



BMJ Open Impact of stigma on the HIV care cascade among older persons living with HIV in sub-Saharan Africa: protocol for a systematic review

Stephen Ojiambo Wandera ^{1,2}, Joanita Nangendo,² Alison Annet Kinengyere,³ Moses Ocan ⁴, Anne Katahoire,³ Fred C Semitala,⁵ Laura Bogart,⁶ Moses Kanya²

To cite: Wandera SO, Nangendo J, Kinengyere AA, *et al*. Impact of stigma on the HIV care cascade among older persons living with HIV in sub-Saharan Africa: protocol for a systematic review. *BMJ Open* 2025;**15**:e091718. doi:10.1136/bmjopen-2024-091718

► Prepublication history and additional supplemental material for this paper are available online. To view these files, please visit the journal online (<https://doi.org/10.1136/bmjopen-2024-091718>).

Received 27 July 2024

Accepted 17 February 2025



© Author(s) (or their employer(s)) 2025. Re-use permitted under CC BY-NC. No commercial re-use. See rights and permissions. Published by BMJ Group.

¹Population Studies, Makerere University, Kampala, Uganda

²Makerere University, Kampala, Uganda

³Makerere University College of Health Sciences, Kampala, Uganda

⁴Pharmacology and Therapeutics, Makerere University College of Health Sciences, Kampala, Uganda

⁵Infectious Diseases Research Collaboration, Kampala, Uganda

⁶RAND Corporation, Santa Monica, California, USA

Correspondence to

Dr Stephen Ojiambo Wandera; swandera@gmail.com

ABSTRACT

Introduction Data are limited on the impact of stigma (stigma associated with HIV and/or stigma related to old age (ageism) or both) on linkage to the HIV care cascade among older persons (aged 50 years and older) in sub-Saharan Africa (SSA). Studies have documented the prevalence and determinants of HIV testing, antiretroviral therapy (ART) use and viral load suppression among older people in Africa. However, there is a need to conduct a systematic review to synthesise the findings on the impact of stigma on the HIV care cascade among older people in SSA. The objective of this systematic review is to collate the findings on the impact of stigma on the HIV care cascade among older people aged 50 years and older in SSA. The major research question is: what is the impact of stigma on the HIV care cascade among older persons aged 50 years and older in SSA?

Methods and analysis We will search MEDLINE via PubMed, Web of Science Collection, Academic Search Premier from the EBSCO platform, Cochrane Central, JBI EBP, Global Health, Social Policy and Practice and Health Management Information Consortium for articles published in English from 2000 to June 2024. The search strategy will include variations of the following terms: HIV, HIV cascade, HIV testing, HIV care or linkage to care, retention in care, viral suppression, older persons, stigma, HIV-related stigma, age-related stigma, ageism, discrimination and intersectional stigma. In terms of study characteristics, the following will be included: epidemiological studies/observational studies/randomised controlled trials and qualitative studies on the HIV care cascade (ie, HIV testing, linkage to care, retention in care and viral suppression). We will restrict eligibility by focusing on the older population (older persons aged 50 years and older living with HIV) in SSA. The planned limits include timing (2000–2024), geographical coverage (SSA), language (English), copyright (open access publications) and age of the population (50 years and older). The primary and secondary outcomes are drawn from the HIV care cascade, including HIV testing, linkage to care, retention in care and adherence to ART.

Ethics and dissemination Ethics approval is not needed since this is a systematic review based on published data. Dissemination will be done by submitting scientific articles to academic peer-reviewed journals. We will also present the results at relevant conferences and meetings.

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ The work will cover both ageism and stigma associated with HIV and their impact on the HIV cascade in sub-Saharan Africa.
- ⇒ The review will include articles spanning more than two decades (2000–2024).
- ⇒ The study will be limited to English-language publications only due to time and technical constraints.
- ⇒ Grey literature is not given priority.
- ⇒ No meta-analysis will be performed.

PROSPERO registration number CRD42024534675.

INTRODUCTION

Background and context

HIV remains a major public health problem globally, disproportionately affecting sub-Saharan Africa (SSA).¹ The estimated prevalence of HIV infection among the 74 million older persons (aged 50 years and older) in SSA is 4%, compared with 5.0% among those aged 15–49 years.² Two pathways account for HIV among ageing populations. First, the effectiveness of and the increased access to antiretroviral therapy (ART) have resulted in longer, healthier and more productive lives for people living with HIV (PLHIV).^{1 3–6} Second, some older people get infected with HIV at old age. For example, HIV prevalence in some African countries is estimated at 25% in Botswana, 6.8% in Uganda and 30% in Swaziland.²

The Joint United Nations Programme on HIV/AIDS (UNAIDS) estimates that the number of people over 50 years old with HIV infection globally will have increased from 4.2 million in 2014⁷ to over 20 million by 2040.¹ In SSA, which accounts for 78% of the global PLHIV population, over 15% of PLHIV are over 50 years old, and modelling predicts

that by 2040 this proportion will increase to 27% and the number of older PLHIV to over 10 million.⁸ Particularly in low-income to middle-income countries, there is a paucity of data on the health status of the growing population of older people with HIV.⁹ Research is needed to address critical gaps in our understanding of the impact of ageing on the health of PLHIV and the nature of the accelerated ageing process.

The challenges of HIV and ageing include the gero-science underlying the high multimorbidity burden in older PLHIV and psychosocial issues such as loneliness and reduced social support.^{3 5} Jointly, these complexities result in delayed HIV presentation among older adults and further compound the already limited adaptability of healthcare systems to the growing population of people ageing with HIV and comorbidities.^{3 5} The complexities also create barriers to accessing protective health information and early HIV testing. Consequently, nearly half of older PLHIV are diagnosed late in the course of the disease.^{4 10}

Another key challenge related to HIV and ageing is intersectional stigma, defined as the interdependent and mutually constitutive relationship between social identities and structural inequities.¹¹ *Stigma* broadly refers to the discrediting, devaluing and shaming of a person because of the characteristics or attributes that they possess.¹² Stigma among older people is intersectional and multi-faceted, arising from age (ageism), HIV seropositive status (HIV-related stigma), as well as proneness to several infectious and non-communicable diseases. *Ageism* refers to prejudice (how we feel), stereotyping (how we think) and discrimination (how we act) against people or oneself based on age.^{13 14} Ageism presents a barrier to addressing challenges faced by older PLHIV¹⁵ and is often complicated by sexism. In addition to comorbidities associated with age, PLHIV aged 50+ years old are more stigmatised than individuals aged 50+ years without HIV.¹⁶

HIV-related stigma has been established in several studies as a major barrier to HIV care, and older PLHIV may experience intersectional stigma resulting from HIV, ageism, as well as the complex interaction of various social, psychosocial and economic factors,¹⁷ which disproportionately affect an individual's well-being. Stigma affects HIV testing by gender disproportionality, with men testing less than women in South Africa.¹⁸ On the other hand, access to healthcare before old age is gender disproportionate.¹⁹ This will then have spillover effects on internalised stigma. Among older PLHIV, stigma has been found to interfere with the ability to access and use HIV services, as well as with continuity in care.²⁰ Continuity in care includes adherence and retention.

Rationale

Systematic reviews on HIV have focused on the general population or men sleeping with men, and not among older persons, and on only one aspect of the HIV cascade.^{21–23} Data are limited on the influence of psychosocial determinants of the HIV care cascade among

older people aged 50 years and older in SSA. Evidence on the impact of stigma on the HIV care cascade among older persons in SSA is limited and has not been synthesised.^{2 24 25}

Growing evidence shows that older PLHIV are left behind in all stages of the HIV care cascade, starting from testing and extending to linkage, continuity in care and attaining viral suppression.^{10 24 26} Existing data suggest a low prevalence of HIV testing (<5%), which decreased by age, for older adults aged 50–64 years.²⁷ Studies have documented the prevalence and determinants of HIV testing, ART use and viral load suppression (VLS) among older people in Africa.^{10 24 26} Therefore, there is a need to conduct a systematic review to collate the findings on the impact of stigma on the HIV care cascade among older people in SSA.

Objective

The objective of the proposed systematic review is to collate the findings on the impact of stigma on the HIV care cascade among older people aged 50 years and older in SSA. By systematically analysing available literature, we seek to provide an understanding of the unique challenges and barriers faced by older PLHIV in accessing and using HIV testing services, linkage to care, retention in care and viral suppression in SSA. We propose to conduct a systematic review of evidence on the above-mentioned areas in SSA over the last two decades (2000–2024).

The primary review question is: what is the impact of stigma on the HIV care cascade among older persons aged 50 years and older in SSA? The following are the secondary review questions:

- How do intersectional stigma and HIV-related stigma influence the HIV care cascade among older PLWH in SSA?
- How does ageism relate to stigma to influence the HIV care cascade among older PLWH in SSA?
- How does stigma work through loneliness, social isolation, social support and social connection to influence the HIV care cascade among older persons in SSA?

METHODS AND ANALYSIS

This systematic review protocol follows the Preferred Reporting Items for Systematic Review and Meta-Analysis Protocols reporting guidelines.²⁸ The results from each included study will be meticulously extracted into predefined data extraction spreadsheets.

Eligibility criteria

Table 1 summarises the eligibility criteria. The eligibility is determined by the population, exposure and outcome framework.²⁹ We will restrict eligibility by focusing on the population of older persons aged 50 years and older living with HIV in SSA. In Uganda, during the drafting of the policy for older persons in 2009, age 60 years and older was used because it coincides with the retirement age of 60 years in civil or public service.^{30 31} However, the WHO recommended using age 50 and older to define older

Table 1 Eligibility criteria based on the PEO framework

PEO	Inclusion criteria	Exclusion criteria
Population	<ul style="list-style-type: none"> ▶ Individuals aged 50 years and older living with HIV and residing in sub-Saharan Africa. 	<ul style="list-style-type: none"> ▶ Individuals under the age of 50. ▶ Individuals residing outside of sub-Saharan Africa. ▶ Studies focusing solely on populations other than those 50 years and older.
Exposures	<ul style="list-style-type: none"> ▶ Confirmed diagnosis of HIV infection through laboratory testing or medical records. ▶ Studies assessing the utilisation of HIV care and treatment services among older individuals. ▶ Ageism and stigma studies. ▶ Social support studies. 	<ul style="list-style-type: none"> ▶ Older people aged 50 years and older without HIV. ▶ Studies not evaluating (related to) HIV care and treatment.
Outcomes	<ul style="list-style-type: none"> ▶ HIV testing, care and treatment, adherence, retention and viral load suppression. 	<ul style="list-style-type: none"> ▶ Studies not reporting on HIV care and treatment utilisation among older individuals. ▶ Studies lacking relevant outcome measures or sufficient data for analysis.

PEO, population, exposure and outcome.

persons in SSA. The rationale was the low life expectancy in most African countries and that persons aged 50 and older in SSA might share similar characteristics, such as health and functional limitations, as those aged 60 and older.³² Subsequently, several studies adopted age 50 and older as an appropriate definition of old age in SSA countries, including Kenya,^{33 34} Uganda³⁵ and South Africa.³⁶ Such studies include the WHO Study on Global AGEing and Adult Health and the INDEPTH network. These have used age 50 years and older to define older persons.^{37–42} Therefore, age 50 years and older is used to define older persons in this study, according to the WHO recommendation.³² In addition, in terms of study characteristics, this systematic review will include epidemiological studies, observational studies, randomised controlled trials and qualitative studies on the HIV care cascade (ie, HIV testing, linkage to care, retention and viral suppression).

The exposures are varied based on the HIV care cascade outcomes.^{43 44} For HIV testing (the first 95), the exposure is being susceptible to HIV. For HIV treatment (the second 95), the exposure is living with HIV. For VLS (the third 95), the exposure is being on HIV treatment. Other related exposures include HIV stigma (intersectional and internalised stigma) and age-related stigma (ageism).

The outcomes include both primary and secondary outcomes and are drawn from the HIV care cascade, including HIV testing, linkage to care and viral suppression.^{43 44} The primary outcomes are HIV testing and HIV treatment (initiation, adherence and retention). The secondary outcome is VLS (the third 95). The study setting/context of the review will focus on SSA, where there is limited evidence on the effects of stigma on HIV outcomes among older PLHIV.

Eligibility also includes characteristics including years of publication, language and publication status. We will include studies of peer-reviewed articles covering two decades (2000–2024) that are published in the English language. We spread the duration to at least two decades to coincide with the Madrid International Plan of

Action on Ageing of 2002, which added HIV as an issue affecting ageing populations.⁴⁵ We will exclude conference abstracts and papers, animal studies and studies published in languages other than English. In addition, studies that are not from SSA will be excluded.

Information sources

The intended information sources include electronic databases, contact with study authors, trial registers and grey literature.

Electronic databases

In consultation with an experienced librarian, we will search MEDLINE via PubMed, Web of Science Collection, Academic Search Premier from the EBSCO platform, Cochrane Central, JBI EBP, Global Health, Social Policy and Practice and Health Management Information Consortium from 2000 to June 2024.

Contact with study authors, experts or stakeholders

We will also contact authors or specialists in ageing and HIV for additional references or articles on HIV and ageing in SSA. Practically, we will contact the authors with the highest impact publications in this area.

Hand searching

We will supplement our search by reviewing the reference lists of eligible studies and review articles. In addition, we will search for major HIV national and international conferences. These include the Joint Annual Scientific Health, the International AIDS Society and the International Conference on AIDS and STIs in Africa up until 31 July 2024. However, conference presentations will not be included. We will restrict the search by date (2000–2024) and language of publication (English only).

Reference searches

For reference searches, both forward and backward citation searches will be conducted. Forward citation searching will involve identifying cited articles that were

included in the studies, while backward citation searching will entail reviewing the reference lists of relevant articles to identify additional studies that may meet the inclusion criteria. The chain or snowball searching method will ensure comprehensive coverage of relevant literature and will identify any additional studies that may have been missed during the initial database search.

Search strategy

Online supplemental annex 1 summarises the search strategy. The search strategy will focus on electronic journal databases, hand searching, reference searches and consultation with experts in the field. The search terms will include HIV, HIV cascade, HIV testing, HIV care or linkage to care, retention in care, viral suppression, older persons, stigma, HIV-related stigma, age-related stigma, ageism, discrimination, and intersectional and internalised stigma, among others.

The key explanatory variables for data collection will include ageism, stigma (intersectional and internalised), social isolation, loneliness and social connection. Additional search terms include social network, social support and social connection.⁴⁶ The search terms will be adapted from existing studies.^{46 47}

The planned limits include timing (2000–2024), geographical coverage (SSA), language (English), copyright (open access publications) and age of the population (50 years and older). The literature search is planned from November 2023 to October 2024 (online supplemental annex 2).

Data management

Two people will independently extract the data (SOW and JN), and disagreements between individual judgments will be resolved by consulting the other team members (AAK, MO, FCS, AK, MK and LB). Data extracted will be recorded in a Microsoft Excel spreadsheet previously built, approved and tested by all the review team members. Where full texts cannot be retrieved online, the researchers or their teams will be contacted via researchgate.net or by email. All citation details will be managed using EndNote or Mendeley Desktop.

Selection process

The process that will be used to select the studies is working as a team of two independent reviewers through each phase of the review. The different phases of the review will include screening, eligibility and inclusion in meta-analysis.⁴⁸ The selection criteria/eligibility will be based on published peer-reviewed journal articles.

There will be two stages of screening. The first stage will be title and abstract screening, and the second stage will be full-text screening. Two reviewers (SOW and JN), working independently and in duplicate, will screen the titles and abstracts of the identified studies using the predefined inclusion and exclusion criteria. Any article with clear eligibility based on this screening will proceed to full-text review. Following this step, the two reviewers

(JN and SOW) will convene to collectively evaluate each paper's suitability for inclusion in the systematic review. Later, they will access and review the full texts of the records identified. Reviewers will resolve discrepancies by discussion, or when necessary through adjudication by a third party.⁴⁸ Disagreements will be resolved by consulting a third reviewer (AAK). In the end, a meeting will take place where both reviewers converge their results.

Data extraction process

The planned method of extracting/charting the data from reports is using piloting forms, done independently or in duplicate. In case of discrepancies or disagreements, a third author will arbitrate by independently reviewing the disputed articles and making the final determination regarding their inclusion.⁴⁸ In addition, emails will be sent to obtain and confirm the data from the investigators.

The data extraction process will involve a thorough review by two independent authors (SOW and JN) of the database of searched results.⁴⁸ The data extraction process will encompass several key elements from the included studies. These include comprehensive details of any intervention(s) examined, the study design employed, descriptive statistics characterising the study groups (such as age, gender distribution, etc), documentation of both primary and secondary outcomes reported in the included studies, and a thorough summary of the study results.

Data items

Data extracted from each eligible primary study include the authors and publication date, intervention, sample size, experimental groups, materials used, results and main conclusions. The key explanatory variables for data collection include age-related stigma (ageism), social isolation, loneliness and social connections.⁴⁶ Other exposures are HIV-related stigma and intersectional stigma. Their search terms are adapted from existing studies.^{49 50}

Outcomes and prioritisation

The primary and secondary outcomes are drawn from the HIV care cascade commonly referred to as the UNAIDS triple 95 (95-95-95):

In December 2020, UNAIDS released a new set of ambitious targets calling for 95% of all people living with HIV to know their HIV status, 95% of all people with diagnosed HIV infection to receive sustained antiretroviral therapy, and 95% of all people receiving antiretroviral therapy to have viral suppression by 2025. This was adopted by United Nations Member states in June 2021 as part of the new Political Declaration on HIV and AIDS.^{43 44}

Therefore, the primary outcomes in this study include HIV testing/diagnosis and HIV treatment/linkage to care (the first and second 95). Related to the second 95, HIV treatment initiation, adherence and retention in care will

also be included. Finally, the secondary outcome is VLS (the third 95).

Risk of bias assessment

We will use the Mixed Methods Appraisal Tool (MMAT) to assess the risk of bias (ROB; quality) of the studies. 'The MMAT is intended to be used as a checklist for concomitantly appraising and/or describing studies included in systematic mixed studies reviews - including original qualitative, quantitative, and mixed methods studies'.⁵¹

For randomised trials, we will use the revised Cochrane 'Risk of bias' tool for randomised trials (RoB V.2.0).⁵² For non-randomised studies, we will use the 'Risk of bias' tool called ROBINS-I.⁵³ We will use the robvis (Risk-of-bias VISualization) to create ROB plots.^{54 55} The following criteria will be assessed: randomisation of samples, sample size calculation, reproducibility of methods, standardisation of the outcome assessment, blinding of the outcome assessment and correct reporting of outcomes.

The ROB assessment will be done by two reviewers (SOW and JN), working independently and in duplicate to collect/extract data about the ROB of the eligible studies.⁴⁸ Discrepancies will be resolved through consensus by reaching out to a third member of the review team (MN).

Data synthesis

Data synthesis will include narrative and quantitative syntheses. The findings will be synthesised narratively within the results section and interpreted in the subsequent discussion sections.

Under quantitative synthesis, we will have to do a subgroup analysis. We will decide on the subgroups later. We intend to report categorical characteristics as proportions and percentages and continuous characteristics as median and IQR.⁴⁸ Additionally, the potential for conducting a meta-analysis will be evaluated based on the coherence and variability of the extracted data from the included manuscripts in the final library. Also, the type of meta-analysis will be either random effects or fixed effects meta-analysis. Where meta-analysis is not possible, we will report the range and distribution of the results from the primary studies.⁵⁶ We will report our results using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses reporting guidelines.^{28 57 58}

Meta-biases

We will consider publication biases and other forms of biases in individual studies. We will use the Doi plot and the Luis Furuya-Kanamori index, a quantitative indicator of Doi plot asymmetry, to detect publication bias.^{59 60}

Patient and public involvement

None.

ETHICS AND DISSEMINATION

Ethics approval is not needed since this is a systematic review that is based on published data. Dissemination

will be done by submitting scientific articles to academic peer-reviewed journals. We will also present the results at relevant conferences and meetings. Any changes to or deviations from the protocol will be detailed in the publication of the results. Data will be published in and will be accessible from the Dryad Data Repository.

X Moses Ocan @MosesOcan

Contributors SOW handled the title registration with PROSPERO. SOW and JN drafted the protocol. All authors reviewed and approved the protocol. AAK supported the literature searches. SOW and JN performed preliminary searches in the electronic databases. AAK is the guarantor of the systematic review. Assessment of methodological quality will be done by JN, SOW, MO and LB. Study selection will be done by SOW, JN and AAK. Data extraction will be conducted by JN, SOW, AAK and MO. Data synthesis and write-up of the review will be done by JN and SOW. Peer review will be done by LB, MO, AAK, FCS, MK and AAK.

Funding This work is supported by the Fogarty International Center of the National Institutes of Health under Award Number D43TW011304.

Disclaimer The funder did not participate in the development of this protocol. The development of the protocol is the sole responsibility of the authors.

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

Stephen Ojiambo Wandera <http://orcid.org/0000-0002-5617-0274>

Moses Ocan <http://orcid.org/0000-0002-8852-820X>

REFERENCES

- UNAIDS. *Global HIV & AIDS statistics - fact sheet 2022*. 2022.
- Negin J, Cumming RG. HIV infection in older adults in sub-Saharan Africa: extrapolating prevalence from existing data. *Bull World Health Organ* 2010;88:847–53.
- Weinstein ER, Lee JS, Mendez NA, et al. HIV/AIDS and aging: the new frontier for HIV/AIDS research and care. *AIDS* 2021;35:2043–5.
- Autenrieth CS, Beck EJ, Stelzle D, et al. Global and regional trends of people living with HIV aged 50 and over: Estimates and projections for 2000–2020. *PLoS One* 2018;13:e0207005.
- The Lancet Healthy Longevity. Ageing with HIV. *Lancet Healthy Longev* 2022;3:e119.
- UNAIDS: HIV AND AGING. *A special supplement to the UNAIDS report on the global AIDS epidemic 2013*. 2013.
- UNAIDS. *The gap report: people aged 50 years and older*. 20 Avenue Appia, CH-1211 Geneva 27, Switzerland, 2014.
- Harris TG, Rabkin M, El-Sadr WM. Achieving the fourth 90: healthy aging for people living with HIV. *AIDS* 2018;32:1563–9.
- WHO. *Definition of an older or elderly person: proposed working definition of an older person in Africa for the MDS project*. 2015.
- Nabukanya AM, Matovu JKB. Correlates of HIV status awareness among older adults in Uganda: results from a nationally representative survey. *BMC Public Health* 2018;18:1128.

- 11 Logie CH, James L, Tharao W, *et al.* HIV, gender, race, sexual orientation, and sex work: a qualitative study of intersectional stigma experienced by HIV-positive women in Ontario, Canada. *PLoS Med* 2011;8:e1001124.
- 12 Link BG, Phelan JC. Conceptualizing stigma. *Annu Rev Sociol* 2001;27:363–85.
- 13 Allen JO. Ageism as a Risk Factor for Chronic Disease. *Gerontologist* 2016;56:610–4.
- 14 Butler RN. Age-ism: another form of bigotry. *Gerontologist* 1969;9:243–6.
- 15 Kiplagat J, Huschke S. HIV testing and counselling experiences: a qualitative study of older adults living with HIV in western Kenya. *BMC Geriatr* 2018;18:257.
- 16 Hsieh E, Polo R, Qian H-Z, *et al.* Intersectionality of stigmas and health-related quality of life in people ageing with HIV in China, Europe, and Latin America. *Lancet Healthy Longev* 2022;3:e206–15.
- 17 Brown MJ, Adeagbo O. HIV and Aging: Double Stigma. *Curr Epidemiol Rep* 2021;8:72–8.
- 18 Treves-Kagan S, El Ayadi AM, Pettifor A, *et al.* Gender, HIV Testing and Stigma: The Association of HIV Testing Behaviors and Community-Level and Individual-Level Stigma in Rural South Africa Differ for Men and Women. *AIDS Behav* 2017;21:2579–88.
- 19 Cameron KA, Song J, Manheim LM, *et al.* Gender disparities in health and healthcare use among older adults. *J Womens Health (Larchmt)* 2010;19:1643–50.
- 20 Sangaramoorthy T, Jamison A, Dyer T. Intersectional stigma among midlife and older Black women living with HIV. *Cult Health Sex* 2017;19:1329–43.
- 21 Manno I, Amundsen D, Turpin G, *et al.* A Systematic Review of HIV Testing Implementation Strategies in Sub-Saharan African Countries. *AIDS Behav* 2022;26:1660–71.
- 22 Stannah J, Soni N, Lam JKS, *et al.* Trends in HIV testing, the treatment cascade, and HIV incidence among men who have sex with men in Africa: a systematic review and meta-analysis. *Lancet HIV* 2023;10:e528–42.
- 23 Njau B, Covin C, Lisasi E, *et al.* A systematic review of qualitative evidence on factors enabling and deterring uptake of HIV self-testing in Africa. *BMC Public Health* 2019;19:1289.
- 24 Negin J, Nemser B, Cumming R, *et al.* HIV attitudes, awareness and testing among older adults in Africa. *AIDS Behav* 2012;16:63–8.
- 25 Negin J, Gregson S, Eaton JW, *et al.* Rising Levels of HIV Infection in Older Adults in Eastern Zimbabwe. *PLoS One* 2016;11:e0162967.
- 26 Wandera SO, Kwagala B, Maniragaba F. Prevalence and determinants of recent HIV testing among older persons in rural Uganda: a cross-sectional study. *BMC Public Health* 2020;20:144.
- 27 Ford CL, Godette DC, Muliato MS, *et al.* Recent HIV Testing Prevalence, Determinants, and Disparities Among U.S. Older Adult Respondents to the Behavioral Risk Factor Surveillance System. *Sex Transm Dis* 2015;42:405–10.
- 28 Shamseer L, Moher D, Clarke M, *et al.* Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015: elaboration and explanation. *BMJ* 2015;350:g7647.
- 29 Capili B. How Does Research Start? *Am J Nurs* 2020;120:41–4.
- 30 MoGLSD. *National policy for older persons: ageing with security and dignity*. Kampala, Uganda: Ministry of Gender, Labour and Social Development, 2009.
- 31 UBOS. *Uganda National Household Survey 2009–2010. Socio-Economic Module. Abridged Report*. Kampala, Uganda: Uganda Bureau of Statistics, 2010.
- 32 Definition of an older or elderly person: proposed working definition of an older person in Africa for the MDS project. n.d. Available: <http://www.who.int/healthinfo/survey/ageingdefnolder/en>
- 33 Kyobutungi C, Ezech AC, Zulu E, *et al.* HIV/AIDS and the health of older people in the slums of Nairobi, Kenya: results from a cross sectional survey. *BMC Public Health* 2009;9:153.
- 34 Ezech A, Chepngeno-Langat G, Abdhah Z, *et al.* The situation of older people in poor urban settings: the case of Nairobi, Kenya. In: Cohen B, Menken J, eds. *Ageing in Sub-Saharan Africa: recommendations for furthering research*. Washington, US: The National Academies Press, 2006: 7–45.
- 35 MRC, UVRI. Direct and indirect effects of hiv/aids and anti-retroviral treatment on the health and wellbeing of older people. In: *WHO's study on global AGEing and adult health (SAGE)*. Kampala: Uganda Virus Research Institute & Medical Research Council, 2011.
- 36 Gómez-Olivé FX, Thorogood M, Clark B, *et al.* Self-reported health and health care use in an ageing population in the Agincourt sub-district of rural South Africa. *Glob Health Action* 2013;6:19305.
- 37 HAI. *Guidance on including older people in emergency shelter programmes: a summary*. HelpAge International, 2010.
- 38 Kyobutungi C, Egondi T, Ezech A. The health and well-being of older people in Nairobi's slums. *Glob Health Action* 2010;3:45–53.
- 39 Kowal P, Kahn K, Ng N, *et al.* Ageing and adult health status in eight lower-income countries: the INDEPTH WHO-SAGE collaboration. *Glob Health Action* 2010;3.
- 40 Hirve S, Juvekar S, Lele P, *et al.* Social gradients in self-reported health and well-being among adults aged 50 and over in Pune District, India. *Glob Health Action* 2010;3:88–95.
- 41 Xavier Gómez-Olivé F, Thorogood M, Clark BD, *et al.* Assessing health and well-being among older people in rural South Africa. *Glob Health Action* 2010;3:23–35.
- 42 Debpur C, Welaga P, Wak G, *et al.* Self-reported health and functional limitations among older people in the Kassena-Nankana District, Ghana. *Glob Health Action* 2010;3:2151.
- 43 Frescura L, Godfrey-Faussett P, Feizzadeh A A, *et al.* Achieving the 95 95 95 targets for all: A pathway to ending AIDS. *PLoS One* 2022;17:e0272405.
- 44 UNAIDS. *Understanding measures of progress towards the 95–95–95 HIV testing, treatment and viral suppression targets*. Geneva, Switzerland: UNAIDS, 2023.
- 45 UNDESA. *Madrid plan of action and its implementation*. New York, USA: Department of Economic and Social Affairs, 2002.
- 46 Landeiro F, Barrows P, Nuttall Musson E, *et al.* Reducing social isolation and loneliness in older people: a systematic review protocol. *BMJ Open* 2017;7:e013778.
- 47 Sayin Kasar K, Karaman E. Life in lockdown: Social isolation, loneliness and quality of life in the elderly during the COVID-19 pandemic: A scoping review. *Geriatr Nurs* 2021;42:1222–9.
- 48 Pitre T, Kirsh S, Jassal T, *et al.* The impact of blinding on trial results: a systematic review and meta-analysis. *Coc Evid Syn Meth* 2023;1:e12015.
- 49 Mak WWS, Mo PKH, Ma GYK, *et al.* Meta-analysis and systematic review of studies on the effectiveness of HIV stigma reduction programs. *Soc Sci Med* 2017;188:30–40.
- 50 Katz IT, Ryu AE, Onuegbu AG, *et al.* Impact of HIV-related stigma on treatment adherence: systematic review and meta-synthesis. *J Int AIDS Soc* 2013;16:18640.
- 51 Hong QN, Pluye P, Fàbregues S, *et al.* Improving the content validity of the mixed methods appraisal tool: a modified e-Delphi study. *J Clin Epidemiol* 2019;111:49–59.
- 52 Sterne JAC, Savović J, Page MJ, *et al.* RoB 2: a revised tool for assessing risk of bias in randomised trials. *BMJ* 2019;366:14898.
- 53 Sterne JA, Hernán MA, Reeves BC, *et al.* ROBINS-I: a tool for assessing risk of bias in non-randomised studies of interventions. *BMJ* 2016;355:i4919.
- 54 Risk of bias tools. n.d. Available: <https://www.riskofbias.info/welcome/robvis-visualization-tool>
- 55 McGuinness LA, Higgins JPT. Risk-of-bias VISualization (robvis): An R package and Shiny web app for visualizing risk-of-bias assessments. *Res Synth Methods* 2021;12:55–61.
- 56 Campbell M, McKenzie JE, Sowden A, *et al.* Synthesis without meta-analysis (SWiM) in systematic reviews: reporting guideline. *BMJ* 2020;368:16890.
- 57 Page MJ, McKenzie JE, Bossuyt PM, *et al.* The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. *BMJ* 2021;372:n71.
- 58 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.
- 59 Levison JH, Del Cueto P, Mendoza JV, *et al.* Systematic Review and Meta-analysis of Linkage to HIV Care Interventions in the United States, Canada, and Ukraine (2010–2021). *AIDS Behav* 2023;27:4070–83.
- 60 Furuya-Kanamori L, Barendregt JJ, Doi SAR. A new improved graphical and quantitative method for detecting bias in meta-analysis. *Int J Evid Based Healthc* 2018;16:195–203.