

Nursing interventions on therapeutic adherence in adolescents with type 1 diabetes: scoping review protocol

*Intervenciones de enfermería sobre la adherencia terapéutica en adolescentes con diabetes tipo 1:
protocolo de scoping review*

*Intervenções de enfermagem na adesão terapêutica em adolescentes com diabetes tipo 1:
protocolo de scoping review*

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Abstract

Type 1 diabetes is one of the most common chronic conditions in children and young people. Adolescence is a period of multiple physical and social changes that compromise therapeutic adherence, which is essential for promoting quality of life and preventing associated complications. The aim was to map the existing scientific evidence on nursing interventions that facilitate therapeutic adherence in adolescents with type 1 diabetes. The protocol was developed according to the recommendations of the Joanna Briggs Institute. It will include primary, secondary, and gray literature studies covering adolescents with type 1 diabetes and nursing interventions that facilitate therapeutic adherence. Those reporting interventions not performed by nurses will be excluded. Study selection, analysis, and data extraction will be performed by independent reviewers. A PRISMA 2020 flowchart will be presented. Nursing interventions and barriers to adherence will be summarized through tables and narrative synthesis. The scoping review resulting from this protocol will allow the selection of interventions with an impact on the therapeutic adherence process. It will include implications for research.

Descriptors: Adolescent; Treatment Adherence and Compliance; Nursing Care; Diabetes Mellitus, Type 1; Scoping Review.

Resumen

La diabetes tipo 1 es una de las enfermedades crónicas más comunes en niños y jóvenes. La adolescencia es un período de múltiples cambios físicos y sociales que comprometen la adherencia terapéutica, esencial para promover la calidad de vida y prevenir complicaciones asociadas. El objetivo fue mapear la evidencia científica existente sobre intervenciones de enfermería que facilitan la adherencia terapéutica en adolescentes con diabetes tipo 1. El protocolo se desarrolló de acuerdo con las recomendaciones del Instituto Joanna Briggs. Incluirá estudios primarios, secundarios y de literatura gris que cubran a adolescentes con diabetes tipo 1 e intervenciones de enfermería que faciliten la adherencia terapéutica. Se excluirán aquellos estudios que reporten intervenciones no realizadas por enfermeras. La selección de estudios, el análisis y la extracción de datos serán realizados por revisores independientes. Se presentará un diagrama de flujo PRISMA 2020. Las intervenciones de enfermería y las barreras para la adherencia se resumirán mediante tablas y una síntesis narrativa. La revisión de alcance resultante de este protocolo permitirá la selección de intervenciones con impacto en el proceso de adherencia terapéutica. Incluirá implicaciones para la investigación.

Descriptorios: Adolescente; Cumplimiento y Adherencia al Tratamiento; Atención de Enfermería; Diabetes Mellitus Tipo 1; Revisión de Alcance.

Resumo

A Diabetes Tipo 1 é uma das patologias crônicas mais frequentes em crianças e jovens. A adolescência é uma etapa com múltiplas alterações, físicas e sociais, que comprometem a adesão terapêutica, sendo esta essencial para a promoção da qualidade de vida e prevenção de complicações associadas. Objetivou-se mapear a evidência científica existente sobre intervenções de enfermagem facilitadoras da adesão terapéutica em adolescentes com Diabetes Tipo 1. O protocolo foi realizado segundo as recomendações do Joanna Briggs Institute. Incluirá estudos primários, secundários e literatura cinzenta, abrangendo adolescentes com Diabetes Tipo 1 e intervenções de enfermagem facilitadoras da adesão terapéutica. Serão excluídos os que refiram intervenções não realizadas por enfermeiros. A seleção de estudos, análise e extração de dados serão efetuadas por revisores independentes. Será apresentado o fluxograma PRISMA 2020. As intervenções de enfermagem e barreiras à adesão serão resumidas através de quadros e síntese narrativa. A *scoping review* resultante deste protocolo permitirá selecionar as intervenções com impacto no processo de adesão terapéutica. Incluirá implicações para a investigação.

Descriptorios: Adolescente; Cooperação e Adesão ao Tratamento; Cuidados de Enfermagem; Diabetes Mellitus Tipo 1; Revisão de Escopo.



Introduction

Type 1 Diabetes Mellitus (DM1) is a chronic disease characterized by the absence of insulin production by the pancreas, requiring daily insulin administration to control blood glucose levels¹. Although it can occur at any age, it occurs most frequently in children and young adults².

In fact, worldwide, around 1.2 million children and young people have a confirmed diagnosis of DM1². In Portugal, reports from 2014 reported figures of 3,365 children and young people with DM1, corresponding to around 0.16% of the national population³. In turn, the International Diabetes Federation reports that, in 2022, of the 530,000 new cases diagnosed, 201,000 were diagnosed in people under the age of 20⁴.

Additionally, it's important to note that adolescence is when behavioral patterns related to physical activity, nutrition, and other factors are established. The World Health Organization defines adolescence as the period between the ages of 10 and 19, which involves physical, cognitive, and psychosocial growth⁵.

For adolescents to lead a healthy life and ensure effective T1D treatment, it's necessary to adopt a set of care and precautions, including self-monitoring (blood glucose control and insulin administration), a healthy diet, and physical exercise. The same authors also note that health education is essential for this age group, promoting healthy habits that contribute to better self-care management⁶.

However, as this phase involves numerous changes, an appropriate and targeted intervention plan is necessary. The same authors highlight immaturity, impulsivity, and peer influence as barriers to therapeutic adherence (TA), thus hindering the positive progression of the disease⁶.

In this context, it becomes relevant to define AT. This is characterized by a set of behavioral changes aligned with compliance with the prescribed therapeutic regimen, which include "taking and purchasing medications, good lifestyle habits, an adequate diet, physical exercise, abandoning risky behaviors, and attending appointments"⁷.

Unlike other age groups, such as children, where parents play a fundamental role as agents in the management of DM1, parents often become distant during adolescence, driven by the adolescent's quest for greater independence. Therefore, empowering adolescents to manage DM1 becomes crucial, promoting self-care, which is closely linked to TA⁶.

To this end, and considering that the intervention of health professionals is essential for the success of TA⁷, the nurse is in a privileged position, providing information and clarifying doubts about the disease and its implications, providing emotional support, and reinforcing the importance of adherence to therapy⁸. At the same time, the Portuguese Order of Nurses reinforces that the nurse is the professional who decides on "techniques, resources and diagnostic means to be used in the planning and implementation of interventions, in different contexts, including nursing consultations, enhancing efficiency and effectiveness, creating trust and active participation of the care recipient"⁹.

By establishing a therapeutic and trusting relationship, adolescents are expected to share their difficulties and fears regarding DM1, enabling nursing interventions to be tailored. However, it is crucial to understand how these interventions can influence TA so that they can be developed, directed, and improved by professionals.

Thus, and considering the emerging problem, a preliminary search was carried out using terms related to the topic under study, in indexed databases – MEDLINE complete (via EBSCOhost), CINAHL complete (via EBSCOhost), Joanna Briggs Institute (JBI), Open Science Framework (OSF) and Google Scholar, which did not identify any scoping review (published or in progress) that related nursing interventions with therapeutic adherence of adolescents with DM1.

Given the above and the prominent role that nurses play in the TA of adolescents with DM1, this scoping review is considered pertinent. Identifying the existing literature on the phenomenon under study will allow mapping and summarizing the scientific evidence on this phenomenon, as well as identifying research gaps that support new research that can contribute to nursing knowledge. Therefore, with the aim of mapping the existing scientific evidence on nursing interventions that facilitate therapeutic adherence in adolescents with DM1, the following review question was formulated: "What nursing interventions facilitate therapeutic adherence in adolescents with type 1 Diabetes Mellitus?"

Methodology

This scoping review protocol was conducted according to the recommendations of the Joanna Briggs Institute (JBI) and in accordance with the Preferred Reporting Items for Systematic Reviews – Scoping Reviews (PRISMA-ScR). The protocol was registered with the Open Science Framework under the code [Q9GZV](https://osf.io/q9gzv) and is accessible at <https://osf.io/q9gzv>.

The research question was formulated using the PCC (Population, Concept, Context) mnemonic, and the eligibility criteria were defined accordingly. The scoping review will include studies whose identified population is adolescents with DM1, aged 10 to 19, according to the World Health Organization, as described above. The concept includes nursing interventions that facilitate TA and excludes all interventions not performed by nurses. No geographic, cultural, or gender limitations or restrictions were applied to the context. Furthermore, regarding the study type, primary, secondary, and gray literature studies will be included. In the event of data duplication resulting from the inclusion of primary and secondary studies, the primary studies will be excluded unless they contain relevant data that are not present in the secondary studies¹⁰. Studies published in English, Portuguese, and Spanish between 2014 and 2025 will also be considered. This period was chosen to encompass the most recent and relevant scientific literature on nursing interventions that promote therapeutic adherence in adolescents with DM1. This timeframe reflects the conceptual, methodological, and technological



developments that have occurred over the last decade, marked by the development of new educational and digital approaches to health and the consolidation of policies that promote self-management of chronic disease.

Research Strategy

To identify the largest number of studies, the research strategy will be developed in three phases. Initially, a search was conducted in the CINAHL Complete and Medline Complete databases (via EBSCOhost) to determine the most frequently used keywords in the literature on the

topic, as well as the descriptors used. A search strategy for CINAHL Complete was then developed, using descriptors and keywords combined with Boolean terms, as seen below in Chart 1. This strategy will then be adapted and replicated for the Medline Complete database (via EBSCOhost) and for the Portuguese Open Access Scientific Repositories and Google Scholar, to obtain literature on the topic under study from the latter. Finally, the bibliographic references of the selected articles will be analyzed to identify studies to consider for inclusion in the review.

Chart 1. Search strategy used in the CINAHL Complete database (Via EBSCOhost). Barcarena, Portugal, 2024

| # | Research strategy | Results |
|-----|---|-------------|
| S1 | (TI ("adolescen*" OR "teen*" OR "youth*" OR "young*")) | (243.516) |
| S2 | (AB ("adolescen*" OR "teen*" OR "youth*" OR "young*")) | (349.650) |
| S3 | S1 OR S2 | (453.657) |
| S4 | (TI ("diabetes" OR "diabetes mellitus, type 1" OR "T1DM" OR "DM1" OR "type 1 diabetes")) | (160.786) |
| S5 | (AB ("diabetes" OR "diabetes mellitus, type 1" OR "T1DM" OR "DM1" OR "type 1 diabetes")) | (196.349) |
| S6 | (MH ("diabetes mellitus, type 1")) | (29.242) |
| S7 | S4 OR S5 OR S6 | (235.484) |
| S8 | (TI ("intervention*" OR "3ncourage3*" OR "3ncourage*" OR "program*" OR "strateg*" OR "project*" OR "action*" OR "function*" OR "care*" OR "preparation" OR "education" OR "instruction*" OR "train*" OR "nurse facilitated")) | (1.215.575) |
| S9 | (AB ("intervention*" OR "3ncourage3*" OR "3ncourage*" OR "program*" OR "strateg*" OR "project*" OR "action*" OR "function*" OR "care*" OR "preparation" OR "education" OR "instruction*" OR "train*" OR "nurse facilitated")) | (2.220.302) |
| S10 | (MH ("Program Evaluation" OR "health promotion" OR "Health Education" OR "Nursing care" OR "Nursing interventions")) | (198.775) |
| S11 | S8 OR S9 OR S10 | (2.902.705) |
| S12 | (TI ("Patient adherence" OR "Treatment compliance" OR "Therapeutic Adherence" OR "Therapeutic Regimen" OR "Adherence")) | (22.944) |
| S13 | (AB ("Patient adherence" OR "Treatment compliance" OR "Therapeutic Adherence" OR "Therapeutic Regimen" OR "Adherence")) | (59.180) |
| S14 | S12 OR S13 | (68.022) |
| S15 | S3 AND S7 AND S11 AND S14 | (594) |
| S16 | Limiters - Publication Date: 20140101-20241231 Restrict by language: - Portuguese Restrict by language: - English Restrict by language: - Spanish Search modes - Boolean/Phrase | (363) |

Study Selection

The articles resulting from the search will be exported to the Rayyan online platform, where duplicates will be excluded and studies will be screened for compliance with the eligibility criteria. The titles and abstracts will then be analyzed by two independent reviewers (AV and MV) to assess the eligibility of the studies according to the established inclusion and exclusion criteria. The selected studies will proceed to the next stage, which will consist of full reading by the reviewers. The reasons for exclusion will be duly recorded and communicated in the scoping review. The studies obtained after screening will be presented in the scoping review report, following the PRISMA-ScR recommendations¹¹ and using PRISMA flowchart¹². Any disagreements between reviewers will be resolved with the

intervention of a third reviewer (RSM). All changes to the protocol will be documented and reported in the final manuscript. Subsequently, a pilot test will be conducted by two independent reviewers, considering the full text. This analysis aims to apply the eligibility criteria and confirm the adequacy of the data extraction framework developed, according to the JBI recommendations (Chart 2). At this stage, any changes deemed necessary to the framework will be made, duly justified, and recorded in the scoping review. Disagreements will be resolved by the reviewers (AV and MV) or, if necessary, the intervention of the third reviewer (RSM) may be requested. Articles excluded at this stage will be listed in the appendix, explaining the reason for their exclusion.



Data Extraction

To demonstrate the study selection process, as described above, a PRISMA-ScR Flowchart will be created and presented in the scoping review, according to the recommendations of Page and collaborators¹². Subsequently, the results will be extracted and analyzed to answer the review question. Data extraction will be performed by two independent reviewers (AV and MV),

using Chart 2 below. If discrepancies arise, they will be resolved by a third reviewer (RSM). If necessary, the authors of the articles will be contacted to clarify questions or provide additional information. All changes will be detailed in the scoping review report. In addition to completing this table, a brief narrative summary of the results will be provided. The completed PRISMA-ScR checklist, in accordance with JBI recommendations, will be presented.

Chart 2. Instrument for extracting data from articles. Barcarena, Portugal, 2024

| Source (citation) | Title | Study design | Objective of the study | Participants (sample size, ages, and gender) | Context in which the study was developed | Nursing interventions that facilitate compliance (including citations) | Limitations of the studies |
|-------------------|-------|--------------|------------------------|--|--|--|----------------------------|
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Data Analysis and Interpretation

The collected data will be analyzed according to the objective and question of the scoping review. The analysis will be tailored to the nature of the data: characteristics of the included studies and participants will be analyzed quantitatively and descriptively, with the results presented in charts and narrative summaries¹³, data on the definition and characteristics of nursing interventions that facilitate adherence will be analyzed qualitatively, through basic content analysis, with the results also presented in tables and narrative summaries^{13,14}. Furthermore, gaps will be identified and suggestions for future research on the topic will be presented. All changes to this protocol will be duly identified and justified in the scoping review publication.

acceptance being questioned at various stages of growth and development⁸. The same authors state that nurses can play a fundamental role in implementing lifestyle changes and the strict control that the disease requires, acting as a mediator between the adolescent, the family, and other health professionals.

In this sense, it is expected that the scoping review resulting from this protocol will address the underlying problem and simultaneously address the defined objectives by identifying nursing interventions that can facilitate the TA process in adolescents with DM1, considering the nurse as a facilitator in this process. Addressing the reasons for adolescent non-adherence can be an added value, as it will allow prioritizing the interventions to be implemented. Thus, this protocol will serve as the starting point for data analysis and interpretation, revealing the scientific evidence on the topic addressed, as well as existing gaps that should be addressed.

Expected Results

The literature shows that the diagnosis of DM1 is an event that impacts the lives of adolescents, with its

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