E-ISSN: 3068-3726
Journal of Orthopaedic Science and Research

ATHENAEUM SCIENTIFIC PUBLISHERS

Review Article

Implementation Research on Osteoarthritis in Asia: A Systematic Review Protocol

Purnashashi Behera[1], Ansuman Panigrahi[1*], Swati Sambita Mohanty[1], Jewel Ipsita Sahani[1], Rutuparna Sibani Dandsena[1], Priyanka Sahu[1], Narayana Swamy DM[1]

[1]ICMR-Regional Medical Research Centre, Bhubaneswar, 751023, Odisha, India

***Correspondence author:** Ansuman Panigrahi, Scientist-E, Division of Epidemiology, ICMR-Regional Medical Research Centre, Bhubaneswar, 751023, Odisha, India; Email: dr.ansuman3@gmail.com

Citation: Behera P, et al. Implementation Research on Osteoarthritis in Asia: A Systematic Review Protocol. J Ortho Sci Res. 2025;6(2):1-4. https://doi.org/10.46889/JOSR.2025.6204

Received Date: 21-05-2025

Accepted Date: 09-06-2025

Published Date: 16-06-2025

Abstract

Introduction: Osteoarthritis (OA) is a significant public health burden in Asia, affecting millions of people. Effective management of OA requires the implementation of evidence-based interventions in real-world settings.

Objective: This systematic review aims to synthesize the existing literature on implementation research for OA in Asian countries, identifying effective strategies, challenges and opportunities for improving patient outcomes.

Materials and methods: Multiple databases, including PubMed, Scopus, Embase, EBSCO (CINAHL), ScienceDirect and grey literature sources (Google Scholar, ProQuest, Shodhganga), will be searched for relevant studies. The review will include studies published in English between 2003 and 2024 that investigate implementation research for osteoarthritis or have any implementation research component. The focus will be on studies that examine implementation effectiveness, influencing factors, strategies and outcomes. The quality appraisal will be done using the Standards for Reporting Implementation Studies (StaRI) checklist and the results will be summarized in accordance with Synthesis without Meta-analysis (SWiM) guidelines.

Expected Outcome: An extensive overview of Osteoarthritis (OA) implementation research in Asian nations will be provided by this systematic review. The review will identify successful implementation strategies, barriers and prospects for enhancing OA management by synthesizing the current research. Policymakers and healthcare professionals will be more equipped to make evidence-based choices and put initiatives that improve patient outcomes and reduce the prevalence of OA.

Keywords: Implementation Research; Systematic review; Asia; Osteoarthritis

Registration Details: PROSPERO CRD42024542237

Introduction

Osteoarthritis (OA) is a degenerative joint disorder that affects other surrounding tissues along with the cartilage. Although the course of the disease is often slow, but it can eventually result in joint failure with pain and disability [1]. Osteoarthritis presents in primary and secondary forms. The primary or idiopathic form occurs in previously intact joints without any inciting agent, whereas the secondary form is caused by underlying predisposing factors (eg, trauma) [2]. It is a prevalent and debilitating condition that affects millions of individuals worldwide. The percentage of people over 30 years who have osteoarthritis has increased to 14.8% throughout the past 20 years. Osteoarthritis cases are expected to increase globally, placing a greater strain on the healthcare system until 2050 [3]. The burden of osteoarthritis extends beyond the physical symptoms experienced by patients, as it also impacts their quality of life, physical and emotional challenges, limitations in daily activities, increased healthcare utilization and imposes significant economic costs on society.

Many countries in Asia are ageing rapidly. According to research, during the next 20 years, the percentage of people in Asia who are 65 years of age or older will more than double, from 6.8% in 2008 to 16.2% in 2040. Many studies, primarily involving North American or European populations, have shown that obesity and high levels of occupational physical activity, such as those observed in many Asian communities, are definitely risk factors for Osteoarthritis in the knee and hip [4]. Clinicians are aware that the current methods of diagnosing Osteoarthritis often occur late in the disease process when treatment options may be limited. To improve outcomes and advance the field of osteoarthritis management, there is a need for implementation research. It helps to understand how interventions, policies and programs are implemented in real-world settings and how they can be effectively scaled up or adapted. This type of research focuses on bridging the gap between scientific evidence and the delivery of effective healthcare interventions in real-world settings. The overarching objective of implementation research is to improve patient outcomes by identifying and addressing barriers to the use of evidence-based procedures in clinical settings [5].

Hence, to narrow down the focus area of such a prevalent and debilitating disease, there is a need for a systematic review to examine the existing studies on this topic. This helps prioritize future research efforts and identify areas where more implementation science is needed to investigate the actual implementation of evidence-based interventions in real-world contexts. This information can help with program design and resource allocation, which will ultimately lead to better public health outcomes.

Objective

To identify, summarize and synthesize the existing evidence of implementation research on Osteoarthritis in Asia.

Research Question

What is the evidence existing on implementation research on Osteoarthritis in Asia?

Methodology

Systematic evaluation of the implementation research will be conducted with the overall objective of evaluating and compiling all the information that has been found in implementation research on Osteoarthritis in Asia. The PRISMA for systematic review protocols (PRISMA-P) has been followed in writing of the protocol, which has been also registered on the PROSPERO database (CRD42024542237) [6]. The review will include studies published in English between 2003 and 2024 that investigate implementation research for Osteoarthritis (OA) or have any implementation research component. The focus will be on studies that examine implementation effectiveness, influencing factors, strategies and outcomes. Full-text articles must be available for inclusion. Studies focusing solely on the effectiveness of the intervention without an implementation component will be excluded, as will those not published in English.

Eligibility Criteria

Population: All people of all age groups, who are involved in or are a sample population of an Osteoarthritis implementation research.

Intervention: Any evidence-based intervention related to implementation research solely focusing on Osteoarthritis.

Comparator: Not available

Outcomes:

- Implementation Process: How were strategies and interventions implemented?
- Contextual Background: Was the study setting and its relevant events described?
- Implementation Structure: Who was responsible for implementing the intervention?
- Protocol Deviations: Were there any changes to the initial intervention plan?
- Policy and Practice Implications: Did the study address how results could inform real-world policy or practice?

Study Designs

All study designs will be considered, except for reviews (including systematic reviews and study protocols). Study designs lacking specific details about the implementation research methodology, such as case reports, case series, policy briefs, editorials, letters and policy/program documents, will be excluded.

Search Methods

Academic databases have been searched, including EMBASE, ProQuest, CINAHL (Ebsco version) and MEDLINE via PubMed, Scopus, Science Direct and Web of Science. The structure of the search strategy has been determined by the eligibility requirements of the research question and the necessary formats that are unique to the databases. Grey literature such as Google Scholar and Sodhganga have been searched.

Study Selection

Eligible studies will be extracted and compiled into various formats, including CSV, RIS and other formats. All studies will be imported into Rayyan QCRI software to identify and remove any duplicates. Two independent reviewers will screen the titles and abstracts of studies using Rayyan QCRI. Studies will be assessed against inclusion and exclusion criteria. Any disagreements between reviewers will be resolved through discussion with a third reviewer using Rayyan QCRI. Included studies will be retrieved in full-text format once the conflict is resolved. Included studies will undergo a second round of full-text screening by two independent reviewers. Studies that do not meet the inclusion criteria will be excluded, with reasons documented. Relevant data on implementation research features will be extracted from the final set of included studies and tabulated in an Excel spreadsheet.

Data Extraction

Data from the included studies will be extracted using a pre-prepared, standard form for the evidence synthesis. The publication date, authors, location, setting, study population, study period and sample size, etc, will be retrieved from each of the chosen studies. Apart from these baseline characteristics, information related to different domains for Implementation Research will be documented. The data extraction sheet will include relevant Implementation Research outcome measurements, such as effectiveness metrics (uptake, patient-reported outcome measures), economic evaluation metrics (cost, cost-effectiveness, cost-utility), technical, operational and economic feasibility measures, operational problems (hindrances, enablers) and measures of fidelity (adherence, participant responsiveness, quality of intervention delivery).

1. *Implementation research:* The scientific study of methods and strategies that facilitate the uptake of evidence-based interventions and research findings into routine healthcare practice, with the goal of improving the quality, effectiveness and sustainability of health services.
2. *Evidence-based intervention:* A practice, program or policy that has been empirically shown through rigorous research to produce beneficial health outcomes and is recommended for implementation in clinical or public health settings.
3. *Implementation strategies:* Specific methods or techniques used to enhance the adoption, execution and sustainability of evidence-based interventions.
4. *Implementation outcomes:* Measurable effects related to the process of implementing an intervention, such as:

- *Acceptability:* The perception that an intervention is agreeable or satisfactory
- *Feasibility:* The extent to which an intervention can be successfully used or carried out
- *Fidelity:* The degree to which an intervention is delivered as intended
- *Adoption/Uptake:* The initial use of an intervention in practice
- *Sustainability:* The extent to which an intervention continues to be used over time

5. *Contextual factors*: Environmental, organizational, socio-cultural and policy-level influences that affect the implementation of interventions

Data Synthesis

Synthesis without Meta-analysis (SWiM) criteria will be used to create a narrative synthesis of the chosen papers from the standpoint of implementation research [7]. Heterogeneity will be assessed using I2 statistics. In cases of high heterogeneity, meta-analysis might not be appropriate. However, if two or more studies exhibit similar characteristics and have sufficient data, meta-analysis can be performed.

Assessment of Methodological Quality and Risk of Bias

The quality appraisal will be conducted independently by three reviewers. As a final step, a concurrent risk of bias assessment will be performed on the articles utilizing the Standards for Reporting Implementation Studies (StaRI) checklist [8].

Discussion

This protocol outlines a systematic approach to review the existing literature on implementation research for osteoarthritis. By following this protocol, we aim to provide valuable insights to improve the translation of evidence-based interventions into real-world practice and ultimately improve patient outcomes for osteoarthritis. A collection of this kind of data would be essential to comprehend the gaps in implementation research and would open the door to investigating possible solutions.

Limitations

Limiting studies to English-language publications may introduce language bias, potentially excluding relevant non-English research. Variability and inconsistent use of terminology across studies could hinder the consistency and comparability of findings, complicating synthesis.

Conflict of Interests

The authors declare no conflict of interest.

Funding/Sponsorship

This research did not receive any specific grant from funding agencies in the public, commercial or not-for-profit sectors.

Authors' Contribution

Concept and design: AP, PB
Acquisition of data – PB, AP, SSM, JIS, RSD, PS, NS
Analysis and/or interpretation: AP, PB, SP
Drafting of the article: PB, AP
Critical revision of the manuscript for important intellectual content: AP, PB, SSM, JIS, RSD, PS, NS, SP
Approval of the version of the manuscript to be published: PB, AP, SSM, JIS, RSD, PS, NS, SP

References

1. Litwic A, Edwards MH, Dennison EM, Cooper C. Epidemiology and burden of osteoarthritis. Br Med Bull. 2013;105:185-99.
2. Taruc-Uy RL, Lynch SA. Diagnosis and treatment of osteoarthritis. Prim Care. 2013 Dec;40(4):821-36.
3. GBD 2021 Osteoarthritis Collaborators. Global, regional and national burden of osteoarthritis, 1990-2020 and projections to 2050: A systematic analysis for the Global Burden of Disease Study 2021. Lancet Rheumatol. 2023;5(9):e508-22.
4. Fransen M, Bridgett L, March L, Hoy D, Penserga E, Brooks P. The epidemiology of osteoarthritis in Asia. Int J Rheum Dis. 2011;14(2):113-21.
5. Lorig K, Konkol L, Gonzalez V. Arthritis patient education: A review of the literature. Patient Educ Couns. 1987;10(3):207-52.
6. Page MJ, McKenzie JE, Bossuyt PM, Boutron I, Hoffmann TC, Mulrow CD, et al. The PRISMA 2020 statement: An updated guideline for reporting systematic reviews. BMJ. 2021;372:n71.
7. Campbell M, McKenzie JE, Sowden A, Katikireddi SV, Brennan SE, Ellis S, et al. Synthesis without Meta-analysis (SWiM) in systematic reviews: reporting guideline. BMJ. 2020;368:l6890.
8. Pinnock H, Barwick M, Carpenter CR, Eldridge S, Grandes G, Griffiths CJ, et al. Standards for Reporting Implementation Studies (StaRI) Statement. BMJ. 2017;356:i6795.