





knowledge gaps in the market availability and accessibility of essential opioid medicines and map out concepts pertaining to the economic, regulatory, and social barriers to accessing these medicines. Such thematic concepts, based on preliminary scoping of the literature, will potentially fall into the following themes: financing [17], knowledge and cultural beliefs [18], legislation and public policy [19], and education and training [20].

### AIMS OF THE SCOPING REVIEW

An initial search of the JBI journal for systematic reviews, the Cochrane Database of Systematic Reviews, CINAHL, and PROSPERO revealed no active, previous, or forthcoming scoping reviews on our proposed topic. Our overarching aim is to understand opioid availability and use in Sub-Saharan Africa and the current landscape of essential medications in LMICs. Specifically, our research will focus on

1. Mapping the evidence on the supply and utilization of essential opioid analgesics in sub-Saharan African countries

2. Identifying the social, economic, cultural, and regulatory barriers to accessing essential opioid analgesics in sub-Saharan Africa
3. Delineating appropriate interventions to prioritize to mitigate the situation

### METHODOLOGY

This scoping review will be guided by the five steps methodological framework proposed by Arksey and O'Malley [21]. This involves: (1) identifying the research question, (2) identifying relevant studies, (3) selecting eligible studies, (4) charting the data, and (5) collating and summarizing the results.

This framework ensures that a straightforward methodological and transparent process is followed in examining the nature, range, and extent of research activities, as well as identifying knowledge gaps. The Preferred Reporting Item for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) [22] will be utilized in our review for screening articles and reporting results. The PRISMA diagram is shown in Figure 1.

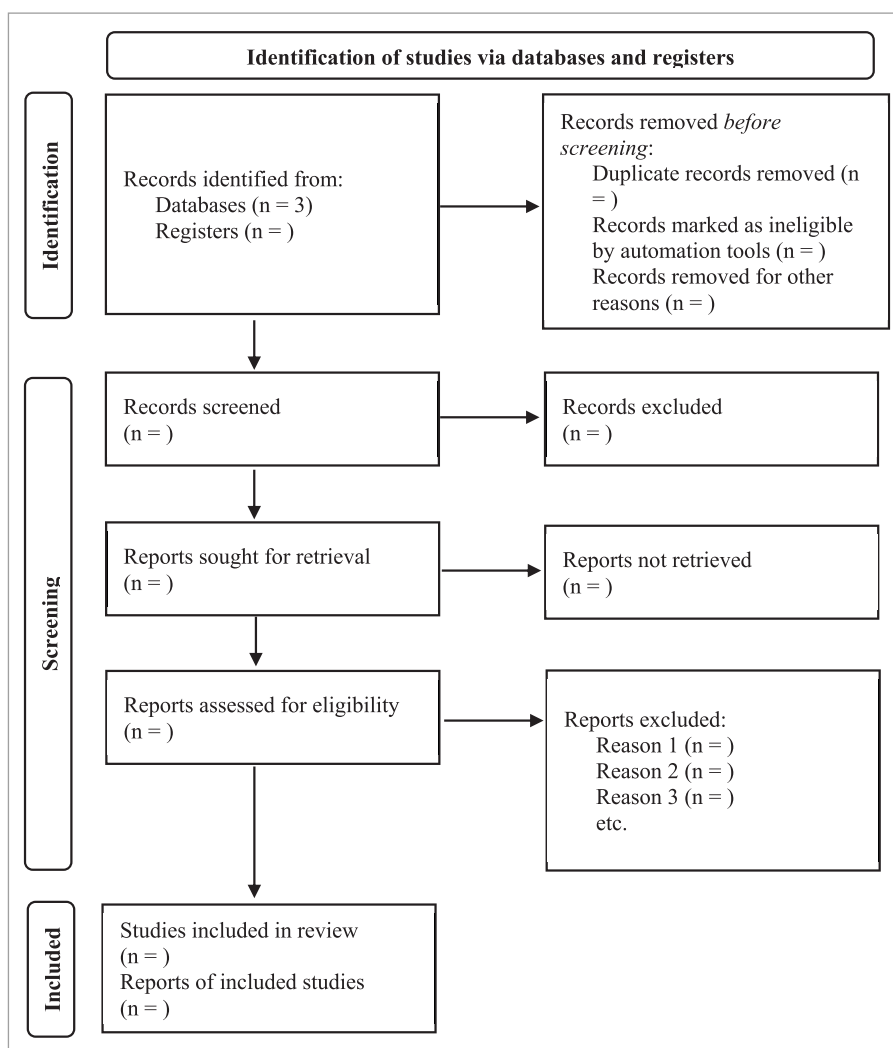


Figure 1 PRISMA Flow Diagram for Our Proposed Scoping Review [23].

In lieu of a systematic review, a scoping review was chosen because the evidence relating to the availability and use of essential opioid analgesics in sub-Saharan Africa has not yet been comprehensively studied. Systematic reviews often address a single, specific research issue with established parameters, endpoints, and eligibility criteria for the included studies. In contrast, a scoping review might investigate many questions to identify potential patterns. Therefore, a scoping review is more appropriate for our proposed study, as it is currently unclear what the specific issues are regarding the availability and utilization of essential opioid analgesics in Sub-Saharan Africa.

**1. IDENTIFYING THE RESEARCH QUESTION**

To understand opioid availability and use in Sub-Saharan Africa, our research team will use an iterative process to look at the concept, target population, and outcomes as described by Arksey and O'Malley (Table 1).

**2. IDENTIFYING RELEVANT STUDIES**

All team members, including the librarian, collaboratively developed, and agreed upon the search strategy, the inclusion and exclusion criteria, as well as the project timeline.

A preliminary search on the topic was conducted by the university librarian in PubMed. This was useful in helping us expand on search terms based on keywords, titles, and abstracts from the initial search. The detailed PubMed/MEDLINE database search strategy with search terms is shown in Appendix 1.

A systematic search will be conducted for published and unpublished (gray) literature using keyword combinations and Boolean operators “AND/OR”. MEDLINE via PubMed, SCOPUS and EMBASE will be exhaustively searched. Studies will be limited to sub-Saharan Africa, and there will be no restriction on publication dates. Search terms include methadone, morphine, fentanyl, and codeine, as well as general use of “opioid.” Additionally, every sub-Saharan African nation was used in searching. The search strategy will be piloted and checked for appropriateness of keywords

and various databases. We will conduct a hand search of the reference list of all potentially relevant studies. Also, relevant gray literature will be identified through a targeted search of conference abstracts (EMBASE Conference Abstracts, Conference Proceeding, Africa Center for Disease Control, Africa Center for Evidence, and Africa Academy of Science), dissertations, and theses. The search result will be exported to Endnote for data management and to remove duplicates. Once duplicates are removed, the data will be exported to Rayyan (a free web tool designed to help researchers speed up the screening and selection of articles while working on systematic reviews, scoping reviews, and other knowledge synthesis projects) for screening.

**Inclusion Criteria**

The review will include articles published in English and that addresses the following: availability, accessibility, barriers to accessing essential opioids; assesses financial costs; evaluates economic and/or health policies; or looks at opioid prescription practices. Articles will be limited to Sub-Saharan Africa (as defined by World Bank). Primary, secondary, and observational research designs will be included.

**Exclusion Criteria**

Articles dealing with over the counter (OTC) analgesics, non-essential analgesics (as defined by WHO), or countries outside Sub-Saharan Africa will be excluded. Case reports, case series, editorials, animal models, genetic/molecular studies, clinical studies, and clinical trials will also be excluded.

**3. STUDY PROCEDURE AND SELECTION OF RELEVANT STUDIES**

The titles and abstracts of all the articles exported to Rayyan will be double-blinded and screened by two independent reviewers (JY and VN) to select studies of relevance to our population, intervention, comparators, and outcomes (PICO) based on our inclusion and exclusion criteria.

Concept	Manufacturing and supply chain of essential opioid analgesics in Sub-Saharan Africa (SSA) National and international policies on the supply of essential opioids Cost of opioids in SSA Prescribing practices of healthcare personnel in SSA Knowledge gaps amongst healthcare personnel on the management of essential opioids
Target group	Sub-Saharan Africa Policymakers Healthcare practitioners Stakeholders involved in policy change
Outcome (the focus of papers)	Essential opioid (based on WHO classification 2021) Accessibility, availability, and barrier to access Overuse or abuse Economic and health policy

**Table 1** Arksey and O'Malley's Concept, target group, and outcomes framework guiding our research questions.







