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Integrated physiotherapy and music therapy for paediatric oncology care: A scoping review protocol

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Background: Children and adolescents undergoing cancer treatment often experience physical and psychosocial challenges, such as weakness, fatigue, anxiety, and social isolation, which significantly impact quality of life (QoL) and daily activities, including school. Physiotherapy addresses physical limitations, while music therapy supports emotional well-being and social engagement. Although both therapies are used in paediatric oncology, evidence on multimodal rehabilitation approaches combining these interventions is limited, particularly in low- and middle-income countries (LMICs) with scarce rehabilitation resources. Mapping available literature may help inform more holistic care in these contexts.

Aim: To map and describe evidence on multimodal rehabilitation interventions incorporating physiotherapy and music therapy for children and adolescents with cancer, focusing on intervention characteristics, outcomes, implementation, and contextual factors, especially in LMICs.

Methods: This scoping review will use the PCC (Population, Concept, Context) framework following JBI guidance. Studies from 2016 to 2026 will be identified through searches in PubMed, PsycINFO, Web of Science, Scopus, EMBASE, CINAHL, and grey literature, with the search strategy peer-reviewed using PRESS guidelines. Eligible studies will include children and adolescents (6 years – 17 years) with cancer who received multimodal rehabilitation involving physiotherapy and/or music therapy, or combined exercise and music-based approaches, during inpatient or hospital care.

Results: Studies will report on any outcomes related to physical function, psychosocial well-being, QoL, feasibility, acceptability, implementation, or barriers and facilitators. Two reviewers will independently screen and extract data, which will be synthesised both descriptively and thematically. Studies from LMICs will be analysed separately where sufficient data exist, with contextual factors thematically analysed.

Conclusion: This review will support the development of effective, culturally relevant rehabilitation for paediatric oncology in resource-limited settings.

Contribution: The review will highlight current evidence and gaps, supporting the development of culturally appropriate, multimodal interventions.

Keywords: paediatric oncology; physiotherapy; music therapy; scoping review; PCC; rehabilitation; multimodal interventions; LMICs.

Introduction

Cancer treatment in children and adolescents can result in physical problems such as weakness and fatigue as well as psychosocial issues including anxiety, low mood and social isolation.[1,2] These challenges can significantly affect the quality of life and interfere with education and social participation.[3] In paediatric oncology, physiotherapy helps address physical limitations through exercise, movement and manual therapy to restore function and promote recovery,[4,5] while music therapy can support emotional health and social engagement through interventions such as active music listening, participation and expressive engagement that promote emotional wellbeing.[6] To date, research on physiotherapy and music therapy in this population has largely been conducted separately.[7,8] There is limited understanding of how these interventions are integrated, their reported outcomes and implementation experiences in paediatric cancer care, especially in low- and middle-income countries (LMICs), where access to resources and specialist services is constrained.[8]

Note: Additional supporting information may be found in the online version of this article as Online Appendix 1 and Online Appendix 2.

For this review, integration refers to a 'multimodal', or combined approach in which rehabilitation interventions incorporate both physiotherapy and music therapy components to support the complex needs of children and adolescents with cancer. Such multimodal approaches may offer advantages over single-modality interventions by addressing the multifaceted challenges associated with cancer treatment.

However, evidence on the characteristics, implementation and outcomes of such integrated approaches, particularly in resource-constrained settings, is scarce.[2] This underscores the need for a comprehensive mapping of the available literature. Given the emerging and potentially varied nature of the evidence, a scoping review is the most appropriate approach. Scoping reviews are designed to systematically map the breadth and depth of research on a topic, clarify key concepts, identify knowledge gaps, and inform future research, practice and policy.[9] To enhance the clarity and focus of the review, the Population, Concept, Context (PCC) framework will guide the identification and selection of relevant studies, as recommended by Joanna Briggs Institute (JBI) guidance for scoping reviews.[10] Therefore, the objective of this scoping review is to systematically map and describe the extent, range and nature of evidence on multimodal rehabilitation interventions that incorporate physiotherapy and music therapy for children and adolescents with cancer, including reported outcomes, implementation experiences and contextual factors, with particular attention to studies conducted in LMICs.

Review question

What is known about multimodal rehabilitation interventions that incorporate physiotherapy and music therapy for children and adolescents with cancer?

Methods

This review follows the JBI methodology for scoping reviews,[9] which builds upon the frameworks of Arksey and O'Malley[10] and Levac et al.,[11] and is reported according to the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) guidelines.[12] The completed PRISMA-ScR checklist will be provided as supplementary material. The review will be registered with the Open Science Framework (OSF).

Information sources and search strategy

The search strategy will include both published and unpublished (grey) literature. A comprehensive search will be conducted across major databases, including PubMed, PsycINFO, Web of Science, Scopus, EMBASE, CINAHL and Cochrane Library. The search strategy will be peer-reviewed using Peer Review of Electronic Search Strategies (PRESS) guidelines. A detailed search strategy was developed using relevant text words (tw) from article titles and abstracts, as well as index terms for PubMed (see Online Appendix 1). For South African and LMIC contexts, grey literature searches will include university unpublished manuscripts and non-governmental organisation (NGO) reports (e.g. CHOC Childhood Cancer Foundation South Africa), and provincial health department rehabilitation guidelines.

The strategy will combine Medical Subject Headings (MeSH), text words, and relevant keywords such as 'paediatric cancer', 'physiotherapy', 'music therapy', 'psychological health' and 'rehabilitation'. These terms, along with their related synonyms, will be used in various combinations with Boolean operators (AND/OR) to maximise sensitivity. The search strategy, including all identified keywords and index terms, will be tailored to each database or information source. Additionally, the reference lists of all included sources will be reviewed to identify further relevant studies.[9] Although scoping reviews commonly aim to map the entire body of literature, restricting the search to studies published between 2016 and 2026 was considered appropriate because the review seeks to inform current clinical practice and the development of an evidence-based rehabilitation programme. This period captures contemporary advances in paediatric oncology treatment, rehabilitation and music therapy while minimising the inclusion of interventions that may no longer reflect current standards of care. The potential limitation of excluding older studies will be acknowledged in the discussion.

All records retrieved from the searches will be exported to Covidence, (Melbourne, Victoria, Australia) a software tool for managing reviews, where duplicate entries will be removed, and the screening process will be managed.

Source of evidence selection

Study selection will be conducted in two phases. Firstly, all identified citations will be uploaded into Covidence and duplications removed. Secondly, two independent reviewers will screen the titles and abstracts for relevance based on inclusion criteria, following a pilot test of the screening process (Table 1). Two independent reviewers Joyful S. Msomi and Verusia Chetty will assess the full text of selected studies against the inclusion criteria. Reasons for exclusion at the full text stage will be documented and reported. Any disagreements will be resolved through discussion; if consensus cannot be reached, a third reviewer Levin Chetty will be consulted. The selection process will be reported in detail and illustrated using the PRISMA-ScR diagram.[12]

Data extraction

A standardised data extraction form will be developed and piloted to ensure consistency between reviewers. This form will collect information on study characteristics (author, publication year, country, study design), participant details (including age, diagnosis and treatment setting),

TABLE 1: Eligibility criteria based on the Population, Concept, Context framework.

Criteria	Inclusion	Exclusion
Population	Children and adolescents (6 years–17 years) representing the school-going population in South Africa with any cancer diagnosis.	Adults (over 18 years), children under 6 years, non-cancer diagnoses
Concept	Multimodal rehabilitation interventions that include physiotherapy and/or music therapy components. Studies examining physiotherapy or music therapy separately within comprehensive cancer care programmes where exercise or movement interventions are combined with music-based approaches. Creative arts therapies that incorporate movement and/or physical activity	Interventions using only physiotherapy without any music or creative component, interventions using only music therapy without any physical or movement component, non-rehabilitation interventions
Context	Inpatient or hospital-based care settings. Paediatric oncology units. Studies from any geographic location	Outpatient or community-based settings, non-hospital settings
Study characteristics	All study designs (RCTs, cohort studies, case studies, qualitative studies, mixed methods, feasibility studies, pilot studies, descriptive reports) Published 2016–2026 (capturing contemporary evidence as music therapy in paediatric oncology is a relatively recent development) English language	Studies published before 2016, non-English language publications

RCTs, randomised controlled trials.

intervention characteristics (type, duration, and frequency of both physiotherapy and music therapy) and outcomes aligned with the PCC framework. Additional data on barriers, facilitators and contextual factors relevant to implementation will be systematically extracted, with particular attention to resource availability, healthcare system characteristics and implementation contexts in LMICs.

During data extraction, concurrent physiotherapy interventions and associated discomfort reported in included studies will be documented to examine how these factors may influence reported music therapy outcomes and identify gaps in the literature regarding these interactions.

Data extraction will be conducted independently by two reviewers. Any discrepancies will be resolved through discussion or, if needed, consultation with a third reviewer. The data extraction form may be revised or updated during the review process, with all changes documented and reported in the final scoping review. If necessary, the study authors will be contacted to provide missing data. A draft version of the data extraction form is provided in Online Appendix 2.

Data analysis and synthesis

Extracted data will be summarised using both descriptive statistics (e.g. frequencies, proportions) for quantitative variables and narrative synthesis for qualitative findings. Thematic analysis will be conducted using both inductive and deductive coding processes to organise the findings into categories such as intervention characteristics, outcome domains and contextual factors influencing implementation.[13] The evidence will be mapped to the review's research question and objectives to identify the range and nature of the existing studies.

Findings will be presented in tables and figures to provide a clear summary of the study characteristics and major themes. Where sufficient data exist, LMIC studies will be analysed separately, and contextual factors will be thematically analysed to inform LMIC-relevant recommendations. Where relevant, both quantitative and qualitative data will be integrated to provide a comprehensive overview. Any gaps in the evidence and implications for future research will be discussed. The approach will follow the guidance of Arksey & O'Malley[10] and Levac et al.[11]

Ethical considerations

Ethical approval is not required for this study because it involves analysis of publicly available published literature and does not include human participants.

Discussion

This review will synthesise evidence on multimodal rehabilitation interventions that incorporate physiotherapy and music therapy for hospitalised paediatric oncology patients, focusing on the characteristics and reported outcomes of these integrated approaches. We will systematically map the current literature to provide a comprehensive description of intervention strategies, outcome measures spanning physical, psychological and Quality of Life (QoL) domains, and emerging research trends. Particular attention will be given to studies from LMICs, where resource constraints may shape intervention delivery and feasibility. Through thematic analysis, we will clarify the scope of available evidence and identify key knowledge gaps. The synthesised findings will directly inform the development of evidence-based multimodal rehabilitation approaches, prioritising feasibility and clinical relevance for paediatric oncology patients, particularly in underserved healthcare settings.

Limitations

By limiting the search to studies published in English, we may unintentionally exclude relevant research published in other languages. Like most scoping reviews, we will not formally assess the methodological quality of the included studies, which could influence how the findings are interpreted. Although we will use a comprehensive search strategy, it is still possible that some relevant studies may not be identified due to publication bias, incomplete indexing or other search-related limitations.

Conclusion

This scoping review will provide a comprehensive overview of multimodal rehabilitation interventions incorporating physiotherapy and music therapy for hospitalised paediatric oncology patients. By systematically mapping the existing literature, the review aims to clarify current evidence, highlight research gaps, and inform the development

of practical, evidence-based rehabilitation strategies, particularly in resource-limited settings. The findings are expected to guide future research and support improved clinical practice in paediatric oncology rehabilitation.

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Competing interests

The authors, Joyful S. Msomi; Levin Chetty and Verusia Chetty, declare that they have no financial or personal relationships that may have inappropriately influenced them in writing this article.

CRediT authorship contribution

Joyful S. Msomi: Conceptualisation, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Validation, Visualisation, Writing – original draft, Writing – review & editing. Levin Chetty: Methodology, Resources, Supervision, Validation. Verusia Chetty: Conceptualisation, Formal analysis, Methodology, Supervision, Validation, Writing – review & editing. All authors reviewed the article, contributed to the discussion of results, approved the final version for submission and publication, and take responsibility for the integrity of its findings.

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Data availability

Data sharing is not applicable to this article as no new data were created or analysed in this study.

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