



University of Dundee

Leveraging breast cancer screening to promote timely detection, diagnosis and treatment among women in sub-Saharan Africa

Yakong, Vida Nyagre; Afaya, Agani; Alhassan, Robert Kaba; Sang, Somin; Salia, Solomon Mohammed; Afaya, Richard Adongo

Published in:
BMJ Open

DOI:
[10.1136/bmjopen-2021-058729](https://doi.org/10.1136/bmjopen-2021-058729)

Publication date:
2024

Licence:
CC BY-NC

Document Version
Publisher's PDF, also known as Version of record

[Link to publication in Discovery Research Portal](#)

Citation for published version (APA):

Yakong, V. N., Afaya, A., Alhassan, R. K., Sang, S., Salia, S. M., Afaya, R. A., Karim, J. F., Kuug, A., Selorm, D.-D. S., Atakro, C. A., Akokre, R., Adatara, P., & Ayanore, M. A. (2024). Leveraging breast cancer screening to promote timely detection, diagnosis and treatment among women in sub-Saharan Africa: a scoping review protocol. *BMJ Open*, 12(5), Article e058729. <https://doi.org/10.1136/bmjopen-2021-058729>










General rights

Copyright and moral rights for the publications made accessible in Discovery Research Portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

Take down policy

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

BMJ Open Leveraging breast cancer screening to promote timely detection, diagnosis and treatment among women in sub-Saharan Africa: a scoping review protocol

Vida Nyagre Yakong ¹, Agani Afaya ^{2,3}, Robert Kaba Alhassan ⁴, Somin Sang ², Solomon Mohammed Salia ^{3,5}, Richard Adongo Afaya ⁶, Jebuni Fuseini Karim ⁷, Anthony Kuug,³ Daniels-Donkor Silas Selorm,⁸ Confidence Alorse Atakro ⁹, Renna Akokre,¹⁰ Peter Adatar,³ Martin Amogre Ayanore ¹¹

To cite: Yakong VN, Afaya A, Alhassan RK, *et al.* Leveraging breast cancer screening to promote timely detection, diagnosis and treatment among women in sub-Saharan Africa: a scoping review protocol. *BMJ Open* 2022;**12**:e058729. doi:10.1136/bmjopen-2021-058729

► Prepublication history and additional supplemental material for this paper are available online. To view these files, please visit the journal online (<http://dx.doi.org/10.1136/bmjopen-2021-058729>).

Received 26 October 2021
Accepted 04 May 2022



© Author(s) (or their employer(s)) 2022. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ.

For numbered affiliations see end of article.

Correspondence to
Dr Agani Afaya;
aagani@uhas.edu.gh

ABSTRACT

Introduction Female breast cancer is now the most often diagnosed cancer in the world. Breast cancer screening aims to reduce mortalities related to cancer, and morbidity associated with advanced stages of the disease, through timely detection in asymptomatic women. This study aims to conduct a comprehensive assessment and evaluation of the evidence on the factors that influence the provision and uptake of breast cancer screening among women in sub-Saharan Africa (SSA).

Methods and analysis PubMed, Web of Science, EMBASE and the Cumulative Index to Nursing and Allied Health Literature including Google Scholar will be searched to identify published studies on barriers and facilitators to breast cancer screening from January 2010 to 2021. Two reviewers will independently assess the quality of all the included studies using the Mixed Methods Appraisal Tool version 2018. We envisage that this review will adduce evidence on common barriers and facilitators to breast cancer screening in SSA. Identifying these barriers and facilitators will help guide the initialisation of effective interventions that will improve breast cancer screening uptake among women in SSA. This review will also guide future research in developing, implementing and evaluating appropriate interventions tailored toward increasing breast cancer screening uptake.

Ethics and dissemination Ethics approval for this protocol is not required since it does not involve collecting data from human participants. The outcomes of this study will be published in a peer-reviewed journal.

INTRODUCTION

Globally, over 2.1 million women are affected yearly by the ravages of breast cancer, making it the most frequent cancer among women.¹ According to statistics released by the International Agency for Research on Cancer (IARC) in December 2020, female breast cancer has overtaken lung cancer as the world's most diagnosed cancer.² Currently, breast cancer is considered a global public

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ This scoping review protocol adheres to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Scoping Reviews guideline.
- ⇒ The scoping review protocol is aimed to reduce the possibility of the duplication of this review, provide transparency to the methods and processes that will be employed, ensure bias reduction and allow peer review.
- ⇒ Despite a robust search strategy and the use of multiple electronic databases, potentially relevant studies might be missed.

health problem due to its increasing incidence coupled with the high mortality rate among women both in developed and low- and middle-income countries (LMICs).^{1 2} The IARC estimated 2.3 million new breast cancer cases in 2020 representing 11.7% of all cancer cases worldwide.² Out of these cases, one in every eight cancer diagnoses is breast cancer. Also, the IARC estimated in 2020 that 685 000 women across the globe died of breast cancer. Between 1990 and 2017, it was estimated that the global breast cancer cases increased by about 123.14%.³ The GLOBOCAN cancer prediction tool estimates that by 2040 the global incidence of breast cancer cases is expected to increase more than 46%.⁴ It is estimated that by 2050 the prevalence of breast cancer cases in sub-Saharan Africa (SSA) will double.⁵ Currently in SSA, cancer control plans, prevention and strategies are weak; only a few cancer registries exist in most SSA countries with poorly structured cancer reporting systems.^{6 7} A recent study using a large prospective cohort



of women with breast cancer among five countries in SSA revealed an alarming low 3-year survival rate, with near 40% in Nigeria, 45%–50% in Uganda and Zambia, and 56%–59% in South Africa and Namibia.⁸ Due to the lack of national cancer registries in SSA, the true burden of cancer incidence might probably be under-reported.⁹

It is evident that timely detection of breast cancer through screening is one of the breast cancer control strategies and this is one of the keys to meeting the global health goals including the Sustainable Development Goals.⁶ In developed countries, advances in breast cancer treatments, early presentation of symptoms before they become advanced cancer; more openness about cancer generally have all played a part in reducing the burden of breast cancer. Also, it is reported that the burden of cancer has been significantly reduced through well-coordinated screening programmes. In fact, in America, it is recommended that every woman at risk must undergo yearly breast cancer screening through mammography.¹⁰

A recent worldwide review and meta-analysis of cohort studies measuring the effect of mammography screening programmes on incidence-based breast cancer mortality revealed a 22% reduction in breast cancer mortality with an invitation to screening and a significant 33% reduction with actual attendance to screening.¹¹ Several other studies have also reported screening via mammography reduces breast cancer-related deaths by 15%–20%.^{12–14} Though it has been proven that mammography is a reliable breast cancer screening method due to its ability to detect (some) symptoms early, finding it too early too many times has also shown to have some harmful effects and will incur more costs (physically, emotionally, psychologically, socially, financially), on women¹⁴ and also on the resources (financial and healthcare staff/professionals) of the health service in that country.

Clinical breast examination (CBE) is a relatively simple, easy and cost-effective method for the timely detection and diagnosis of breast cancer/tumours.¹⁵ A prospective cluster randomised controlled trial in Mumbai, India revealed that biennial CBE led to significant downstaging of breast cancer in all women including those younger than 50 and those aged 50 and older.¹⁶ The study revealed a non-significant 15% reduction in breast cancer mortality in the overall study population but a significant reduction of nearly 30% in mortality in women aged ≥ 50 .¹⁶ Though mammography^{17 18} and CBE¹⁶ have their benefits, they also have some harmful effects on women, therefore, it is necessary that women are fully informed before they decide whether or not to undergo screening.^{19 20} Evidence from two large trials reported no beneficial effect of screening by breast self-examination (BSE) but rather reported increased harm in terms of increased numbers of benign lesions identified and an increased number of biopsies performed.²¹ Due to the above evidence, screening by BSE is not recommended,²² therefore the current review will not include BSE.

Given the recent burden of breast cancer in SSA, a more comprehensive and detailed understanding of the

barriers and facilitators is urgently required to prevent and plan interventions to reduce the burden of breast cancer. In our search in literature based on the review aim, we did not come across any existing published scoping review that has examined the barriers and facilitators of breast cancer screening among women in SSA.

Due to the lack of evidence, the main objective of this scoping review is to: (1) comprehensively review and assess evidence on the factors that influence the provision and uptake of breast screening among women in SSA. The secondary objectives are in two folds: (2) to highlight the barriers that influence breast cancer screening and (3) to identify the promoting factors (facilitators) of breast cancer screening uptake.

METHODS AND ANALYSIS

This scoping exercise is being undertaken using the Joana Briggs Institute (JBI) guideline recommendations.²³ The review will also use the Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) extension for Scoping Reviews.²⁴

Patient and public involvement

This study will review published and grey literature; therefore, patients and the public were not involved in the development of this protocol.

Identification of research question

The main research question is: What factors influence breast cancer screening among women in SSA? Subquestions include (1) What are the factors that promote the provision and uptake of breast cancer screening among women in SSA? (2) What are the factors that hinder the provision and uptake of breast cancer screening among women in SSA? In accordance with JBI, a scoping review research question should cover the population, the concept and the context.²⁵ With regard to our research question, the population is limited to women in SSA who have not been medically diagnosed with breast cancer. The concept is to identify factors influencing breast cancer screening (CBE/mammography), including barriers and facilitators. The context includes breast cancer screening services offered within hospitals, primary healthcare facilities and in the communities (as shown in [table 1](#)). Articles published between 2010 and 2021 will be included.

Search strategy

We will employ a comprehensive search strategy to identify various publications related to the aim of this review. The literature search will be conducted within the following electronic databases; PubMed, Web of Science, EMBASE and Cumulative Index to Nursing and Allied Health Literature (CINAHL via EBSCOhost). The search period for this review will be from January 2010 to 2021. To develop the preliminary search strategy, the reviewers will adopt the triple step approach to search for published evidence.²³ The first step will involve an initial limited

Table 1 Population, concept, context (PCC) framework

Study component	Criteria
Population	Women in sub-Saharan Africa who have not been medically diagnosed with breast cancer (any age above 18)
Concept	Factors influencing breast cancer screening (CBE/mammography), including barriers and facilitators
Context	Breast cancer screening services within hospitals, primary healthcare facilities and in the communities. Articles published between 2010 and 2021 will be included

CBE, clinical breast examination.

search in PubMed and CINAHL via EBSCOhost database. Subject terms (identified from relevant study titles and abstracts of articles) and free-text terms (identified from relevant study descriptions of articles) will be employed in the development of the preliminary search strategy. Step 2 will involve refining the second search terms which will be tailored to the various databases (PubMed, CINAHL via EBSCOhost, Web of Science and EMBASE) including Google Scholar (see online supplemental appendix 1 for search strategies). In step 3, the citation list of the selected studies for the scoping review will be screened for additional relevant studies. The search findings will be in the English language and will be compiled by AA and SS.

Screening of studies

All the citations of the retrieved articles will be imported into Endnote X9 (V.1.19.6) reference manager for removal of duplicates, screening and storage. The titles and abstracts will be screened using the standard review process by reviewers. Full-text article screening will be done following title and abstract screening by two reviewers. After full-text screening, articles that will meet the inclusion criteria will be included in the data synthesis/analysis. Disagreements between the two independent reviewers on the full-text inclusion will be fully discussed and if not resolved a third review author will be consulted for further adjudication. We will provide a detailed written report giving reasons for the exclusion of articles from the final list of articles. Details of the selection process of the included and the excluded studies at various stages will be clearly shown in the PRISMA flow chart diagram for scoping reviews.

Selection criteria

Our search will focus on studies that assessed barriers and/or facilitators of breast cancer screening uptake among women in SSA. We will focus on articles published in the English language because the reviewers do not have the capacity to review articles written in other languages. These inclusive approaches will allow for the examination of current evidence on factors that would indicate

the best way to improve breast cancer screening among women in SSA.

Inclusion criteria

This scoping review will include articles if they (1) involved women with no medical diagnosis of breast cancer as part of the study population, (2) assessed breast cancer screening (CBE/mammography) uptake among women, examining barriers and/or facilitators and were published between 2010 to 2021 and (3) were conducted in health facilities or service delivery in the community within SSA.

Exclusion criteria

The exclusion criteria will include studies that (1) screened for other cancers among women, (2) involved women with breast cancer history/survivors, (3) did not clearly state their study population to be women without breast cancer, and (4) were conducted outside the SSA region.

Types of studies included

This review will include all originally published articles in the form of quantitative, qualitative or mixed methods in nature. Quantitative studies will constitute non-experimental studies, including descriptive cross-sectional studies, observational studies and studies that use other quantitative methods. The qualitative studies will constitute focused group discussions, individual in-depth interviews and other forms of qualitative research designs that meet the criteria for qualitative studies. The mixed-methods studies will consist of qualitative and quantitative designs.

Data charting

Summary tables will be developed by the reviewers to extract key information required from the included articles. Two reviewer authors will independently extract data from the included studies. The extracted data will include the name of the first author, year of publication, country of study, study design, study aim, participants and sample size, type of breast cancer screening, and key findings (focusing on barriers and facilitators of breast cancer screening). The reviewer authors will reconcile the extracted information to make sure that the information is consistent with the originally published studies. If any part of the included study designs or conclusions is unclear to the review authors, they will consult one another.

Data synthesis and analysis

A convergent qualitative synthesis design will be employed, where results from qualitative, quantitative and mixed-method studies will be transformed into qualitative findings.²⁶ Researchers will adopt a higher level of thematic approach to synthesise the data emerging from the literature.²⁶ The summaries of the results will be thoroughly read and reread to gain meaning. Free line-by-line coding will be performed for each study to identify free



codes. Codes will be reviewed, and similar codes categorised to form descriptive themes. The descriptive themes will be assessed to generate meaning beyond the initial data leading to the development of new, interpretive analytical themes.

Assessment of methodological quality

The Mixed Methods Appraisal Tool²⁷ will be used for appraising and evaluating the qualitative, quantitative and mixed-methods studies. Two reviewers will independently review the articles and assign the quality rating. Discrepancies regarding the quality assessment of the articles included will be discussed among all the authors to resolve disagreements and agree on. There exist controversies as to whether studies that are appraised as poor quality should be excluded, as exclusion may lead to the loss of potentially relevant findings and increase bias.^{28 29} Consequently, the reviewers will not exclude any study if the study meets the inclusion criteria.

Data presentation

This scoping review will present the charted data in tables that align with the purpose of the study. Descriptive numerical summaries of the quantitative data will be provided where possible (especially the study's characteristics and frequency counts for barriers and facilitators). Finally, these presentations will be accompanied by narrative explanations of important findings that explain how the findings address the review questions.

Ethics and dissemination

Ethical approval for this protocol is not required since it does not involve collecting data from human participants. To the best of our knowledge, this review will be the first to systematically map current literature available concerning barriers and facilitators to breast cancer screening among women in SSA. Therefore, this scoping review will be of interest to international researchers, oncology nurses, public health professionals and policy-makers across SSA. The findings of this review will be published in a peer-reviewed journal and will also be presented in conferences and workshops to clinicians and public health professionals.

DISCUSSION

This review will systematically and comprehensively assess evidence on barriers and facilitators to breast cancer screening among women in SSA. The surge and high burden of breast cancer mortality in LMICs, especially in SSA are alarming.² Therefore, interventions to reduce the morbidity and mortality of breast cancer are required to ensure timely detection among asymptomatic women in the subregion. The significance of this review is to coalesce existing study findings on barriers and facilitators to breast cancer screening uptake to inform policy and aid to bridge the screening services in SSA. Though rigour is applied to this review protocol, likely limitations

may eventuate due to resourcing considerations and the nature of the scoping review. First, this review will include only published articles in English which might exclude relevant evidence published in other languages. Second, authors may unintentionally omit relevant studies from this review, although extensive database and hand searches will be conducted. Nonetheless, this study will provide a comprehensive insight into the barriers and facilitators of breast cancer screening in SSA. The findings can also inform policy decision making to increase breast cancer screening within SSA countries. Publishing this scoping review protocol will help reduce the risk of bias by strengthening the clarity of the search strategy and reporting of the outcome.

Author affiliations

¹Department of Preventive Health Nursing, School of Nursing and Midwifery, University for Development Studies, Tamale, Ghana

²College of Nursing, Yonsei University, Seodaemun-gu, Seoul, Republic of Korea

³Department of Nursing, School of Nursing and Midwifery, University of Health and Allied Sciences, Ho, Ghana

⁴Centre for Health Policy and Implementation Research, Institute of Health Research, University of Health and Allied Sciences, Ho, Ghana

⁵Graduate School of Medical Sciences, Research Institute SHARE, University of Groningen, Groningen, the Netherlands

⁶Department of Midwifery and Women's Health, School of Nursing and Midwifery, University for Development Studies, Tamale, Ghana

⁷Department of Nursing, Superior School of Health, University of Algarve, Campus de Gambelas, Ed. 5-8005-193, Faro Portugal, Portugal

⁸Department of Nursing, School of Health Sciences, University of Dundee, Scotland, UK

⁹Department of Nursing, Christian Service University College, Kumasi, Ghana

¹⁰Department of Nursing, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

¹¹Department of Health Policy Planning and Management, School of Public Health, University of Health and Allied Sciences, Ho, Ghana

Contributors VNY, AA, SS and RAA developed the protocol with important intellectual content from SMS, JFK, RA, AK, D-DSS, CAA, RA, PA and MAA. AA, RKA, SS, PA and MAA developed the search strategies with consultation from a medical librarian. VNY, AA, RKA, SS, RAA, SMS, JFK and MAA drafted and critically revised the manuscript for important intellectual content. SS, SMS, JFK, RKA, AK, D-DSS, CAA, RA, PA and MAA contributed to the revision of the manuscript for improvement. All authors read and approved the final version for publication.

Funding The authors have not declared a specific grant for this research from any funding agency in the public, commercial or not-for-profit sectors.

Competing interests None declared.

Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not applicable.

Provenance and peer review Not commissioned; externally peer reviewed.

Supplemental material This content has been supplied by the author(s). It has not been vetted by BMJ Publishing Group Limited (BMJ) and may not have been peer-reviewed. Any opinions or recommendations discussed are solely those of the author(s) and are not endorsed by BMJ. BMJ disclaims all liability and responsibility arising from any reliance placed on the content. Where the content includes any translated material, BMJ does not warrant the accuracy and reliability of the translations (including but not limited to local regulations, clinical guidelines, terminology, drug names and drug dosages), and is not responsible for any error and/or omissions arising from translation and adaptation or otherwise.

Open access This is an open access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is

properly cited, appropriate credit is given, any changes made indicated, and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>.

ORCID iDs

Vida Nyagre Yakong <http://orcid.org/0000-0001-8014-2989>

Agani Afaya <http://orcid.org/0000-0002-7918-2999>

Robert Kaba Alhassan <http://orcid.org/0000-0003-4227-4854>

Somin Sang <http://orcid.org/0000-0002-9023-3240>

Solomon Mohammed Salia <http://orcid.org/0000-0001-5271-3975>

Richard Adongo Afaya <http://orcid.org/0000-0003-4616-7642>

Jebuni Fuseini Karim <http://orcid.org/0000-0002-6841-9495>

Confidence Alorse Atakro <http://orcid.org/0000-0002-9944-8619>

Martin Amogre Ayanore <http://orcid.org/0000-0002-4095-3047>

REFERENCES

- World Health Organization. Breast cancer, 2020. Available: <https://www.who.int/cancer/prevention/diagnosis-screening/breast-cancer/en/>
- Sung H, Ferlay J, Siegel RL, *et al*. Global cancer statistics 2020: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin* 2021;71:209–49.
- Ji P, Gong Y, Jin M-L, *et al*. The burden and trends of breast cancer from 1990 to 2017 at the global, regional, and national levels: results from the global burden of disease study 2017. *Front Oncol* 2020;10:650.
- Heer E, Harper A, Escandor N, *et al*. Global burden and trends in premenopausal and postmenopausal breast cancer: a population-based study. *Lancet Glob Health* 2020;8:e1027–37.
- Cumber SN, Nchanji KN, Tsoka-Gwegweni JM. Breast cancer among women in sub-Saharan Africa: prevalence and a situational analysis. *South Afr J Gynaecol Oncol* 2017;9:35–7.
- Idowu A, Olowookere SA, Olumide A, *et al*. Breast cancer awareness, knowledge and screening practice among women resident in an urban local government area of Oyo State, Nigeria. *J Cancer Policy* 2019;20:100179.
- Bray F, Ferlay J, Soerjomataram I, *et al*. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin* 2018;68:394–424.
- McCormack V, McKenzie F, Foerster M, *et al*. Breast cancer survival and survival gap apportionment in sub-Saharan Africa (ABC-DO): a prospective cohort study. *Lancet Glob Health* 2020;8:e1203–12.
- Black E, Richmond R. Improving early detection of breast cancer in sub-Saharan Africa: why mammography may not be the way forward. *Global Health* 2019;15:3.
- Smith RA, Andrews K, Brooks D, *et al*. Cancer screening in the United States, 2016: a review of current American Cancer Society guidelines and current issues in cancer screening. *CA Cancer J Clin* 2016;66:95–114.
- Dibden A, Offman J, Duffy SW, *et al*. Worldwide review and meta-analysis of cohort studies measuring the effect of mammography screening programmes on incidence-based breast cancer mortality. *Cancers* 2020;12:976. doi:10.3390/cancers12040976
- Broeders M, Moss S, Nyström L, *et al*. The impact of mammographic screening on breast cancer mortality in Europe: a review of observational studies. *J Med Screen* 2012;19:14–25.
- Gabe R, Duffy SW. Evaluation of service screening mammography in practice: the impact on breast cancer mortality. *Ann Oncol* 2005;16:ii153–62.
- Independent UK Panel on Breast Cancer Screening. The benefits and harms of breast cancer screening: an independent review. *Lancet* 2012;380:1778–86.
- Lauby-Secretan B, Scoccianti C, Loomis D, *et al*. Breast-cancer screening—viewpoint of the IARC Working Group. *N Engl J Med* 2015;372:2353–8.
- Mittra I, Mishra GA, Dikshit RP, *et al*. Effect of screening by clinical breast examination on breast cancer incidence and mortality after 20 years: prospective, cluster randomised controlled trial in Mumbai. *BMJ* 2021;372:n256.
- Siu AL, U.S. Preventive Services Task Force. Screening for breast cancer: U.S. preventive services Task force recommendation statement. *Ann Intern Med* 2016;164:279–96.
- Ahn S, Wooster M, Valente C, *et al*. Impact of screening mammography on treatment in women diagnosed with breast cancer. *Ann Surg Oncol* 2018;25:2979–86.
- Gøtzsche PC, Jørgensen KJ, Cochrane Breast Cancer Group. Screening for breast cancer with mammography. *Cochrane Database of Systematic Reviews* 2013;156.
- Seaman K, Dzidic PL, Castell E, *et al*. Subject positions in screening mammography and implications for informed choice. *Psychol Health* 2021;36:478–95.
- Kösters JP, Gøtzsche PC. Regular self-examination or clinical examination for early detection of breast cancer. *Cochrane Database Syst Rev* 2003;2.
- Thornton H, Pillarisetti RR. 'Breast awareness' and 'breast self-examination' are not the same. What do these terms mean? Why are they confused? What can we do? *Eur J Cancer* 2008;44:2118–21. doi:10.1016/j.ejca.2008.08.015
- Peters M, Godfrey C, McInerney P. The Joanna Briggs Institute reviewers' manual 2015: methodology for JBI scoping reviews, 2015. Available: <http://www.ncbi.nlm.nih.gov/pubmed/26134548>
- Tricco AC, Lillie E, Zarin W, *et al*. PRISMA extension for scoping reviews (PRISMA-ScR): checklist and explanation. *Ann Intern Med* 2018;169:467–73.
- Peters MD, Godfrey C, McInerney P. Scoping reviews. *Joanna Briggs Institute Reviewer's Manual* 2015;2017:1–24.
- Pluye P, Hong QN. Combining the power of stories and the power of numbers: mixed methods research and mixed studies reviews. *Annu Rev Public Health* 2014;35:29–45.
- Hong Q, Pluye P, Bregues S F. *Mixed methods appraisal tool (MMAT) version 2018: user guide*. Montreal: McGill University, 2018.
- Majid U, Vanstone M. Appraising qualitative research for evidence syntheses: a compendium of quality appraisal tools. *Qual Health Res* 2018;28:2115–31.
- Soilemezi D, Linceviciute S. Synthesizing qualitative research: reflections and lessons learnt by two new reviewers. *Int J Qual Method* 2018;17:1609406918768014.