The Socioeconomic Burden of Osteoarthritis in Sub-Saharan Africa and the Determinants of Healthcare Inequities: A Scoping Review Protocol

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The Socioeconomic Burden of Osteoarthritis in Sub-Saharan Africa and the Determinants of Healthcare Inequities: A Scoping Review Protocol

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ABSTRACT

Introduction: Access to musculoskeletal healthcare services in Sub-Saharan Africa is inadequate. As osteoarthritis is the most prevalent chronic osteoarticular disease globally, it's essential to understand its social and economic impact, as well as the determinants of inequities in access to healthcare services in Sub-Saharan Africa. The absence of systematized knowledge on this topic makes this review pertinent. However, due to data scarcity, assessing this burden is challenging.

Objective: To map and summarize the available literature up to June 2025 on the socioeconomic burden and health inequity determinants among the Sub-Saharan Africa population with osteoarthritis.

Inclusion Criteria: This scoping review will include all publications, including gray literature, published up to June 2025. Eligible studies will focus on adults diagnosed with OA who are residents of, or were born in, Sub-Saharan Africa. Outcomes of interest include work productivity, absenteeism, sick leave, return to work, and retirement among patients with osteoarthritis, as well as disparities in healthcare access.

Methods: A predefined search strategy will be applied to MEDLINE (via PubMed), Embase, African Journals Online, and African Index Medicus. We will also include gray literature sources such as Google Scholar, Research Square, OpenGrey, manuals, books, medical society

websites, secondary databases, thesis and dissertation repositories, and conference proceedings. Study selection will be conducted in two stages by a pair of reviewers who will independently screen titles and abstracts according to the eligibility criteria, followed by a full-text review of the selected studies. Data extraction will be performed using a standardized charting form developed by the review team.

Keywords: Osteoarthritis, Sub-Saharan Africa, Socioeconomic burden, Health inequities.

Strengths and limitations of this study

- This scoping review will comprehensively map the socioeconomic burden of osteoarthritis in Sub-Saharan Africa, incorporating diverse evidence sources (quantitative, qualitative, technical reports, and grey literature).
- By examining healthcare access and equity dimensions, the review will highlight knowledge gaps and inequities in osteoarthritis care across different populations and health systems in the region.
- The methodological flexibility of scoping reviews allows the inclusion of heterogeneous study designs and contexts, which is essential in an under-researched setting.
- A limitation is that scoping reviews do not critically appraise the methodological quality of included studies, which may affect the interpretation and policy relevance of findings.
- The review will provide breadth rather than depth, mapping existing evidence without delivering definitive causal or quantitative conclusions.

INTRODUCTION

Osteoarthritis (OA) is the most prevalent joint disease in adults, characterized by chronic pain and loss of mobility. Hip and knee OA impose a significant burden due to disability and the frequent need for surgical interventions, which are rarely covered by public healthcare systems in low-income countries [1]. With the increase in life expectancy, OA is predicted to become more prevalent in the coming decades. People are experiencing more years with disability and are perceiving adverse impacts on their health and well- being [2]. The increasing life expectancy in Sub-Saharan Africa (SSA) projects OA as one of the leading causes of disability in the population over 40 years of age [3].

OA is also known to negatively impact (work-) participation and increase healthcare utilisation, making it a significant economic and individual burden that should be considered from a public health perspective [4].

Despite the growing global burden of OA – with 595 million cases in 2020 and projections of substantial increases by 2050 – epidemiological data on the disease in SSA are notably limited [3]. Musculoskeletal health has been neglected in most of the region due to scarce resources and lack of information [5]. The predominance of rural populations and the primary economic sector being the largest source of employment in SSA [6] amplify the impact of OA on productivity and family income, burdening already fragile social security systems. Furthermore, access to surgical treatments and rehabilitation is severely restricted, with less than 10% of the SSA population (excluding South Africa) having access to joint replacement surgeries [7].

It is fundamental to understand the social and economic impact of OA and the factors perpetuating inequities in access to healthcare, specifically in SSA, in order to inform the development of effective strategies [3]. A preliminary search of the databases did not identify any scoping reviews dealing with this topic. Considering the absence of published scoping reviews focused on OA and its impact on the SSA population, this scoping review aims to map available evidence and identify knowledge gaps, serving as a basis for future in-depth research.

REVIEW QUESTION

What is the socioeconomic burden and what are the determinants of healthcare inequities associated with OA in the SSA population?

INCLUSION CRITERIA

Participants: The review will consider studies that include only adult patients (aged 18 years or older) diagnosed with OA (using clinical and radiological criteria defined by the Osteoarthritis Research Society International – OARSI).

Concept: The main concept of interest in this scoping review is the socioeconomic burden of OA and the associated inequities in healthcare.

Context: The context of this review is Sub-Saharan Africa, and it will consider studies conducted among residents or individuals born in the region.

Types of sources: This scoping review will encompass published work from traditional databases, gray literature, and non–peer-reviewed sources, including theses, dissertations, and conference proceedings.

METHODS

This scoping review protocol was registered on the Open Science Framework (OSF) platform (Registration DOI: 10.17605/OSF.IO/EGDZJ) .

We will follow the methodological framework by Arksey and O'Malley [8], as adapted by Levac et al. (2010) [9], to conduct this scoping review. Results will be presented according to the guidelines of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews (PRISMA-ScR) (2018) [10] and the updated methodological guide of the Joanna Briggs Institute (JBI) Centre of Excellence [11]

Search Strategy: The search strategy and the initial and secondary searches were conducted in collaboration with a research librarian (APPENDIX I). We will conduct a search in the following databases: MEDLINE (via PubMed), Embase, Scopus and LILACS, according to their respective syntax rules. In addition, others sources as African Journals Online (AJOL),

and African Index Medicus (AIM). We will include gray literature, such as Google Scholar, Research Square, Open Gray, manuals, books, medical society websites, ProQuest, thesis and dissertation repositories, and conference proceedings. Searches will be complemented by checking the reference lists of selected studies for full-text review (cross-referencing) and by contacting authors who publish in the field of OA epidemiology. There will be no restrictions on language.

Study Selection: All identified citations will be collated in Rayyan AI (artificial intelligence), a web-based and mobile collaboration platform that leverages artificial intelligence to streamline and accelerate the systematic and literature review process for researchers. Study selection will be performed in two stages. In the first stage, a pair of reviewers will independently screen and select studies based on titles and abstracts identified during the search phase, according to the eligibility criteria. In the second stage, the same reviewers will independently conduct a full-text review of the selected studies. Discrepancies will be resolved by consensus during a meeting. If reviewers cannot reach a consensus, a third review author will be called upon to act as an arbiter.

Data Extraction: Data will be extracted using a data charting form developed by the review team (APPENDIX II). Information collected will include details about authors, title, journal, publication year, and study objective. If necessary, we will contact authors of selected studies for clarification of doubts, as well as for suggestions of other studies not yet selected for the scoping review.

To assess inequity, we will use the PROGRESS acronym [12]:

1. **P** (Place) – Place of residence;
2. **R** (Race) – Race, culture, ethnicity, and language;
3. **O** (Occupation) – Occupation;
4. **G** (Gender and sex) – Gender and sex;
5. **R** (Religion) – Religion;
6. **E** (Education) – Education;
7. **S** (Socioeconomic status) – Socioeconomic status;
8. **S** (Social capital) – Social capital.

To assess the socioeconomic burden, we will select the following data:

1. Prevalence of OA;
2. Demographic characteristics of patients;
3. Patients' access to income;
4. Access to the social security system.

Data Analysis and Presentation: We will use the PRISMA-ScR protocol as a guide for reporting our scoping review. Extracted data will be presented in diagrammatic or tabular form in a manner that aligns with the objective of this scoping review. The charting table will report on: distribution of papers by year of publication, country of origin, study design, research methods and the key findings/outcomes. A narrative summary will accompany the tabulated and/or charted results and will describe how the results relate to the review's objective and question.

CONCLUSION

This review will allow us to map available evidence on the topic, identify knowledge gaps regarding the burden of OA in SSA, taking into account healthcare inequities, and propose the conduct of more in-depth studies such as systematic reviews. Furthermore, this scoping review is expected to provide relevant information that can serve as a basis for developing interventions aimed at mitigating the effects of common osteoarticular diseases.

REQUIRED STATEMENTS

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Competing interests: None declared.

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AUTHORSHIP CONTRIBUTION

Leonel Diamantino Andela: Conceptualization, metodology,research and writing of the original draft.
Carlos Augusto Ferreira de Andrade: Conceptualization, the methodology and analyses adopted, writing and reviewing the manuscript, and approving the final version.
Breno Augusto Bormann de Souza Filho: Conceptualization, methodology and analyses adopted, writing and reviewing the manuscript, and approving the final version.
Fernando M. Pimentel dos Santos: Conceptualization, methodology and analyses adopted, writing and reviewing the manuscript, and approving the final version.
Daniele Masterson Tavares Pereira Ferreira: Investigation and software.

DATA AVAILABILITY STATEMENT

This study is a protocol for a scoping review. All data to be used will be derived from previously published studies and grey literature. No primary data will be generated. The protocol has been registered on the Open Science Framework (Registration DOI: 10.17605/OSF.IO/EGDZJ).

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APPENDIX I

Database	Strategy
MEDLINE	("Osteoarthritis"[MeSH Terms] OR "Osteoarthritis"[Title/Abstract] OR "osteoarthrosis"[Title/Abstract] OR "Arthrosis"[Title/Abstract] OR "Arthritis"[MeSH Terms] OR "Arthritis"[Title/Abstract] OR "Polyarthritis"[Title/Abstract]) AND (((((("sub saharan african people"[MeSH Terms] OR "africa south of the sahara"[MeSH Terms] OR "Angola"[MeSH Terms] OR "Angola"[Title/Abstract] OR "Benin"[MeSH Terms] OR "Benin"[Title/Abstract] OR "Botswana"[MeSH Terms] OR "Botswana"[Title/Abstract] OR "burkina faso"[MeSH Terms] OR "bukina faso"[Title/Abstract] OR "cabo verde"[MeSH Terms] OR "cabo verde"[Title/Abstract] OR "central african republic"[MeSH Terms] OR "Cameroon"[MeSH Terms] OR "Cameroon"[Title/Abstract] OR "Chad"[MeSH Terms] OR "Chad"[Title/Abstract] OR "Congo"[MeSH Terms] OR "Congo"[Title/Abstract] OR "cote d ivoire"[MeSH Terms] OR "cote d ivoire"[Title/Abstract] OR "democratic republic of the congo"[MeSH Terms] OR "Djibouti"[MeSH Terms] OR "Djibouti"[Title/Abstract] OR "equatorial guinea"[MeSH Terms] OR "equatorial guinea"[Title/Abstract] OR "Eritrea"[MeSH Terms] OR "Eritrea"[Title/Abstract] OR "Eswatini"[MeSH Terms] OR "Eswatini"[Title/Abstract] OR "Ethiopia"[MeSH Terms] OR "Ethiopia"[Title/Abstract] OR "Gabon"[MeSH Terms] OR "Gabon"[Title/Abstract] OR "Gambia"[MeSH Terms] OR "Gambia"[Title/Abstract] OR "Ghana"[MeSH Terms] OR "Ghana"[Title/Abstract] OR "Ghana"[Title/Abstract] OR "Guinea"[MeSH Terms] OR "Guinea"[Title/Abstract] OR "guinea bissau"[MeSH Terms] OR "guine bissau"[Title/Abstract] OR "Kenya"[MeSH Terms] OR "Kenya"[Title/Abstract] OR "lesotho"[MeSH Terms] OR "lesotho"[Title/Abstract] OR "Liberia"[MeSH Terms] OR "Liberia"[Title/Abstract] OR "Malawi"[MeSH Terms]) AND ("Or"[All Fields] AND "Malawi"[Title/Abstract])) OR "Mali"[MeSH Terms] OR "Mali"[Title/Abstract] OR "Mauritania"[MeSH Terms] OR "Mauritania"[Title/Abstract] OR "Mozambique"[MeSH Terms] OR "Mozambique"[Title/Abstract] OR "Namibia"[MeSH Terms] OR "Namibia"[Title/Abstract] OR "Niger"[MeSH Terms] OR "Niger"[Title/Abstract] OR "Nigeria"[MeSH Terms] OR "Nigeria"[Title/Abstract] OR "Rwanda"[MeSH Terms] OR "Rwanda"[Title/Abstract] OR "sao tome and principe"[MeSH Terms] OR "sao tome and principe"[Title/Abstract] OR "Senegal"[MeSH Terms] OR "Senegal"[Title/Abstract] OR "sierra leone"[MeSH Terms]) AND "sierra leone"[Title/Abstract]) OR "Somalia"[MeSH Terms] OR "Somalia"[Title/Abstract] OR "south africa"[MeSH Terms] OR "south africa"[Title/Abstract] OR "south sudan"[MeSH Terms] OR "south sudan"[Title/Abstract] OR "Tanzania"[MeSH Terms] OR "Tanzania"[Title/Abstract] OR "Togo"[MeSH Terms] OR "Togo"[Title/Abstract] OR "Uganda"[MeSH Terms] OR "Uganda"[Title/Abstract] OR "Zambia"[MeSH Terms] OR "Zambia"[Title/Abstract] OR "Zimbabwe"[MeSH Terms] OR "Zimbabwe"[Title/Abstract])

EMBASE	('osteoarthritis'/exp OR osteoarthritis OR 'osteoarthrosis'/exp OR osteoarthrosis OR 'arthrosis'/exp OR arthrosis OR 'arthritis'/exp OR arthritis OR 'polyarthritis'/exp OR polyarthritis) AND ('sub-saharan' OR 'africa south of the sahara' OR angola OR benin OR botswana OR 'burkina faso' OR 'cabo verde' OR 'central african republic' OR cameroon OR chad OR congo OR 'cote divoire' OR 'democratic republic of the congo' OR djibouti OR 'equatorial guinea' OR eritrea OR eswatini OR ethiopia OR gabon OR gambia OR ghana OR guinea OR 'guine bissau' OR kenya OR lesotho OR liberia OR malawi OR mali OR mauritania OR mozambique OR namibia OR niger OR nigeria OR rwanda OR 'sao tome and principe' OR senegal OR 'sierra leone' OR somalia OR 'south africa' OR 'south sudan' OR 'tanzania' OR togo OR uganda OR 'zambia' OR zimbabwe) AND [embase]/lim NOT ([embase]/lim AND [medline]/lim) AND ('article'/it OR 'article in press'/it OR 'review'/it)
SCOPUS	(TITLE-ABS-KEY ((osteoarthritis OR osteoarthrosis OR arthrosis OR arthritis OR polyarthritis)) AND TITLE-ABS-KEY (("sub-saharan africa" OR "africa south of the sahara" OR angola OR benin OR botswana OR "burkina faso" OR "cabo verde" OR "central african republic" OR cameroon OR chad OR congo OR "cote divoire" OR "democratic republic of the congo" OR djibouti OR "equatorial guinea" OR eritrea OR eswatini OR ethiopia OR gabon OR gambia OR ghana OR guinea OR "guine bissau" OR kenya OR lesotho OR liberia OR malawi OR mali OR mauritania OR mozambique OR namibia OR niger OR nigeria OR rwanda OR "sao tome and principe" OR senegal OR "sierra leone" OR somalia OR "south africa" OR "south sudan" OR "Tanzania" OR togo OR uganda OR "Zambia" OR zimbabwe))) AND (LIMIT-TO (DOCTYPE , "ar") OR LIMIT-TO (DOCTYPE , "re"))
Google scholar	(Osteoarthritis OR osteoarthrosis OR Arthrosis OR Arthritis OR Polyarthritis) AND ("subsaharan" OR subsaharan)

APPENDIX II

Data Extraction Form

Socioeconomic Burden of OA in SSA – A Scoping Review

Reviewer: _____

Reviewer's decision regarding the full-text article:

☐ Included

☐ Excluded – Reason for exclusion:

_____
_____
_____

Publication Details:

1. Title: _____
2. Authors: _____
3. Reference: _____
4. Study Objective: _____
5. Study Design/Type: _____
6. OA Location:

   ☐ Knees ☐ Hip ☐ Hands ☐ Spine ☐ Other (specify): _____

7. Clinical Inclusion/Exclusion Criteria (if any): _____
8. Clinical Criteria for OA: _____
9. Total Number of Cases in the Article: _____
10. Number of Thrombotic Manifestations (%): _____
11. Radiological Criteria: _____
12. Characteristics:

- Country(ies): _____
- Percentage of Male Patients: _____
- Age Range: _____
- Mean Age (SD): _____
- Disease Duration: _____
- Follow-up Duration: _____
- Number of Patients per Disease: _____
- Income: _____
- Education Level: _____
- Were there any deaths? ☐ Yes ☐ No

13. Population:

- ☐ Rural – % _____
- ☐ Urban – % _____

14. Was there consensus among reviewers? ☐ YES ☐ NO
15. Final Decision (including, if applicable, the third reviewer's vote):

    ☐ Included ☐ Excluded – Reason for exclusion: _____

16. Relevant Observations: _____
17. Cross-references not yet selected: _____

This preprint was submitted under the following conditions:

- The authors declare that the necessary Terms of Free and Informed Consent of participants or patients in the research were obtained and are described in the manuscript, when applicable.
- The authors declare that the preparation of the manuscript followed the ethical norms of scientific communication.
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- The deposited manuscript is in PDF format.
- The authors declare that the research that originated the manuscript followed good ethical practices and that the necessary approvals from research ethics committees, when applicable, are described in the manuscript.
- The authors declare that once a manuscript is posted on the SciELO Preprints server, it can only be taken down on request to the SciELO Preprints server Editorial Secretariat, who will post a retraction notice in its place.
- The authors agree that the approved manuscript will be made available under a Creative Commons CC-BY license.
- The submitting author declares that the contributions of all authors and conflict of interest statement are included explicitly and in specific sections of the manuscript.
- The authors declare that the manuscript was not deposited and/or previously made available on another preprint server or published by a journal.
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