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Article

Evaluating Physical Activity for Chronic Musculoskeletal Pain in Physical Therapy Settings in Saudi Arabia: A Protocol for a Scoping Review

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Abstract

Physical activity is a safe and effective intervention for chronic musculoskeletal pain. However, a literature search revealed a lack of synthesis of evidence on the extent to which physical therapists in Saudi Arabia incorporate physical activity as part of health promotion in the management of such pain. This review aims to identify, map and report literature related to physical activity for health promotion in people with chronic musculoskeletal pain presenting to physical therapy settings in Saudi Arabia. A six-step approach will be followed to conduct the scoping review. Step 1, the primary research question is: What is the scope and nature of the existing literature in this research area? The secondary research question is: What insights does the existing literature reveal regarding physical therapy clinical practice? Step 2, a comprehensive search will be conducted for relevant literature using the following electronic databases: Scopus, Medline, PubMed, Cochrane library, CINAHL, ScienceDirect and PEDro. In addition, supplementary search methods will be conducted for identifying additional relevant literature via screening process of the reference lists of all included literature and screening process of the included studies of retrieved systematic reviews through electronic databases. A parallel search including the main keywords will also be undertaken on the website of the Saudi Ministry of Health, the website of Saudi Physical Therapy Association, Google and Google Scholar for grey-literature searching. Step 3, records will be screened by two independent reviewers and managed using Rayan software. Step 4, the nature of included literature, including study characteristics and outcomes where appropriate, will be documented using a data extraction. Step 5, the characteristics and outcomes of included records will be collected, summarised and reported. Step 6, Stakeholders will be consulted to interpret the scoping review findings from their perspective and assess the findings' relevance and applicability.

Keywords: chronic musculoskeletal conditions; physical activity; physical therapists; Saudi Arabia

Introduction

In recent years, there has been a significant increase in the global prevalence of musculoskeletal conditions [1,2]. It is expected that prevalence rate will continue to increase due to sedentary lifestyle and aging populations [2,3]. Musculoskeletal conditions are associated with chronic primary and secondary pain [4]. Chronic primary and secondary musculoskeletal pain is an additional burden to society in terms of personal suffering and reduced quality of life and also a financial burden both to individuals and to the economy of nations [2].

Physical inactivity increases the risk of disability, including cardiovascular disease, diabetes, obesity, chronic respiratory conditions and chronic pain [5]. There is a bidirectional relationship between musculoskeletal pain and physical inactivity; musculoskeletal pain may reduce physical activity, and physical inactivity can worsen musculoskeletal pain [5]. Guidelines from the World Health Organization (WHO) recommend physical activity to prevent, treat and manage undesirable clinical outcomes associated with musculoskeletal pain [5]. Physical activity is defined as the effort

made by the body to produce any bodily movement via the skeletal muscles, and this includes structured physical activity, a person's work, domestic activities or leisure time activity [5].

In Saudi Arabia, the government has instigated a national initiative to promote physical activity in the Saudi Vision 2030, a comprehensive strategic framework launched in 2016 to transform the Kingdom of Saudi Arabia from an oil-dependent economy into a diversified, sustainable, and globally competitive nation by the year 2030 [6]. The Saudi Arabian government has invested in developing environments conducive to physical activity such as establishing walking paths and equipping public parks with exercise equipment, with the goal of having at least 40% of the population undertaking physical activity at least one day a week by 2030 [6]. In 2019, the Saudi Ministry of Health introduced health promotion initiatives to encourage the population to undertake physical activity including health awareness campaigns such as "Walk 30 Minutes", involving five awareness campaigns, with the aim of making physical activity an integral part of a person's daily lives [7]. The Saudi Ministry of Health have also published guidelines adapted from the WHO to promote physical activity that target all age groups, from children to elderly people [8].

The Saudi Arabian guidelines for promoting physical activity recommend that people with chronic musculoskeletal condition such as osteoarthritis engage in at least 30 minutes of light to moderate intensity aerobic physical activity such as walking, swimming or stationary cycling for three to four times per week [8]. Those people are also advised to perform both stretching exercises daily for five to ten minutes and muscle strengthening exercises targeting the muscles surrounding the affected joint, two to three times per week [8]. When pain and inflammation are severe, the guidelines recommend consuming anti-inflammatory medications (after physician consultation) one hour before physical activity. If pain is too severe, it is recommended that an alternative form of physical activity should be undertaken so as not to provoke activity-evoked pain or alternatively to postpone physical activity [8]. Despite this advice, people may believe that undertaking physical activity that evokes pain indicates that the activity is causing further harm (i.e. further tissue damage), which may worsen their condition. As a consequence, they may avoid physical activity advice. This is likely more of an issue for people who already have pain associated with their musculoskeletal condition, i.e., acute or chronic musculoskeletal pain.

People living with musculoskeletal pain frequently visit physical therapy clinics [9,10], so in Saudi Arabia physical therapists can play a vital role in treating and supporting people manage their pain. This includes promoting, educating and advising their patients about integrating physical activity into daily life [11,12]. Little is known about the nature and extent of physical activity promotion for chronic musculoskeletal pain in physical therapy settings in Saudi Arabia. An initial search of research databases failed to find a systematic review or scoping review on the topic. Given the increasing emphasis on the role of physical therapists in promoting physical activity, there is a need to undertake a scoping review of literature to provide a comprehensive overview of nature and extent of knowledge and evidence on approaches in physical therapy settings in Saudi Arabia. This would include identifying key barriers and enablers influencing physical activity promotion and highlight critical gaps in the literature. The findings will inform future research priorities and support the development of targeted strategies to enhance the contributions of physical therapists to health promotion in this context.

This article outlines the methodology for a scoping review to explore the role of physical therapists in promoting physical activity for the management of chronic musculoskeletal pain in Saudi Arabia. The aim of the scoping review is to identify, map and report literature related to physical activity for health promotion in people with chronic musculoskeletal pain presenting to physical therapy settings in Saudi Arabia.

The objectives of the review are to map and report:

1. Characteristics of the included literature including where relevant research study methodologies and outcomes
2. Characteristics of approaches used to promote physical activity for people with chronic musculoskeletal pain in physical therapy settings in Saudi Arabia

3. Barriers and enablers to promoting physical activity for people with chronic musculoskeletal pain in physical therapy settings in Saudi Arabia
4. Directions for future research and clinical practice.

2. Materials and Methods

2.1. Study Design and Registration

The protocol was constructed based on the six steps to undertake a scoping review described by Mak and Thomas [13]: (1) Identifying the research question, (2) Identifying relevant literature, (3) Selecting literature to be included in the review, (4) Charting the data, (5) Collating, summarising and reporting the results and (6) Consulting stakeholders. The recommendations of the Joanna Briggs Institute [14] were also considered. The protocol is registered with the Open Science Framework (osf.io/ckd2q).

2.2. Step 1. Identifying The Research Question

In keeping with JBI guidance the "PCC" mnemonic (population, concept, and context) was used to focus the review [15]. The primary research question is: What is the scope and nature of the existing literature on physical activity for health promotion in people with chronic musculoskeletal pain presenting in physical therapy settings in Saudi Arabia? The secondary research question is: What insights does the existing literature reveal regarding physical therapy clinical practice?

2.3. Step 2. Identifying Relevant Literature

A preliminary search of PubMed to identify relevant keywords related to the research topic, and to identify a list of appropriate electronic databases for the research field. These preliminary searches subsequently informed the development of a search string comprising synonyms for keywords and advanced search techniques, such as asterisk (*), quotation marks (" ") and Boolean operator (OR/AND). A university librarian was consulted to check the robustness of the search strategy (Appendix 1). The following electronic databases were identified as relevant to this topic: Scopus, Medline, PubMed, Cochrane library, CINAHL, ScienceDirect and PEDro. The search strategy is provided in Appendix 2. The search will be limited to full text records in English and Arabic Language, without specifying a specific timeframe.

Additional search methods will include: 1) screening of the reference lists of all included literature, as well as the included studies of retrieved systematic reviews through electronic databases [14]. 2) A search for grey literature via a parallel search including the main keywords on the website of the Saudi Ministry of Health, the website of Saudi Physical Therapy Association, Google and Google Scholar [13,14]. The search process for both academic electronic databases, grey literature and reference lists will be documented and presented in the final report [14].

Eligibility criteria were developed using the PCC (Population, Concept, Context) framework as provided in Table 1.

Table 1. Eligibility criteria.

	Inclusion criteria	Exclusion criteria
Population	<ul style="list-style-type: none"> • Adults (≥ 18 years) • Chronic musculoskeletal condition 	<ul style="list-style-type: none"> • Children and adolescents (< 18 years) • Acute musculoskeletal condition • Any other type of pain
Concept	<ul style="list-style-type: none"> • Physical activity promotion 	<ul style="list-style-type: none"> • Interventions unrelated to physical activity or not aimed at promoting health

	<ul style="list-style-type: none"> • Advice regarding engaging in physical activity as a component of health promotion 	<ul style="list-style-type: none"> • Therapeutic exercises • Prescribed exercises
Context	<ul style="list-style-type: none"> • Physical therapy settings in Saudi Arabia e.g. hospital-based physical therapy departments, rehabilitation centres, primary healthcare physical therapy clinics, secondary-care physical therapy departments, tertiary-care physical therapy departments, private physical therapy practices or university-based PT clinics 	<ul style="list-style-type: none"> • Non-physical therapy settings or settings outside Saudi Arabia
Nature of literature	<ul style="list-style-type: none"> • Research literature e.g., reviews/primary studies • Grey literature e.g. policy, guidelines, frameworks, 	<ul style="list-style-type: none"> • Informal or undocumented practices, anecdotal evidence, or sources lacking formal or authoritative endorsement (e.g., personal narratives, unstructured interviews without analytical framework). Opinion pieces, editorials, blogs, news articles or promotional materials
Languages	<ul style="list-style-type: none"> • Literature published in English or Arabic 	<ul style="list-style-type: none"> • Literature published in languages other than English or Arabic

2.4. Step 3. Selecting Literature to Be Included in the Review

Sequential steps will be followed to organise the literature selection process. Zotero referencing software will be used to save records from the search and imported to Rayyan software for screening by blinded, independent reviewers. Duplicate records will be removed, and two reviewers will carry out a calibration exercise on 10% of the records to ensure the utility of the eligibility criteria for the screening process [16]. If there is less than 90% agreement in decisions, eligibility criteria will be amended and the calibration process repeated until there is at least 90% agreement [13,17,18].

All records will be screened by two independent reviewers in two stages: (i) titles and abstracts followed by (ii) full text records. Rayyan software will be used to document the decision-making process, with a third reviewer acting as arbiter in instances of disagreement [13,14].

Reasons for exclusion will be tabulated for records that have undergone full text screening. Reviewers will contact the authors to request the full reports of eligible literature if they are unobtainable through normal channels. Unobtainable full reports will be categorised as Awaiting Classification [13,14]. The literature selection process will be reported in accordance with the PRISMA-ScR (Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews) checklist [19].

2.5. Step 4. Charting the Data

The data extraction form, which will be iteratively developed by the review team and piloted on a sample of three records to assess usability and consistency, will be used to extract the key characteristics of included literature as shown by the example in Table 2 [14,20]. An email will be sent to authors of reports to obtain any missing or incomplete numerical research data. Unobtainable data will be coded as either not reported or unclear [21].

Table 2. Key characteristics of included literature.

Category	Data Items
Study Details	Author(s) – Year – Country – Language – Purpose – Study design
Participant characteristics	Sample size – Age – Sex/gender – Demographics – Pain duration
Intervention characteristics	Type of intervention – Duration – Provider – Frequency – Fidelity/adherence
Contextual and setting details	Clinical setting
Data collection methods	Reported Data Collection Methods
Outcome measures	Outcome of interest – Measurement tools – Timing – Response rates
Any relevant health and wellbeing outcomes	Reported outcomes
Key Findings	Summary of results – Reported barriers and enablers to promoting physical activity

Data will be charted by a single reviewer, and any uncertainties will be discussed by the review team to reach a decision through consensus [14]. Data will be exported to Word and/or Excel (XML format) and securely stored on Microsoft OneDrive, a cloud-based platform with robust encryption and access controls [21]. Data charting will include an 'Other' column or row to capture any relevant information that does not fit predefined categories. No formal grading of the risk of bias or quality will be undertaken in keeping with scoping review methods. Where relevant, included reports of research will be assessed individually using the appropriate CASP (Critical Appraisal Skills Programme) checklist [14].

2.6. Step 5. Collating, Summarising and Reporting the Results

Data charted from included sources will be collated using an iterative, team-based process. A preliminary set of analytical subgroups will guide the initial organisation of the data. These subgroups may be expanded or refined through team discussion and increasing familiarity with the research [21]. Anticipated subgroups for analysis are:

- Type of research study e.g., quantitative versus qualitative
- Demographics, e.g., men versus women

Results will be reported using:

- **A PRISMA-ScR flow diagram** showing the number of sources screened, included, and excluded.
- **Tabulated summaries** of literature characteristics, methodologies, physical therapy approaches, barriers/enablers, and outcomes.
- **Narrative summaries** that link back to the review questions by describing the mapped evidence, key patterns, and gaps.
- **Implications for research and practice**, derived from the breadth and characteristics of the evidence, as recommended in scoping review reporting guidance.

2.6. Step 6. Consulting Stakeholders

Findings of the scoping review will be shared with stakeholders, specifically physical therapists and people living with chronic musculoskeletal pain, because the review prioritises collecting real-world insights from physical therapy settings [13]. Two stakeholder events will be conducted: one for physical therapists and another for patients. A purposive sampling approach will be used to recruit participants for these events [22]. The sample size for each event will consist of 5 stakeholders (5 physical therapists and 5 patients) [23]. The objectives of the stakeholder events are:

- To explore the extent to which stakeholder viewpoints align with the review's findings
- To generate new insights on the review's findings
- To guide future research

Data will be collected using two separate semi-structured focus groups [24]. The interviews will be carried out online using Microsoft Teams platform, as this platform is complying with data protection legislation and is easily accessible [25]. Each interview will last for approximately 90 minutes [26]. The interviews will be recorded. The interviewer will also take field notes. The data will be analysed manually, and the six steps of Braun and Clarke's guidance [27] may be considered.

The participant information sheet will be sent to those who wish to take part, to inform them about the nature of the event, to explain that their participation is voluntary, and to reassure them regarding confidentiality and privacy. The stakeholder event will not begin until consent forms have been obtained from the participants.

Ethics And Dissemination: This scoping review is the first stage of a PhD programme of study that aims to evaluate physical activity promotion for chronic musculoskeletal pain in physical therapy settings in Saudi Arabia. Ethical approval for the scoping review was obtained from Leeds Beckett University Research Ethics Committee (Ref:149661). Regarding the stakeholder consultation, two ethical approvals were obtained. The first was issued by the Leeds Beckett University Research Ethics Committee, which provided a favourable opinion (no reference number was provided). The second was issued by the Institutional Review Board, King Khaled Hospital, Najran Health Cluster, Najran, Saudi Arabia (Approval No: IRB Log Feb 2026-92A). The findings of the review will be disseminated through publication in a peer-reviewed journal.

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