other life dimensions, such as maintaining social relationships and jobs, attending school, and participating in extracurricular activities (e.g., leisure or sports activities)– which are essential for the well-being of adolescents (Wasden, 2022).

Occupational therapy (OT) is a holistic healthcare profession that primarily focuses on enabling and empowering individuals to live independently and participate in activities that are meaningful to them (Canadian Association of Occupational Therapists, 2023). To help clients achieve their goals, occupational therapists (OTs) use remediation and compensatory strategies (McIntyre, 2022). Remediation strategies focus on helping the client restore lost function (McIntyre, 2022). Compensatory strategies enable clients to change their environment and approach or learn to adapt their lifestyle to accommodate different circumstances (McIntyre, 2022). OTs focus on three major and critical areas of daily living: self-care, leisure, and productivity (Canadian Association of Occupational Therapists, 2023). Since T1D can impact all each of these domains, adolescents with T1D could greatly benefit from the support of OTs. In Ontario, OTs are not routinely part of the diabetes ambulatory care model, which comprises dietitians, nurses, social workers, and sometimes psychologists (Limbert et al., 2022).

Rationale This scoping review aims to synthesize the existing literature to understand better how OTs can support adolescents with T1D. Since the diabetes ambulatory care model in Ontario does not currently include OTs (Limbert et al., 2022), little is known about the potential of their involvement and contribution. The OT scope is very broad and focuses on enabling clients to live independently by supporting participation in self-care, leisure, and productivity (Canadian Association of Occupational Therapists, 2023). OTs have great potential to play an imperative role in T1D management and are well-positioned to support adolescents with T1D. This project identifies and synthesizes existing peer-reviewed literature on managing T1D in adolescents aged 10-19 with an occupational focus to further explore the scope of OT as it pertains to T1D management.

METHODS

Strategy of data synthesis We used the methodological framework suggested by Levac, Colquhoun and O'Brien's extension, and Arksey and O'Malley for preparing this Scoping review

protocol and its execution (Colquhoun, 2014) . We will use the PRISMA extension for Scoping Reviews (PRISMA-ScR) (Tricco, 2018) when reporting the main findings.

Search Strategy

Strategy A professional librarian will conduct a comprehensive literature search from January 1, 2015, to March 27 2024, in the following databases: MEDLINE Ovid, Embase Ovid, PsycINFO Ovid, Ovid Cochrane Central Registry of Clinical Trials, Ovid Cochrane Database of Systematic Reviews CINAHL Complete Ebsco, OTSeeker, PubMed Non-Medline, and Google Scholar search and extraction via the Publish or Perish software. Following the 2015 Peer Review of Electronic Search Strategies (PRESS) Guideline, the search strategy will include subject headings, free text, and specialized keywords related to self-care, leisure, productivity, activities of daily living, type 1 diabetes, and occupational therapy. Additionally, our keyword search will include intervention-related terms and keywords related to adolescents to target our study population of interest. The main search terms are based on the existing literature involving OT and diabetes management in adolescents, as well as specific keywords that the various data searched databases used around the topic of interest, outcomes, and populations previously highlighted.

Eligibility criteria Inclusion Criteria

1. Literature: Primary peer-reviewed publications. We prioritized peer-reviewed literature over gray literature to establish evidence-based findings and recommendations, primarily due to limited time and resources for a more exhaustive review.
2. Population: The study population consists of individuals with T1D aged 10 to 19 years. This age range was chosen based on the World Health Organization's definition of an adolescent (World Health Organization, 2024).
3. Publication timeline: We will include papers published between January 1 2015 and March 27, 2024. This publication timeline was informed by a similar study (but only focused on T1D self-management) conducted by Cahill et al. in 2016, where they included studies published between 2005 and April 2015. As such, including papers published between January 1, 2015, and March 26 2024 in this scoping review will ensure an accurate reflection of the current gap and advancement in the literature on the revised topic.
4. Language: The papers must be written in English; we will exclude non-English literature to maintain the feasibility of our study and available human resources to conduct the literature screening and data extraction.

5. Type of study methodologies: The literature used for the scoping review can include qualitative, quantitative, or mixed-methods methodological approaches, regardless of study design.

6. Topics of interest: Papers should explicitly include occupational therapy, associated synonyms, or OTs as part of the intervention or intervention delivery providers.

7. Geographical limit: Papers that have been published anywhere around the globe.

Exclusion Criteria

The scoping review's exclusion criteria will include any commentaries, abstracts, reviews, reports, theses, opinions, and guidelines. Also, papers that do not have a main focus on T1D self-care, leisure, and productivity domains and do not have relevance to the OT role or occupational therapy. Papers without full text available will also be excluded.

Source of evidence screening and selection

Search Strategy A professional librarian will conduct a comprehensive literature search from January 1, 2015, to March 27 2024, in the following databases: MEDLINE Ovid, Embase Ovid, PsycINFO Ovid, Ovid Cochrane Central Registry of Clinical Trials, Ovid Cochrane Database of Systematic Reviews CINAHL Complete Ebsco, OTSeeker, PubMed Non-Medline, and Google Scholar search and extraction via the Publish or Perish software. Following the 2015 Peer Review of Electronic Search Strategies (PRESS) Guideline, the search strategy will include subject headings, free text, and specialized keywords related to self-care, leisure, productivity, activities of daily living, type 1 diabetes, and occupational therapy. Additionally, our keyword search will include intervention-related terms and keywords related to adolescents to target our study population of interest. The main search terms are based on the existing literature involving OT and diabetes management in adolescents, as well as specific keywords that the various data searched databases used around the topic of interest, outcomes, and populations previously highlighted.

Data management COVIDENCE will be use to de-duplicated and screening the retrieved evidence and extract the data.

Reporting results / Analysis of the evidence

Summarizing and Reporting Results The findings from the final selected papers will be discussed and synthesized guided by the data extracted above using critical analysis and will be organized around the following common themes: roles played by OTs or occupational therapy in supporting activities of daily living in adolescents with T1D;

main occupational therapy support, services or intervention provided and their main characteristics; activities of daily living outcomes studied (self-care, leisure, and productivity), instruments used for their measures, and the main impacts; the main limitations identified by the papers' authors. The identified and synthesized findings will be discussed about existing academic and non-academic evidence to increase its impact, usability and translation (Discussion). Further, implications for research, policy, and areas for OT practice will be provided based on the literature review findings, strengths, and limitations. We will engage individuals with lived experience with T1D, clinicians, and health providers partnered through the Family Child Health Initiative (FCHI) at the Institute for Better Health (IBH), Trillium Health Partners, the host institution of this research, to validate and provide recommendations on our review.

Presentation of the results Charting the Data The current body of literature on the OT's role in improving participation in activities of daily living (self-care, leisure, productivity) and outcomes in adolescents with T1D will be summarized and characterized according to our study objectives/questions. The main characteristics will be presented in tables or graphs (or both). An Excel spreadsheet will be used to facilitate the mapping of data extraction, and COVidence to extract the data, which will include:

1. Author(s), journal and year of publication, setting (country).
2. Type of study methodology (qualitative, quantitative, mixed methods).
3. Main objectives of studies.
4. Type of study design (i.e., cross-sectional, cohort, randomized controlled trial, case-control, etc), and duration.
5. The study's population and main characteristics (e.g., sample size, gender, sex, age, cultural background, socioeconomic position, T1D-related information (e.g., type of treatment received, etc.).
6. Occupational therapy or OT role.
7. Occupational therapy support, services or intervention provided and their main characteristics.
8. The activities of daily living outcomes studied (self-care, leisure, productivity) and the instruments used to measure them.
9. Impact of occupational therapy-related support, services, or intervention in activities of daily living outcomes.
10. Limitations.

Language restriction English.

Country(ies) involved Canada (Institute for Better Health, Trillium Health Partners, Mississauga, ON, Canada).

Other relevant information

Consultation

The goals, objectives, and purpose of this literature review were shared with the members of a Community-Based Advisory Board (CAB). This team is composed of adolescents with T1D, clinicians, and health providers who were advising a T1D research project conducted by the FCHI and the review's senior research team members (IZ, SA, CML). The aim was to gather their valuable insights and recommendations to be considered in the development of this scoping review protocol. Engaging adolescents with T1D will strengthen and enrich our approach and purpose, the knowledge translation process, and ensure meaningful findings are valuable for those living with T1D. Furthermore, the involvement of adolescents living with T1D, clinicians, and health providers will bring further awareness to existing and new social and health services supporting different dimensions.

Discussion

The insights from this scoping review will provide valuable input for improving participation in activities of daily living for adolescents with T1D. Specifically, this scoping review will inform OT practice and ensure that health professionals and systems, adolescents with T1D, and community organizations supporting them are aware of the role OTs have to play in improving the quality of life and social well-being of adolescents with T1D. OTs can use findings from this review to advocate for the profession's scope and contribution in settings such as diabetes clinics, inpatient services, community-based health programs/services education programs and settings that do not currently have an OT. Additionally, the findings from this project will guide further research to explore the broad scope of OT and the benefits of including an OT in various healthcare and community settings.

This scoping review has limitations and strengths that should be taken into account. The main strengths of synthesizing existing literature that explores the OT role in T1D self-management (self-care) and its consequences in other life dimensions such as leisure and productivity (e.g., work, schooling) is relatively limited. Thus, this review will contribute further to understanding the role of OT and its contribution to supporting the activity of daily life of adolescents with T1D and therefore, their overall well-being. Since we will primarily focus on peer-reviewed literature, relevant information from non-peer-reviewed literature will not be considered. To address this gap, further

research should consider non-peer-reviewed literature to understand better the OT's role in supporting adolescents with T1D in other settings, such as their communities and educational or work-related environments. Lastly, literature written in languages other than English will be excluded, which constrains the generalizability of the findings from this current review. Further research should include literature written in various languages to ensure the findings can be applied to diverse communities, cultures, and settings.

Keywords Self-care, Leisure, Productivity, Activities of daily living, Type 1 diabetes, Occupationaltherapy.

Dissemination plans Findings from this review will be presented at a student research-based event organized by the University of Toronto and in an academic manuscript submitted to a peer-reviewed journal.

Contributions of each author

Author 1 - Brenda Nguyen - Contributed to planning, writing, and editing this scoping protocol. Approved final version of the protocol.

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