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# Community Engagement Interventions for Malaria Prevention, Control and Elimination: A Scoping Review Protocol



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**Title: Community Engagement Interventions for Malaria Prevention, Control and Elimination: A Scoping Review Protocol**

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**Abstract:** Community engagement strategies need to be adopted by countries for malaria prevention, control, and ultimately elimination. As the decline of malaria has plateaued over the last five years, strengthening community engagement approaches will be necessary to enhance health promotion practice and policy to drive malaria transmission down further. Countries have adopted community engagement interventions (CEI) on malaria that best suit their context, however, there is a paucity of evidence on CEIs, the potential implementation barriers and facilitators and their outcomes.

**Objectives** The objectives of the review are to map the available evidence on the types of CEI for 1) malaria prevention; 2) malaria control; and 3) malaria elimination; and 4) describe the barriers, facilitators and the outcomes of the CEIs.

**Design** The scoping review methodology will be based on the Arksey and O'Malles's framework.

**Data Source** Proquest, PubMed, Web of Knowledge, Google Scholar, and Medline will be searched for publications from January 2000 to current.

**Eligibility Criteria** Will include primary studies written in the English language using appropriate study designs and methods, including quantitative, qualitative and mixed methods designs; and case, program or project reports. Information on CEIs designed specifically for malaria prevention, control and/or elimination.
**Expected results** This scoping review aims to identify the available evidence, sources of information and research gaps in the area of CE as one approach for malaria prevention, control and/or elimination.

**Key words:** community engagement; community participation; community mobilization; social mobilization; community action; malaria; prevention; control; elimination; countries



**Strengths and limitations of the study**

- To the best of our knowledge, this is the first scoping review to be undertaken on CEI for malaria prevention, control and elimination.
- The scoping review process will be informed by the University Health Science reference librarian.
- The review will be conducted on peer reviewed published primary sources in English.
- As this will be a scoping review, the study will be limited to providing existing evidence on the topic with an aim to identify and conduct a narrative synthesis only of the various CEIs.

## INTRODUCTION

Malaria, a vector borne disease, remains a major public health challenge contributing to an estimated 228 million cases and 400,000 deaths annually worldwide.[1] Globally, between 2010 and 2014, there was a 70 % decrease in malaria incidence, however, in the last five years the progress towards further reduction has been relatively static.[2] The earlier decrease in cases was attributed to scaling up of routine interventions such as free distribution of long-lasting insecticidal nets (LLINs) or insecticide treated nets (ITNs), periodic indoor residual spraying (IRS), prompt treatment of diagnosed cases, and use of Artemisinin based Combination Therapy (ACT) for the treatment of *Plasmodium falciparum* malaria.[1,3-5]

Community engagement (CE) is defined as "a process of working collaboratively with groups of people who are affiliated by geographic proximity, special interests, or similar situations, with respect to issues affecting their wellbeing" (p9).[6] CE has been adopted especially by Lower Middle Income Countries (LMICs) in a quest to reach elimination of malaria by 2030, consistent with the World Health Organization Global Malaria Strategy 2016–2030.[7,8] CE has been deployed as a prevention and treatment strategy in a variety of countries in a range of national programs, such as: mass drug administration for malaria prevention in Myanmar and Laos;[9,10] increasing the use of LLINs and promoting early testing and treatment in Cambodia;[11] and improving testing facilities in communities in Zambia.[12] A variety of strategies have been implemented as part of CE interventions (CEI), which has included: formation of a community leadership group comprising locals (leaders, elderly and youth); drama campaigns and health education programs delivered in settings such as schools and churches; house-to-house visits by community health volunteers to improve early detection and timely treatment in areas with high levels of migration; and conducting participatory action research led by the community.[9-12]

Health interventionists use the CE approach to engage and harness communities in health promotion practice, research and policy decision making to address a variety of health and health-related issues to support behavioural and environmental change.[13] CE can be effective in dealing with health inequalities especially among disadvantaged groups who are challenged by structural, cultural, financial and language barriers.[14] Countries have adopted different community engagement interventions (CEI) that best suit their context and community, however, there is paucity of evidence on the results of these CEIs including the potential barriers and facilitators and outcome. An understanding of the components of CEI used for malaria prevention, control and elimination may assist program planners, managers and policy makers in adapting or selecting suitable activities relevant to their community.

This paper describes the protocol for a scoping review that aims to describe CEIs targeting the prevention, control or elimination of malaria that have been/ or are being implemented by countries and to identify the barriers, facilitators to implementing the interventions and their outcomes.

## REVIEW OBJECTIVES

The objectives of the review are to map the available evidence on the types of CEI for 1) malaria prevention; 2) malaria control; and 3) malaria elimination; and 4) describe the barriers, facilitators and the outcomes of the CEIs.

## METHODS

## Protocols and Registration

During a preliminary search, a 2016 systematic review was found that focused on one element of malaria prevention (https://doi: 10.1186/s12936-016-1593-y: Malaria Journal).[15] However, no scoping review on community engagement has been conducted to date incorporating all components of malaria prevention, control and elimination across countries.

## Eligibility Criteria

The review will only consider interventions studies published from 2000 onwards, a period encompassing two important landmarks, the advent of the Millennium Development Goals (2000-2014) and the Sustainable Development Goals (2015-2030).[16]

The evidence will be included if the sources are:

- Primary studies;
- Written in the English language;
- Using appropriate study designs and methods, including quantitative, qualitative and mixed methods designs; and case, program or project reports;
- Providing information on CEIs designed specifically for malaria prevention, control and/or elimination.

The evidence will be excluded if the sources are:

- Secondary studies including systematic reviews;
- Published in languages other than English;
- Providing information on CEIs for diseases or health issues other than malaria;
- Providing anecdotal evidence without a description of the study design and methods.

## Information Sources and Search

The search strategy involves searching the databases for peer-reviewed published literature focusing on CEI conducted for malaria prevention, control or elimination. The search followed the updated methodology outlined by the Joanna Briggs Institute guide for scoping reviews in 2017,[17,18] which itself is based on the framework developed by Arksey and O'Malley[19] and further developed by Levac Colquhoun and O'Brien.[20] A scoping review is a valid process of synthesizing evidence on a given topic providing an excerpt of the volume of the literature or studies without seeking to analyse it.[21] Primarily an exploratory approach, scoping reviews can shed light on the types of evidence available, the way studies have been conducted and help identify and map the evidence that is available in the area of interest.[21,22]

Five databases including Proquest, PubMed, Web of Knowledge, Google Scholar, and Medline (OVID) will be searched using key words: "community engagement" OR "community participation" OR "community involvement " OR "public engagement" OR "community mobilization" OR "social mobilization" OR "community action" AND "prevention", "control", "elimination" AND "malaria" AND "low income countries" OR "middle income countries" OR "high income countries" OR "developing countries" OR "developed countries". The key words have been defined based on the objectives of the

study. Initially the search will be limited to the article title and abstract for studies published between January 2000 and the current date. The search will be further streamlined by searching for citations from the reference lists of papers selected from the initial search. For papers not available online, the first author (K.R.A.) will contact the lead author of the publication via email requesting a copy of the paper for review.

**Selection of sources of evidence**

The title and the abstract obtained from the search results will be examined by two reviewers after the initial search. In the first stage of the study selection, the title and abstract from search results obtained by K.R.A will be examined by two reviewers (J.J., J.E.L.) independent of one another. The selection of the final studies will be agreed upon by three reviewers (K.R.A.; J.J.; J.E.L.). During the final selection process, any differences regrading inclusion and exclusion of papers among the three reviewers will be discussed, and a fourth reviewer (A.C.) will be called upon to reach consensus.

**Data Charting process**

The data charting process will map the findings according to the attributes: author; date/year of publication; country/ site; aim/ objectives; study population; sample size; study design; barriers; facilitators; outcomes. The charting will be done by K.R.A and will be reviewed by two reviewers (J.J. and J.E.L.). Any disputes or differences will be resolved by the fourth reviewer (A.C.).

**Presentation of the Results**

The PRISMA extension for scoping reviews (PRISMA_ScR) will be used to present the review methods and the results from the search.[23] The 22 items checklist for reporting systematic reviews comprising of two optional items (critical appraisal of sources and summary of the evidences) will be followed while presenting the results of the scoping review. The items include eligibility criteria, the search approach, methods of selecting the evidence and the data charting process. The search process and the evidence flow across various stages of the study will be presented visually using an additional diagram. Furthermore, the selected evidence based on the source, study characteristics and the major findings (including the barriers, facilitators and outcomes) will be mapped and presented in tabular form. The results will be synthesized in congruence with the scoping review objectives and a narrative description will be presented. The main findings will be synthesized to highlight the limitations and provide an analysis of CEIs paving way for future research opportunities.

**Expected Results**

This scoping review aims to identify the available evidence, sources of information and research gaps in the area of CE as one approach for malaria prevention, control and/or elimination. The study will also increase the understanding of the existing barriers and facilitators in implementing interventions using a CE approach along with the outcomes. The results from this review will inform future practice and research in this area. This scoping review is a component of formative research underpinning a proposed CEI in Nepal. It is anticipated that the findings will inform and support recommendations made to local authorities (i.e.at the rural municipality level) during the design and implementation phase of a CEI focussed on malaria prevention and control in Nepal.

**FUNDING**
This research has not received any external funding.

**ACKNOWLEDGEMENTS**
The authors would like to acknowledge the input of Vanessa Varis, Health Sciences reference librarian for her support in the designing the initial search strategy.

**CONFLICT OF INTEREST**
The authors declare no conflict of interest.

**ETHICS AND DISSEMINATION**
This study only aims to review the secondary sources and does not require human research ethics committee approval. Nonetheless being a component of a mixed methods study, human ethics approval has been obtained from Nepal Health Research Council (ERB 632/2020, Ref. No. 1287) and Curtin University's Human Research Ethics Committee number HRE2020-0701. The results of the scoping review will be disseminated to a community advisory board in a rural municipality in Nepal to help inform their CEI design proposed for 2021. Furthermore, the findings of the scoping review will be submitted to a peer reviewed journal for wider dissemination.

**AUTHOR CONTRIBUTIONS**
KRA conceptualized the topic and wrote the original draft. JL, AC and JJ supervised the writing process and were involved in review and editing of the manuscript.

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**Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist**

| SECTION | ITEM | PRISMA-ScR CHECKLIST ITEM | REPORTED ON PAGE # |
|---|---|---|---|
| **TITLE** | | | |
| Title | 1 | Identify the report as a scoping review. | 1 |
| **ABSTRACT** | | | |
| Structured summary | 2 | Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives. | 1 |
| **INTRODUCTION** | | | |
| Rationale | 3 | Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach. | 2 |
| Objectives | 4 | Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives. | 2 |
| **METHODS** | | | |
| Protocol and registration | 5 | Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number. | 3 |
| Eligibility criteria | 6 | Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale. | 3 |
| Information sources* | 7 | Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed. | 3 |
| Search | 8 | Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated. | 3-4 |
| Selection of sources of evidence† | 9 | State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review. | 4 |
| Data charting process‡ | 10 | Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators. | 4 |
| Data items | 11 | List and define all variables for which data were sought and any assumptions and simplifications made. | 4 |
| Critical appraisal of individual sources of evidence§ | 12 | If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate). | 4 |
| Synthesis of results | 13 | Describe the methods of handling and summarizing the data that were charted. | 4 |

| SECTION | ITEM | PRISMA-ScR CHECKLIST ITEM | REPORTED ON PAGE # |
|---|---|---|---|
| **RESULTS** | | | |
| Selection of sources of evidence | 14 | Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram. | |
| Characteristics of sources of evidence | 15 | For each source of evidence, present characteristics for which data were charted and provide the citations. | |
| Critical appraisal within sources of evidence | 16 | If done, present data on critical appraisal of included sources of evidence (see item 12). | |
| Results of individual sources of evidence | 17 | For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives. | |
| Synthesis of results | 18 | Summarize and/or present the charting results as they relate to the review questions and objectives. | |
| **DISCUSSION** | | | |
| Summary of evidence | 19 | Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups. | |
| Limitations | 20 | Discuss the limitations of the scoping review process. | |
| Conclusions | 21 | Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps. | |
| **FUNDING** | | | |
| Funding | 22 | Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review. | |

JBI = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.

* Where *sources of evidence* (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.

† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with *information sources* (see first footnote).

‡ The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.

§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

*From:* Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMAScR): Checklist and Explanation. Ann Intern Med. 2018;169:467–473. doi: 10.7326/M18-0850.

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**Key words:** community engagement; community participation; malaria; prevention; control; elimination

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# Title: Community Engagement Approaches for Malaria Prevention, Control and Elimination: A Scoping Review Protocol

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**Abstract:**

**Introduction:** Community engagement (CE) is important for malaria prevention, control, and ultimately elimination. As the decline of malaria has plateaued over the last five years, strengthening community engagement approaches will be necessary to enhance health promotion practice and policy to drive malaria transmission down further. Countries have adopted a wide range of public health intervention approaches on malaria prevention and control that best suit their context. This review will examine the existing evidence on the various CE approaches adopted by malaria programs and their outcomes.

**Methodology and Analysis:** The review methodology will follow the updated Joanna Briggs Institute guide for scoping review, 2017, which is based on the framework developed by Arksey and O'Malley and further developed by Levac Colquhoun and O'Brien. Proquest, Web of Knowledge, and Medline will be searched for publications from January 2000 to 31st March 2021 while Google search engine will be used to find any grey literature. The eligibility criteria includes: primary studies written in the English language using appropriate study designs and methods, including quantitative, qualitative and mixed methods designs; and case, program or project reports. CE approaches designed specifically for malaria prevention, control, elimination and their outcomes will be explored. Subheadings and free

text terms for “community engagement” and “malaria” will be used for the search. The article screening and data extraction will be examined by two reviewers after the initial search and any disputes will be resolved by a third reviewer through discussion. The PRISMA extension for scoping reviews (PRISMA_ScR) guide will be used to present the review methods and the results.

**Ethics and Dissemination:** This study does not require human research ethics committee approval. The findings of the scoping review will be submitted to a peer reviewed journal for wider dissemination.



**Strengths and limitations of the study**

- To our knowledge, this is the first scoping review to be undertaken on CE approaches for malaria prevention, control and elimination.
- The University Health Science reference librarian will assist in developing a search strategy for the scoping review, is a strength.
- The review will include peer reviewed published primary sources in English, therefore publications in languages other than English and unpublished articles will be excluded, a limitation of this study.

## INTRODUCTION

## INTRODUCTION

Malaria, a vector borne disease, remains a major public health challenge contributing to an estimated 228 million cases and 400,000 deaths annually worldwide.[1] Globally, between 2010 and 2014, there was a 70 % decrease in malaria incidence, however, in the last five years the progress towards further reduction has been relatively static.[2] The earlier decrease in cases was attributed to scaling up of routine interventions such as free distribution of long-lasting insecticidal nets (LLINs) or insecticide treated nets (ITNs), periodic indoor residual spraying (IRS), prompt treatment of diagnosed cases, and use of Artemisinin based Combination Therapy (ACT) for the treatment of *Plasmodium falciparum* malaria.[1,3-5] Whilst some countries focus their strategies on malaria prevention by enabling and promoting use of LLINs/ IRS/ larvicides and

chemoprophylaxis alongside malaria control programs that target a reduction of the disease burden to a level where it is no longer a public health concern; countries with fewer malaria cases aim for elimination that is to ensure sustained zero local transmission of malaria in the population within a set geographic boundary through a strengthened surveillance system. [1]

Community engagement (CE) is defined as "a process of working collaboratively with groups of people who are affiliated by geographic proximity, special interests, or similar situations, with respect to issues affecting their wellbeing" (p9).[6] CE has been adopted especially by Lower Middle Income Countries (LMICs) in a quest to reach elimination of malaria by 2030, consistent with the World Health Organization Global Malaria Strategy 2016–2030.[7,8] CE has been used to co-design public health interventions and approaches for prevention and control of malaria in a variety of countries in a range of national programs, such as: mass drug administration for malaria prevention in Myanmar and Laos;[9,10] increasing the use of LLINs and promoting early testing and treatment in Cambodia and Kenya;[11] and improving access to diagnosis and treatment in communities in Zambia.[12] A variety of activities have been implemented for malaria prevention, control, and elimination based on CE: formation of a community leadership group comprising locals (leaders, elderly and youth); drama campaigns and health education programs delivered in settings such as schools and churches; house-to-house visits by community health volunteers to improve early detection and timely treatment in areas with high levels of migration; and conducting participatory action research led by the community.[9-12]

Health interventionists' use CE to harness communities in health promotion practice, research and policy related decision making to advance knowledge and support behavioural and environmental change to improve health outcomes.[13] Public health interventions can incorporate CE in different forms: providing information; consultation; joint decision-making; acting collaboratively; and supporting the community interests independently. [14] CE can be effective in dealing with health inequalities especially among disadvantaged groups who are challenged by structural, geographical, cultural, financial and language barriers.[15] Internationally a range of community engagement has been used to best suit the context and the target community. For example in Malawi the community based health animators have been used by the national malaria program to improve awareness and promote positive behavioural change in the community [16], whist in Nigeria integrated community case management has been used to detect and treat malaria cases in remote areas using trained community health workers thereby also minimizing the travel time and the cost for the patients [17]. Similarly, in Cameroon and Cambodia local volunteers and village malaria workers have been used to conduct proactive and reactive case detection in communities for preventing

transmission[11,18], whilst the Interactive Malaria Awareness Program (MAP) in South Africa have successfully used home-based care workers to form local level partnerships and also educate communities on malaria prevention and control[19]. All these different CE approaches have contributed to improved awareness, early detection of cases and improved access and wider community acceptance for malaria prevention and treatment in the afore mentioned countries.[16-19]

This paper describes the protocol for a scoping review that aims to describe CE approaches targeting the prevention, control or elimination of malaria that have been/ or are being implemented by countries and to identify the outcomes of these approaches which includes barriers and facilitators.

## REVIEW OBJECTIVES

The objectives of the review are to map the available evidence on the types of CE approaches for 1) malaria prevention; 2) malaria control; and 3) malaria elimination; and 4) describe the outcomes of the CE approaches.

## METHODS

### Protocols and Registration

During a preliminary search, a 2016 systematic review was found that focused on one element of malaria prevention (https://doi: 10.1186/s12936-016-1593-y: Malaria Journal).[20] However, no scoping review on community engagement has been conducted to date incorporating different approaches to all components of malaria prevention, control and elimination across countries.

### Eligibility Criteria

The review will only consider interventions studies published from 2000 onwards till the end of March 2021, a period encompassing two important landmarks, the advent of the Millennium Development Goals (2000-2014) and the Sustainable Development Goals (2015-2030).[21]

The evidence will be included if the sources are:

- Primary studies;
- Written in the English language;
- Using appropriate study designs and methods, including quantitative, qualitative and mixed methods designs; and case, program or project reports;

- Providing information on CE approaches designed specifically for malaria prevention, control and/or elimination.

The evidence will be excluded if the sources are:

- Secondary studies including systematic reviews;
- Published in languages other than English;
- Providing information on CE approaches for diseases or health issues other than malaria;
- Providing anecdotal evidence without a description of the study design and methods.

## Information Sources and Search

The search strategy involves searching the databases for peer-reviewed published literature focusing on CE activities conducted for malaria prevention, control or elimination. The search methodology will follow the updated Joanna Briggs Institute guide for scoping reviews in 2017,[22, 23] which is based on the framework developed by Arksey and O'Malley[24] and further developed by Levac Colquhoun and O'Brien.[25] A scoping review is a valid process of synthesizing evidence on a given topic providing an excerpt of the volume of the literature or studies without seeking to analyse it.[26] Primarily an exploratory approach, scoping reviews can shed light on the types of evidence available, the way studies have been conducted and help identify and map the evidence that is available in the area of interest.[26,27]

Databases including Proquest, Web of Science, and Medline (OVID) will be searched using key words: "community engagement" OR "community participation" OR "community involvement " OR "public engagement" OR "community mobilization" OR "social mobilization" OR "community action" OR "community empowerment" OR "community led" OR "community conversation" AND "prevention", "control", "elimination" AND "malaria" . Similarly, advanced Google search will be used to find grey literature including case, program or project reports using the same key words. The key words have been defined based on the objectives of the study. Initially the search will be limited to the article title and abstract for studies published between January 2000 and the current date. The search will be further streamlined by searching for citations from the reference lists of papers selected from the initial search. For papers not available online, the first author (K.R.A.) will contact the lead author of the publication via email requesting a copy of the paper for review.

## Selection of Sources of Evidence

The title and the abstract obtained from the search results will be examined by two reviewers after the initial search. In the first stage of the study selection, the title and abstract from search results obtained by K.R.A will be examined by two reviewers (J.J., J.E.L.) independent of one another. The selection of the final studies will be agreed upon by three reviewers (K.R.A.; J.J.; J.E.L.). During the final selection process, any differences regrading inclusion and exclusion of papers among the three reviewers will be discussed, and a fourth reviewer (A.C.) will be called upon to reach consensus.

## Data Charting Process

The data charting process will map the findings according to the attributes: author; date/year of publication; country/ site; aim/ objectives; study population; sample size; study design; phases; barriers; facilitators; outcomes. The charting will be done by K.R.A and will be reviewed by two reviewers (J.J. and J.E.L.). Any disputes or differences will be resolved by the fourth reviewer (A.C.).

## Presentation of the Results

The PRISMA extension for scoping reviews (PRISMA_ScR) will be used to present the review methods and the results from the search.[28] The 22 items checklist for reporting systematic reviews comprising of two optional items (critical appraisal of sources and summary of the evidences) will be followed while presenting the results of the scoping review. The items include eligibility criteria, the search approach, methods of selecting the evidence and the data charting process. The search process and the evidence flow across various stages of the study will be presented visually using an additional diagram. Furthermore, the selected evidence based on the source, study characteristics and the major findings (including the barriers, facilitators and outcomes) will be mapped and presented in tabular form. The results will be synthesized in congruence with the scoping review objectives and a narrative description will be presented. The main findings will be synthesized to highlight the limitations and provide an analysis of CE approaches paving way for future research opportunities.

## Expected Results

This scoping review aims to identify the available evidence, sources of information and research gaps in the area of CE as one approach for malaria prevention, control and/or elimination. The study will also increase the understanding of the existing barriers and facilitators in implementing interventions using a CE approach along with the outcomes. The results from this review will inform future practice and research in this area.

## ETHICS AND DISSEMINATION

This study only aims to review the secondary sources and does not require human research ethics committee approval. Nonetheless being a component of a mixed methods study, human ethics approval has been obtained from Nepal Health Research Council (ERB 632/2020, Ref. No. 1287) and Curtin University's Human Research Ethics Committee number HRE2020-0701. The findings of the scoping review will be submitted to a peer reviewed journal for wider dissemination.

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## AUTHOR CONTRIBUTIONS

KRA conceptualized the topic and wrote the original draft. JL, AC and JJ supervised the writing process and were involved in review and editing of the manuscript.

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## CONFLICT OF INTEREST

The authors declare no conflict of interest.

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## Proposed Search Strategy

## MEDLINE

1 Community Participation/ or Community-Based Participatory Research/ or Community-institutional relations/ or Community networks/

2 (communit* adj3 (engage* or conversation* or action* or consult* or dialog*)).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]

3 (communit* adj3 (particip* or involve* or empower* or collab* or le?d*)).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]

4 ((communit* or soci* or public*) adj mobili*).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]

5 1 or 2 or 3 or 4

6 exp Malaria/

7 (malaria adj3 (prevent* or control* or eliminat* or erad*)).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]

8 6 or 7

9 5 and 8

10 limit 9 to (english language and yr="2000 -Current")

## WEB OF SCIENCE (topic search)

1 (communit* NEAR/3 (engage* or conversation* or action* or consult* or dialog*))

2 (communit* NEAR/3 (particip* or involve* or empower* or collab* or led* or lead*))

3 ((communit* or soci* or public*) NEAR mobili*)

4 1 or 2 or 3

5 (malaria NEAR/3 (prevent* or control* or eliminat* or erad*))

6 4 and 5

7 limit 6 to English language and timespan=2000 -2021

## PROQUEST (anywhere except full text NOFT)

1 (communit* NEAR/3 (engage* or conversation* or action* or consult* or dialog*))

2 (communit* NEAR/3 (particip* or involve* or empower* or collab* or le?d*))

3 ((communit* or soci* or public*) NEAR mobili*)

4 1 or 2 or 3

5 (malaria NEAR/3 (prevent* or control* or eliminat* or erad*))

6 4 and 5

7 limit 6 to English language and Date=2000 -Current

8 limit 7 to Scholarly Journals OR Peer Reviewed

**Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist**

| SECTION | ITEM | PRISMA-ScR CHECKLIST ITEM | REPORTED ON PAGE # |
|---|---|---|---|
| **TITLE** | | | |
| Title | 1 | Identify the report as a scoping review. | 1 |
| **ABSTRACT** | | | |
| Structured summary | 2 | Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives. | 1 |
| **INTRODUCTION** | | | |
| Rationale | 3 | Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach. | 2 |
| Objectives | 4 | Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives. | 2 |
| **METHODS** | | | |
| Protocol and registration | 5 | Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number. | 3 |
| Eligibility criteria | 6 | Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale. | 3 |
| Information sources* | 7 | Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed. | 3 |
| Search | 8 | Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated. | 3-4 |
| Selection of sources of evidence† | 9 | State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review. | 4 |
| Data charting process‡ | 10 | Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators. | 4 |
| Data items | 11 | List and define all variables for which data were sought and any assumptions and simplifications made. | 4 |
| Critical appraisal of individual sources of evidence§ | 12 | If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate). | 4 |
| Synthesis of results | 13 | Describe the methods of handling and summarizing the data that were charted. | 4 |

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| SECTION | ITEM | PRISMA-ScR CHECKLIST ITEM | REPORTED ON PAGE # |
|---|---|---|---|
| **RESULTS** | | | |
| Selection of sources of evidence | 14 | Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram. | |
| Characteristics of sources of evidence | 15 | For each source of evidence, present characteristics for which data were charted and provide the citations. | |
| Critical appraisal within sources of evidence | 16 | If done, present data on critical appraisal of included sources of evidence (see item 12). | |
| Results of individual sources of evidence | 17 | For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives. | |
| Synthesis of results | 18 | Summarize and/or present the charting results as they relate to the review questions and objectives. | |
| **DISCUSSION** | | | |
| Summary of evidence | 19 | Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups. | |
| Limitations | 20 | Discuss the limitations of the scoping review process. | |
| Conclusions | 21 | Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps. | |
| **FUNDING** | | | |
| Funding | 22 | Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review. | |

JBI = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.

* Where *sources of evidence* (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.

† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with *information sources* (see first footnote).

‡ The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.

§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

*From:* Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMAScR): Checklist and Explanation. Ann Intern Med. 2018;169:467–473. doi: 10.7326/M18-0850.

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# Community Engagement Approaches for Malaria Prevention, Control and Elimination: A Scoping Review Protocol



| | |
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# Title: Community Engagement Approaches for Malaria Prevention, Control and Elimination: A Scoping Review Protocol

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**Key words:** community engagement; community participation; malaria; prevention; control; elimination

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# Title: Community Engagement Approaches for Malaria Prevention, Control and Elimination: A Scoping Review Protocol

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**Abstract:** Community engagement (CE) is important for malaria prevention, control, and ultimately elimination. As the decline of malaria has plateaued over the last five years, strengthening CE approaches will be necessary to enhance health promotion practice and policy to drive malaria transmission down further. Countries have adopted a wide range of public health intervention approaches for malaria prevention and control that best suit their context. This review will examine the existing evidence on the various CE approaches adopted by malaria programs across the world and their outcomes.

**Methodology and Analysis:** The review methodology will follow the updated Joanna Briggs Institute guide for scoping review, 2017, which is based on the framework developed by Arksey and O'Malley and further developed by Levac Colquhoun and O'Brien. Proquest, Web of Knowledge, and Medline will be searched for publications from January 2000 to 31st March 2021 while Google search engine will be used to find any grey literature. The eligibility criteria will be as follows: review will include primary studies written in the English language using appropriate study designs and methods, including quantitative, qualitative and mixed methods designs; and case, program or project reports. Information on CE approaches designed specifically for malaria prevention, control, elimination and their outcomes will be explored. Subheadings and free text terms for "community engagement" and "malaria" will

be used for the search. The article screening and data extraction will be examined by two reviewers after the initial search and any disputes will be resolved by a third reviewer through discussion. The PRISMA extension for scoping reviews (PRISMA_ScR) guide will be used to present the review methods and the results from the search. The scoping review results will identify and map the available evidences, sources of information and research gaps in the area of CE as one approach for malaria prevention, control and/or elimination.

**Ethics and Dissemination:** This study only aims to review secondary sources and does not require human research ethics committee approval. The findings of the scoping review will be submitted to a peer reviewed journal for wider dissemination.



**Strengths and limitations of the study**

- To our knowledge, this is the first scoping review to be undertaken on CE approaches for malaria prevention, control and elimination.
- The University Health Science reference librarian will assist in developing a search strategy for the scoping review, a strength of the study.
- The review will include peer reviewed published primary sources in English, therefore publications in languages other than English, unpublished articles, and multi-country studies will be excluded, a limitation of this study.

## INTRODUCTION

## INTRODUCTION

Malaria, a vector borne disease, remains a major public health challenge contributing to an estimated 228 million cases and 400,000 deaths annually worldwide.[1] Globally, between 2010 and 2014, there was a 70 % decrease in malaria incidence, however, in the last five years the progress towards further reduction has been relatively static.[2] The earlier decrease in cases was attributed to scaling up of routine interventions such as free distribution of long-lasting insecticidal nets (LLINs) or insecticide treated nets (ITNs), periodic indoor residual spraying (IRS), prompt treatment of diagnosed cases, and use of Artemisinin based Combination Therapy (ACT) for the treatment of *Plasmodium falciparum* malaria.[1,3-5] Whilst some countries focus their strategies on malaria prevention by enabling and promoting use of LLINs/ IRS/

larvicides and chemoprophylaxis alongside malaria control programs that target a reduction in the disease burden to a level where it is no longer a public health concern; countries with fewer malaria cases aim for elimination to ensure sustained zero local transmission of malaria in the population within a set geographic boundary through a strengthened surveillance system. [1]

Community engagement (CE) is defined as "a process of working collaboratively with groups of people who are affiliated by geographic proximity, special interests, or similar situations, with respect to issues affecting their wellbeing" (p9).[6] CE has been adopted especially by Lower and Middle Income Countries (LMICs) in a quest to reach elimination of malaria by 2030, consistent with the World Health Organization Global Malaria Strategy 2016–2030.[7,8] CE has been used to co-design public health interventions and approaches for prevention and control of malaria in a variety of countries in a range of national programs, such as: mass drug administration for malaria prevention in Myanmar and Laos;[9,10] increasing the use of LLINs and promoting early testing and treatment in Cambodia and Kenya;[11] and improving access to diagnosis and treatment in communities in Zambia.[12] A variety of activities have been implemented for malaria prevention, control, and elimination based on CE. These include formation of community leadership groups comprising local decision-makers, elderly and youth; drama campaigns and health education programs conducted in local languages and delivered in schools and churches; house-to-house visits by community health volunteers to improve early detection and timely treatment in rural areas with high levels of migration; and participatory action malaria research led by the community.[9-12]

Health interventionists' use CE to harness communities in health promotion practice, research and policy related decision making to advance knowledge and support behavioural and environmental change to improve health outcomes.[13] Public health interventions can incorporate CE in different forms: providing information; consulting; joint decision-making; acting collaboratively; and supporting the community interests independently. [14] CE can be effective in dealing with health inequalities especially among disadvantaged groups who are challenged by structural, geographical, cultural, financial and language barriers.[15] Internationally a range of CE approaches that best suit the context and the target community have been used to raise awareness of malaria prevention, and enable year-round round access to free testing and treatment in rural hard-to-reach populations, whilst developing local level ownership. For example in Malawi the community based health animators (volunteers who conduct peer education in Malawi) have been used by the national malaria program as peer influencers to improve awareness and promote positive behaviour change in the community [16]. In Nigeria integrated community case management has been used to detect and treat malaria cases in remote areas using trained local community health workers,

minimizing travel time and the cost for patients [17]. Similarly, in Cameroon and Cambodia local volunteers and village malaria workers have been used to conduct proactive and reactive case detection in communities to prevent transmission[11,18], whilst the Interactive Malaria Awareness Program (MAP) in South Africa have successfully used home-based care workers to form local level partnerships and to also educate communities on malaria prevention and control[19]. All these different CE approaches have contributed to improved awareness, early detection of cases and improved access and wider community acceptance of malaria prevention and treatment in the afore mentioned countries.[16-19]

This paper describes the protocol for a scoping review that aims to describe CE approaches targeting the prevention, control or elimination of malaria that have been/ or are being implemented by countries.

## REVIEW OBJECTIVES

The objectives of the review are to map the available evidence on the types of CE approaches for 1) malaria prevention; 2) malaria control; and 3) malaria elimination; and 4) describe the outcomes of the CE approaches.

## METHODS

### Protocols and Registration

During a preliminary search, a 2016 systematic review was found that focused on one element of malaria prevention (https://doi: 10.1186/s12936-016-1593-y: Malaria Journal).[20] However, no scoping review on CE has been conducted to date that incorporates different approaches to all components of malaria prevention, control and elimination across countries.

### Patient and Public Involvement

No patient Involved

### Eligibility Criteria

The review will only consider interventions studies published from 2000 onwards till the end of March 2021, a period encompassing two important landmarks, the advent of the Millennium Development Goals (2000-2014) and the Sustainable Development Goals (2015-2030).[21]

The evidence will be included if the sources are:

- Primary studies;
- Written in the English language;

- Using appropriate study designs and methods, including quantitative, qualitative and mixed methods designs; and case, program or project reports;
- Providing information on CE approaches designed specifically for malaria prevention, control and/or elimination.

The evidence will be excluded if the sources are:

- Secondary studies including systematic reviews;
- Published in languages other than English;
- Providing information on CE approaches for diseases or health issues other than malaria;
- Multi-country studies will be excluded;
- Providing anecdotal evidence without a description of the study design and methods.

## Information Sources and Search

The search strategy will involve searching the databases for peer-reviewed published literature focusing on CE approaches conducted for malaria prevention, control or elimination. The search methodology will follow the updated Joanna Briggs Institute guide for scoping reviews in 2017,[22, 23] which is based on the framework developed by Arksey and O'Malley[24] and further developed by Levac Colquhoun and O'Brien.[25] A scoping review is a valid process of synthesizing evidence on a given topic, providing an excerpt of the volume of the literature or studies without seeking to analyse it.[26] Primarily an exploratory approach, scoping reviews can shed light on the types of evidence available, the way studies have been conducted and help identify and map the evidence that is available in the area of interest.[26,27]

Databases including Proquest, Web of Science, and Medline (OVID) will be searched using key words: "community engagement" OR "community participation" OR "community involvement " OR "public engagement" OR "community mobilization" OR "social mobilization" OR "community action" OR "community empowerment" OR "community led" OR "community conversation" AND "prevention", "control", "elimination" AND "malaria" . Similarly, advanced Google search will be used to identify grey literature including case, program or project reports using the same key words. The key words have been defined based on the objectives of the study. Initially the search will be limited to the article title and abstract for studies published between January 2000 and March 31 2021. The search will be further streamlined by searching for citations from the reference lists of papers selected from

the initial search. For papers not available online, the first author (K.R.A.) will contact the lead author of the publication via email requesting a copy of the paper to review.

### Selection of Sources of Evidence

The title and the abstract obtained from the search results will be examined by two reviewers after the initial search. In the first stage of the study selection, two reviewers (J.J., J.E.L.) independent of one another will examine the title and abstract from search results obtained by K.R.A. The selection of the final studies will be agreed upon by three reviewers (K.R.A.; J.J.; J.E.L.). During the final selection process, any differences regarding inclusion and exclusion of papers among the three reviewers will be discussed, and a fourth reviewer (A.C.) will be called upon to reach consensus.

### Data Charting Process

The data charting process will map the findings according to the attributes: author; date/year of publication; country/ site; aim/ objectives; study population; sample size; study design; phases (prevention, control, elimination); and outcomes. The charting will be undertaken by K.R.A and will be reviewed by two reviewers (J.J. and J.E.L.). Any disputes or differences will be resolved by the fourth reviewer (A.C.).

### Presentation of the Results

The PRISMA extension for scoping reviews (PRISMA_ScR) will be used to present the review methods and the search results.[28] The 22 items checklist for reporting systematic reviews comprising two optional items (critical appraisal of sources and summary of the evidences) will be followed. The items include eligibility criteria, the search approach, methods of selecting the evidence and the data charting process. The search process and the evidence flow across various stages of the study will be presented visually using an additional diagram. Furthermore, the selected evidence based on the source, study characteristics and the major findings will be mapped and presented in tabular form. The results will be synthesized in congruence with the scoping review objectives and a narrative description will be presented. The main findings will be synthesized to highlight the limitations and provide an analysis of CE approaches paving the way for future research opportunities.

### Expected Results

This scoping review aims to identify the available evidence, sources of information and research gaps in the area of CE as one approach for malaria prevention, control and/or elimination. The results from this review will inform future practice and research in this area.

## ETHICS AND DISSEMINATION

This study only aims to review the secondary sources and does not require human research ethics committee approval. Nonetheless being a component of a mixed methods study, human ethics approval has been obtained from Nepal Health Research Council (ERB 632/2020, Ref. No. 1287) and Curtin University's Human Research Ethics Committee number HRE2020-0701. The findings of the scoping review will be submitted to a peer reviewed journal for wider dissemination.

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## AUTHOR CONTRIBUTIONS

KRA conceptualized the topic and wrote the original draft. JL, AC and JJ supervised the writing process and were involved in review and editing of the manuscript.

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## CONFLICT OF INTEREST

The authors declare no conflict of interest.

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(Word count: 2,200)

**Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist**

| SECTION | ITEM | PRISMA-ScR CHECKLIST ITEM | REPORTED ON PAGE # |
|---|---|---|---|
| **TITLE** | | | |
| Title | 1 | Identify the report as a scoping review. | 1 |
| **ABSTRACT** | | | |
| Structured summary | 2 | Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives. | 1 |
| **INTRODUCTION** | | | |
| Rationale | 3 | Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach. | 2 |
| Objectives | 4 | Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives. | 2 |
| **METHODS** | | | |
| Protocol and registration | 5 | Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number. | 3 |
| Eligibility criteria | 6 | Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale. | 3 |
| Information sources* | 7 | Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed. | 3 |
| Search | 8 | Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated. | 3-4 |
| Selection of sources of evidence† | 9 | State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review. | 4 |
| Data charting process‡ | 10 | Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators. | 4 |
| Data items | 11 | List and define all variables for which data were sought and any assumptions and simplifications made. | 4 |
| Critical appraisal of individual sources of evidence§ | 12 | If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate). | 4 |
| Synthesis of results | 13 | Describe the methods of handling and summarizing the data that were charted. | 4 |

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| SECTION | ITEM | PRISMA-ScR CHECKLIST ITEM | REPORTED ON PAGE # |
|---|---|---|---|
| **RESULTS** | | | |
| Selection of sources of evidence | 14 | Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram. | |
| Characteristics of sources of evidence | 15 | For each source of evidence, present characteristics for which data were charted and provide the citations. | |
| Critical appraisal within sources of evidence | 16 | If done, present data on critical appraisal of included sources of evidence (see item 12). | |
| Results of individual sources of evidence | 17 | For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives. | |
| Synthesis of results | 18 | Summarize and/or present the charting results as they relate to the review questions and objectives. | |
| **DISCUSSION** | | | |
| Summary of evidence | 19 | Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups. | |
| Limitations | 20 | Discuss the limitations of the scoping review process. | |
| Conclusions | 21 | Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps. | |
| **FUNDING** | | | |
| Funding | 22 | Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review. | |

JBI = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.

* Where *sources of evidence* (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.

† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with *information sources* (see first footnote).

‡ The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.

§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

*From:* Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMAScR): Checklist and Explanation. Ann Intern Med. 2018;169:467–473. doi: 10.7326/M18-0850.

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