

# Barriers and facilitators of rendering HIV services by community health workers in sub-Saharan Africa: a meta-synthesis

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## ABSTRACT

**Objectives** To synthesise qualitative studies that address the barriers to and facilitators of providing HIV services by community health workers (CHWs) in sub-Saharan Africa (SSA).

**Design** This meta-synthesis was guided by Preferred Reporting Items for Systematic Reviews and Meta-Analyses. We included studies that were published between 2009 and 2019. The Ritchie and Spencer framework and the Supporting the Use of Research Evidence framework were used for thematic analysis and framework analysis, respectively. The Qualitative Assessment and Review Instrument was used to assess the quality of selected studies.

**Eligibility criteria** Qualitative studies published between 2009 and 2019, that included CHWs linked directly or indirectly to the Ministry of Health and providing HIV services in the communities.

**Information sources** An extensive search was conducted on the following databases: EBSCOhost- (ERIC; Health Source-Nursing/Academic Edition; MEDLINE Full Text), Google Scholar and PubMed.

**Results** Barriers to rendering of HIV services by CHWs were community HIV stigma; lack of CHW respect, CHWs' poor education and training; poor stakeholders' involvement; poor access to the communities; shortage of CHWs; unsatisfactory incentives; lack of CHW support and supervision, lack of equipment and supplies and social barriers due to culture, language and political structures. The altruistic behaviour of CHWs and the availability of job facilitated the provision of HIV services.

**Conclusion** The delivery of HIV services by CHWs in SSA is faced by more lingering barriers than facilitators. Planners and policymakers can minimise the barriers by investing in both CHW and community training regarding HIV services. Furthermore, sufficient funding should be allocated to the programme to ensure its efficiency.

**PROSPERO registration number** CRD42020160012.

## INTRODUCTION

Sub-Saharan African (SSA) countries accounts for 71% of the global HIV burden.<sup>1</sup> The community health workers (CHWs) have been viewed as an important vehicle by most SSA countries to deliver HIV services.<sup>2</sup>

Furthermore, many studies have shown evidence that CHWs contribute to strengthening the HIV programmes in countries through the provision of HIV services in the communities.<sup>2</sup> The HIV services provided by CHWs vary in each SSA country. These include patient support (counselling, home-based care, education, adherence support and livelihood support) and health service support (screening, referral and health service organisation and surveillance).<sup>3,4</sup> The CHWs are a potential solution in overcoming challenges faced by HIV programmes in SSA. However, CHWs are still not effectively used to play this role because of various barriers which differ in each country.<sup>5</sup>

Furthermore, within SSA countries, there is still no harmonised approach to CHWs' employment, remuneration, training, management, supervision and retention, which poses barriers for their utilisation to provide HIV services to the communities.<sup>6,7</sup> In many SSA countries, CHWs have no job descriptions, which creates ambiguity around their roles and ultimately conducting tasks outside their training.<sup>6,7</sup>

The effectiveness of CHWs in strengthening HIV programme is evident in SSA. Increased task shifting and the rapid growth of the HIV-positive population enrolled in care and receiving treatment, have brought lay health workers to the forefront of antiretroviral therapy (ART) distribution and care (particularly in SSA) and their delivery of HIV testing, counselling and ART has been found to be both efficient and effective.<sup>8</sup> However, the gap between the need for ART and actual provision of ART is still wide in SSA.<sup>9</sup> This is due to most sub-Saharan countries being poor and for a long time, the available ART regimens were unaffordable for all people living with HIV (PLWH) in these high

HIV prevalent countries.<sup>10</sup> In the past 8–10 years, several SSA countries have become more serious about using CHWs as part of the task-shifting concept to address the shortage of health workers and the growing burden of the HIV epidemic in communities.<sup>11</sup>

There have been studies including systematic reviews that have described the HIV services provided by CHWs in individual countries and SSA. However, after an extensive search, no meta-synthesis was found on barriers to and facilitators of providing HIV services by the CHWs in SSA countries for a 10-year period, that is, from 2009 to 2019.

Therefore, the purpose of this meta-synthesis was to synthesise evidence from SSA countries on what has facilitated and/or hindered CHWs in providing HIV services in the communities in a 10-year period. This meta-synthesis will assist health ministries in identifying and addressing challenges to the utilisation of CHWs in the provision of HIV-related services for implementation of appropriate interventions in various settings of this region.

## METHODOLOGY

### Study design

The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2009 statement<sup>12</sup> guided the conduct of this meta-synthesis which requires that a PRISMA 2009 checklist is populated.<sup>13</sup> However, the PRISMA checklist is rarely used to guide the design of systematic reviews as other guidelines such as Cochrane manuals and Joanna Briggs Institute (JBI) manuals are commonly used.<sup>14 15</sup> Interpretive paradigm,<sup>16</sup> which is based on the premise that ‘reality’ is perceived differently by different people, also guided this meta-synthesis. The interpretive paradigm is subjective and interpretive theorists see the world as an emergent social process, created by the individuals concerned. We selected this paradigm because it guides the researchers to use the experience of participants or reported data to construct and interpret their understanding from collected data without tainting it with their views or experiences.<sup>16</sup> The Supporting the Use of Research Evidence (SURE) framework<sup>17</sup> was used for framework thematic synthesis. NVivo V.12 Pro was used to code themes emerging from the extracted data.

Studies included for this meta-synthesis were studies conducted using only a qualitative methodology (such as phenomenology, content analysis, anthropology). The Population Exposure Outcome framework<sup>18</sup> was used to determine the suitability of our research question (table 1).

## Definitions

### Community caregiver

Refers to ‘any health worker carrying out functions related to healthcare delivery; trained in some way in the context of the intervention; and having no formal professional or paraprofessional certification or a degree from tertiary education’.<sup>19</sup>

### Community health worker

Any individual delivering healthcare, trained in the skills needed for the intervention, but with no certificate or degree in tertiary education.<sup>20</sup>

### Community health volunteer

A person, who willingly undertakes tasks, uses his/her skills and knowledge for the benefit of individuals within the local communities, without expecting rewards of financial gain.

### Community health extension worker

A trained health worker employed by the Kenyan government in a link health facility, providing support and supervision to CHWs.

### Lay counsellor /lay health worker

An individual who has completed secondary education and been trained specifically to conduct HIV testing and counselling; provide care and support for pregnant and breastfeeding women living with HIV and are trained on prevention of mother-to-child transmission (PMTCT).<sup>21</sup>

### Community HIV services

Services specifically targeting HIV alleviation provided in the community which include education, home-based HIV counselling and testing, linkage for care and treatment and home-based care.<sup>6</sup>

### Integration

In this study it refers to the incorporation of community HIV services traditionally carried out by vertical programmes into the existing Ministry of Health (MoH) community health structures.

### Identifying the research question

The research question of our meta-synthesis was: What are the barriers to and facilitators of rendering HIV services by community health workers in SSA?

### Suitability of the question for a meta-synthesis

#### Search strategy: information sources

An extensive search was conducted on the following databases in November 2019: EBSCOhost (ERIC; Health Source-Nursing/Academic Edition; MEDLINE Full Text),

**Table 1** PEO framework

	Population (P)	Exposure (E)	Outcome (O)
Keywords	Community health worker	Rendering HIV services in communities	Barriers to and facilitators of rendering

**Box 1 MEDLINE search filter**

1. (("hiv"[MeSH Terms] OR "hiv"[All Fields])
2. hiv services[All Fields])
3. ("community health workers"[MeSH Terms] OR ("community"[All Fields] AND "health"[All Fields] AND "workers"[All Fields]) OR "community health workers"[All Fields]) OR (lay[All Fields] AND ("health"[MeSH Terms] OR "health"[All Fields]) AND workers[All Fields])
4. 1 or 2 or 3
5. ("qualitative research"[MeSH Terms] OR ("qualitative"[All Fields] AND "research"[All Fields]) OR "qualitative research"[All Fields] OR ("qualitative"[All Fields] AND "study"[All Fields]) OR "qualitative study"[All Fields])
6. ("africa south of the sahara"[MeSH Terms] OR ("sub-saharan africa"[All Fields] AND "sahara"[All Fields]) OR "africa"[All Fields])
7. ("2009/01/01"[PDAT] : "2019/11/31"[PDAT])
8. "humans"[MeSH Terms]
9. English[lang]

Google Scholar and PubMed to answer our research question. A Boolean search (AND, OR) and Medical Subject Headings search was done using keywords as in [table 1](#) to search for the relevant studies. An example of a PubMed search filter that was used as indicated in [box 1](#). The key search words were ‘community health workers’, various terminologies used for community health workers such as, ‘village doctors’, ‘community volunteers’, ‘rendering HIV services’, ‘sub-Saharan Africa’ and ‘barriers to and facilitators of rendering HIV services’. The results of this initial search were entered in online supplemental appendix 1. Studies that were selected were exported to a reference manager, EndNote V.X9, for abstract screening and then, if suitable, for full article screening.

### Eligibility criteria

#### Inclusion criteria

This meta-synthesis included:

- ▶ Studies in the English language because of limited financial resources for translation.
- ▶ Studies that were qualitative or mixed methods as long as there was a qualitative component regardless of the study design.
- ▶ Studies published in the past 10 years (between 2009 and 2019 inclusive).
- ▶ Lay people trained as cadres of the primary health-care (PHC) system and linked directly or indirectly to the MoH assigned to offer HIV health services in the communities regardless of their work titles.
- ▶ Studies that included evidence of barriers to and facilitators of rendering HIV services by the CHWs.
- ▶ Studies conducted in SSA.

#### Exclusion criteria

- ▶ All quantitative studies related to HIV services offered by the CHWs.
- ▶ Studies related to other healthcare workers assigned to provide HIV services in the community.

- ▶ Studies on other health services provided by CHWs other than HIV-related services.
- ▶ Lay people that are offering community health services, who are neither trained as a cadre of the PHC system nor linked directly or indirectly to the MoH.

### Screening of articles

Screening of qualitative studies was done in three stages by two independent reviewers in order to increase trustworthiness and reduce bias. Forms used for all screening stages were created using Google forms and were eventually imported as a spreadsheet to Microsoft Excel. A third reviewer resolved disagreements between the reviewers.

The first stage involved running the search on the relevant databases to select suitable study titles. The selected study titles (online supplemental appendix 1) were imported to EndNote V.X9. The second stage entailed screening abstracts of the selected titles. The abstracts were read, and information related to the study was recorded in the relevant Google form (online supplemental appendix 2). Any abstracts with information that met the inclusion criteria were selected for the third stage. The final and third stage involved screening full-text studies of the selected abstracts with results recorded in online supplemental appendix 3. The studies selected at the third stage were the final studies included in this meta-synthesis. Each selected study was assigned a unique identification number. Excluded studies and their reasons for exclusion were logged in online supplemental appendix 4.

### Assessing the quality of selected studies

Critical appraisal in meta-synthesis ensures that the selected qualitative studies are methodologically rigorous and free from bias. The quality of the selected studies was appraised using the Qualitative Assessment and Review Instrument (QARI)<sup>22</sup> ([table 2](#)). The appraisal was undertaken by two independent reviewers.

The usability of the QARI tool was piloted on 10% of studies. The tool has 10 questions to make a total score of 10. Answers that were ‘Yes’ and ‘No’ scored ‘1’ and ‘0’, respectively. Overall, the 10 questions were to find congruity between the study aims, objectives, study design (entire methodology), data analysis and results. If these sections were missing or did not show congruity with the study phenomenon and methods, a score of 0 was assigned, otherwise a 1 if they were available and showed congruity. We had no ‘unclear’ results based on the 10 quality questions. In all the included studies, the philosophical or theoretical premises on which the studies were consistent from the background to the conclusion.

To reach an agreement on quality assessment disagreements, reviewers re-appraised the study. Our cut-off point for adequate quality was 5/10. Most studies (81%) scored 9/10 with lowest and highest scores of 7/10 and 10/10, respectively. Question 6 of the appraisal tool was mostly not answered in most selected studies. However, this was seen as having no impact on the study as it was not the

**Table 2** Methodological quality assessment

Author, date	Unique study identifier number	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Final score
Aantjes, 2014 <sup>59</sup>	2	1	1	1	1	1	0	1	1	1	1	9
Bemelmans, 2016 <sup>57</sup>	5	1	1	1	1	1	0	1	1	1	1	9
Bennet, 2016 <sup>60</sup>	6	1	1	1	1	1	0	1	1	1	1	9
Besada, 2017 <sup>56</sup>	7	1	1	1	1	1	0	1	1	1	1	9
Busza, 2014 <sup>34</sup>	9	1	1	1	1	1	0	1	1	1	1	9
Busza, 2018 <sup>35</sup>	10	1	1	1	1	1	0	1	1	1	1	9
Busza, 2018 <sup>35</sup>	12	1	1	1	1	1	0	1	1	1	1	9
Cataldo, 2015 <sup>44</sup>	13	1	1	1	1	1	1	1	1	1	1	10
Cataldo, 2018 <sup>36</sup>	14	1	1	1	1	1	0	1	1	1	1	9
Celletti, 2010 <sup>49</sup>	15	1	1	1	1	1	0	1	1	1	1	9
Chang, 2013 <sup>67</sup>	16	1	1	1	1	1	0	1	1	1	1	9
Chibanda, 2017 <sup>50</sup>	17	1	1	1	1	1	0	1	1	1	1	9
Cobbing, 2017 <sup>47</sup>	18	1	1	1	1	1	0	1	1	1	1	9
Dawad, 2011	21	1	1	1	1	1	0	1	1	1	1	9
De Neve, 2017 <sup>6</sup>	22	1	1	1	1	1	0	1	1	1	1	9
De Neve, 2017 <sup>6</sup>	23	1	1	1	1	1	0	1	1	1	1	9
Decroo, 2017 <sup>7</sup>	25	1	1	1	1	1	0	1	1	1	1	9
DiCarlo, 2018 <sup>51</sup>	26	0	1	1	1	1	0	0	1	1	1	7
Doherty, 2017 <sup>56</sup>	27	1	1	1	1	1	0	1	1	1	1	9
Geldsetzer, 2017 <sup>7</sup>	30	1	1	1	1	1	1	1	1	1	1	10
Gusdal, 2011 <sup>52</sup>	31	1	1	1	1	1	0	1	1	1	1	9
Heunis, 2011 <sup>41</sup>	33	1	1	1	1	1	0	1	1	1	1	9
Jack, 2011 <sup>42</sup>	34	1	1	1	1	1	0	1	1	1	1	9
Jennings, 2013 <sup>70</sup>	35	1	1	1	1	1	0	1	1	1	1	9
Kalonji, 2019 <sup>65</sup>	36	0	1	1	1	1	0	0	1	1	1	7
Loeliger, 2016 <sup>33</sup>	39	1	1	1	1	1	0	1	1	1	1	9
Macintyre, 2011 <sup>61</sup>	40	1	1	1	1	1	0	1	1	1	1	9
Magidson, 2019	42	1	1	1	1	1	0	1	1	1	1	9
Mantell, 2019 <sup>39</sup>	43	1	1	1	1	1	0	1	1	1	1	9
Masquillier, 2016 <sup>40</sup>	44	1	1	1	1	1	0	1	1	1	1	9
Masquiller, 2016 <sup>45</sup>	45	1	1	1	1	1	0	1	1	1	1	9
Masquiller, 2016 <sup>45</sup>	46	1	1	1	1	1	0	1	1	1	1	9
McCollum, 2017 <sup>20</sup>	49	1	1	1	1	1	0	1	1	0	1	8
McCreary, 2013	50	1	1	1	1	1	0	1	1	1	1	9
Mireku, 2014 <sup>54</sup>	51	0	1	1	1	1	0	0	1	1	1	7
Mundeva, 2018 <sup>28</sup>	54	1	1	1	1	1	0	1	1	1	1	9
Mwai, 2013 <sup>2</sup>	56	1	1	1	1	1	0	1	1	1	1	9
Naidoo, 2019 <sup>32</sup>	57	1	1	1	1	1	0	1	1	1	1	9
Naidoo, 2018 <sup>68</sup>	58	1	1	1	1	1	0	1	1	1	1	9
Negin, 2009 <sup>37</sup>	59	1	1	1	1	1	0	1	1	1	1	9
Otiso, 2017 <sup>20</sup>	51	1	1	1	1	1	0	1	1	1	1	9
Perry, 2019 <sup>43</sup>	62	1	1	1	1	1	0	1	1	1	1	9
Reimers, 2016	64	1	1	1	1	1	0	1	1	1	1	9
Schuster, 2016 <sup>4</sup>	65	1	1	1	1	1	0	1	1	1	1	9
Seutloali, 2018 <sup>66</sup>	66	1	1	1	1	1	0	1	1	1	1	9

Continued

**Table 2** Continued

Author, date	Unique study identifier number	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Final score
Shelley, 2019 <sup>53</sup>	68	1	1	1	1	1	0	1	1	1	1	9
Sips, 2014 <sup>31</sup>	69	1	1	1	1	1	0	1	1	1	1	9
Trafford, 2018 <sup>8</sup>	70	0	1	1	1	1	0	0	1	1	1	7
Uwimana, 2012 <sup>19</sup>	71	1	1	1	1	1	0	1	1	1	1	9
Uwimana, 2012 <sup>19</sup>	72	1	1	1	1	1	0	1	1	1	1	9
Uwimana, 2012 <sup>19</sup>	73	1	1	1	1	1	0	1	1	1	1	9
van Heerden, 2017 <sup>69</sup>	75	1	1	1	1	1	0	1	1	1	1	9
Vernooij, 2013 <sup>58</sup>	76	1	1	1	1	1	0	1	1	1	1	9
Visagie, 2015 <sup>38</sup>	77	1	1	1	1	1	0	1	1	0	1	8
Wademan, 2016 <sup>64</sup>	78	1	1	1	1	1	1	1	1	1	1	10
Ware, 2016 <sup>29</sup>	79	0	1	1	1	1	0	0	1	1	1	7
Wools, 2009 <sup>30</sup>	80	1	1	1	1	1	0	1	1	1	1	9
Zullinger, 2014	81	0	1	1	1	1	0	0	1	1	1	7

\*0=No; \*1=Yes.

Screening questions.

Q1. Is there congruity between the stated philosophical perspective and the research methodology?

Q2. Is there congruity between the research methodology and the research question or objectives?

Q3. Is there congruity between the research methodology and the methods used to collect data?

Q4. Is there congruity between the research methodology and the representation and analysis of data?

Q5. Is there congruity between the research methodology and the interpretation of results?

Q6. Is there a statement locating the researcher culturally or theoretically?

Q7. Is the influence of the researcher on the research, and vice versa, addressed?

Q8. Are participants, and their voices, adequately represented?

Q9. Is the research ethical according to current criteria or, for recent studies, and is there evidence of ethical approval by an appropriate body?

Q10. Do the conclusions drawn in the research report flow from the analysis, or interpretation, of the data?

point of the paper. In qualitative research, it is important to know the researcher's cultural and theoretical orientation. However, most studies did not include a statement that clarifies this hence all studies except one scored 0 on this question. Nevertheless, the high-quality studies included in our meta-synthesis justified using their evidence for our review.

### Data extraction

Data were extracted using a data extraction tool (online supplemental appendix 5), pre-tested by two-independent reviewers on five studies. We extracted first-order and second-order constructs which consisted of the following elements: (a) author with the date of publication, (b) study design, (c) study population, (d) HIV services offered by the CHWs, (e) barriers to providing HIV services, (f) facilitators of providing HIV services, (g) significant findings that are of interest to this study, (h) key conclusion of the study, (i) sub-Saharan country/ies and (j) type of CHW.

### Data synthesis

Data synthesis aimed to gather all the findings from all the selected studies into a meaningful statement or a set of statements which would represent and explain the phenomenon under study or answer the research question of this review.<sup>23</sup> The Ritchie and Spencer framework

thematic synthesis approach was used to synthesise evidence.<sup>24</sup> After reading and re-reading the data, the SURE framework<sup>17</sup> was identified as a suitable framework to match assigned key themes. The SURE framework (table 3) can be applied to any healthcare research<sup>25</sup> though its initial use was for guiding evidence extraction in systematic reviews to inform policy.<sup>17</sup> Its five domains are comprehensive and provided matching key themes for this study. Subthemes were assigned under these five key themes.

NVivo V.12 Pro was used to code themes (thematic analysis) emerging from the extracted data. All the 58 studies that were finally selected for the meta-synthesis were filed into NVivo. The relevant extracts and quotations from the 58 studies and from the Data Extraction Tool (online supplemental appendix 5) were then coded into the relevant SURE framework themes. The PRISMA standard guided the conduct and writing of our review.<sup>13</sup>

### Patient and public involvement

No patients or public were involved in the study.

## RESULTS

The initial electronic database search yielded 925 references (figure 1) from which we included 325 titles and

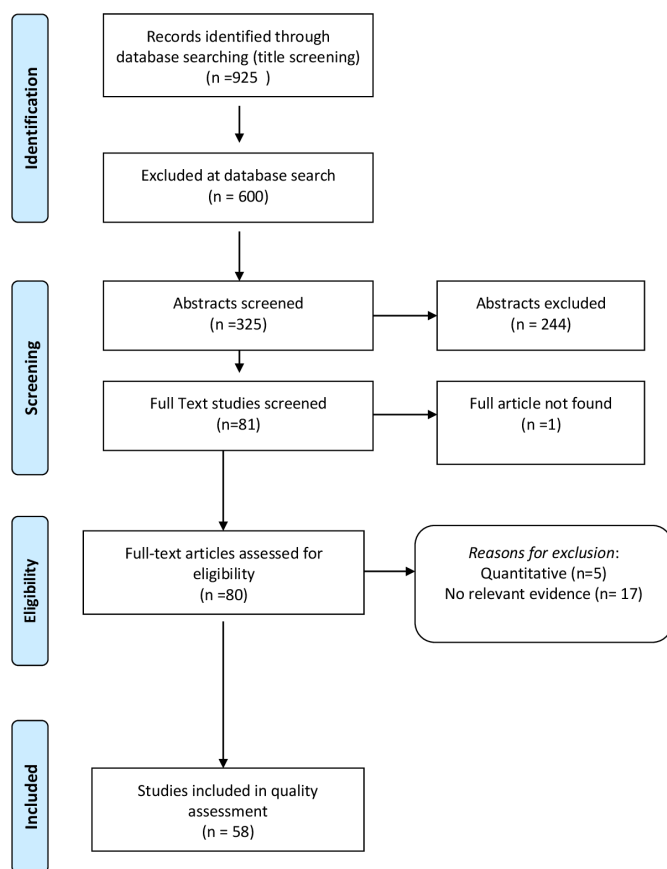
**Table 3** Supporting the Use of Research Evidence (SURE) framework

Domains	Factors affecting implementation
Recipients of care	Knowledge and skills. Attitudes regarding programme acceptability, appropriateness and credibility. Motivation to change or adopt new behaviour.
Providers of care	Knowledge and skills. Attitudes regarding programme acceptability, appropriateness and credibility. Motivation to change or adopt new behaviour.
Other stakeholders	Knowledge and skills. Attitudes regarding programme acceptability, appropriateness and credibility. Motivation to change or adopt new behaviour.
Health system constraints	Accessibility of care; financial; human resources; educational system; clinical supervision; internal communication; external communication; allocation of authority; accountability; management and or leadership; information systems; facilities. Patient flow processes; procurement and distribution systems; incentives; bureaucracy; relationship with norms and standards.
Social and political constraints	Ideology; short-term thinking; contracts; legislation or regulations; donor policies; influential people; corruption.

\*Source: (The SURE Collaboration: <https://www.who.int/evidence/sure/guides/en/>).

excluded 600 of them. Screening of abstracts resulted in 81 studies selected for full article screening. However, the librarian did not find one study after an extensive search. This left 80 studies for full article screening. Following full

article screening by reviewer 1 and 2, there was 67.5% agreement versus 71.6% expected by chance which constitutes a poor agreement between screeners (Kappa statistic=-0.15 and p value>0.05). In addition, the McNemar's  $\chi^2$  statistic suggested a statistically significant difference in the proportions of yes/no answers by reviewers with p value<0.05. We invited a third reviewer to resolve discrepancies between results of reviewer 1 and 2. After an agreement with the third reviewer by revisiting the specific areas of disagreement, we excluded 22 full-article studies. The reasons for excluding the 22 articles were: five were quantitative studies and 17 did not have the relevant evidence. This left 58 studies for quality assessment and inclusion in this meta-synthesis.

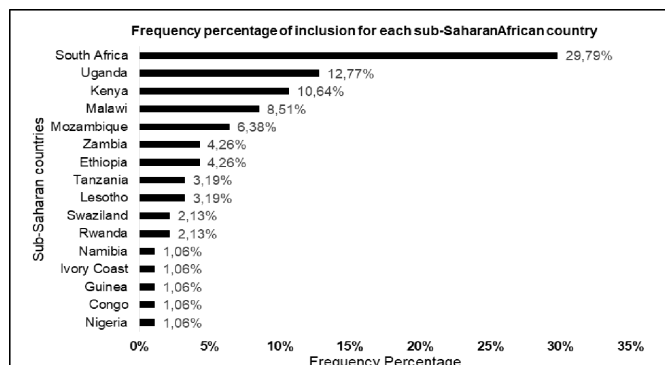


**Figure 1** Preferred Reporting Items for Systematic Reviews and Meta-Analyses flow diagram to illustrate the screening process from the initial search until the final selected studies.<sup>13</sup>

### Characteristics of included studies

Online supplemental table 4 shows the characteristics of all the included studies. The 58 studies included 51 primary and 7 secondary qualitative studies. Sixteen SSA countries were included in this meta-synthesis, with South Africa, Uganda and Kenya most commonly represented (figure 2).

The study population was CHWs or lay health workers, most commonly paid by the MoH or Department of Health, depending on the country. Other CHWs were employed by non-profit organisations (NPOs) or non-government organisations (NGOs) permanently or for short-term contracts. Other study populations included other healthcare workers (some of whom volunteered to work with the CHWs, called CHW-extension), key informants and policymakers from government, NPOs and NGOs. About 68% of the studies were published between 2015 and 2019, indicating that research and enquiries around this cadre's effectiveness in the provision of HIV services may be gaining interest.<sup>26–28</sup> As seen in online supplemental table 4, some studies had details about the number of participants sampled and some did not.



**Figure 2** Inclusion percentage frequency for each included sub-Saharan country. The final selected studies included data from 16 sub-Saharan African countries.

### Key themes

There were five key themes identified as also described in the SURE framework namely (i) recipients of care, (ii) providers of care, (iii) other stakeholders, (iv) health system constraints and (v) social and political constraints. We also identified subthemes under the main key themes as shown in the codebook (table 4).

### Recipients of care

Different factors and characteristics of the recipients of care (communities receiving HIV services) posed barriers to or facilitated the rendering of HIV services by the CHWs. Five subthemes were determined under this theme as listed below.

#### Motivation

Consistent CHWs' visits at the comfort of the client's home, were considered by the recipients in Uganda and Kenya as a sign of being cared for and motivated them to accept the HIV services offered by the CHWs.<sup>29 30</sup>

The counsellor gives you all the time you want. At the clinic, you find many people and the counsellor wants to attend to all of them. But for this one, we met at our homes and he gives you all the time you need. (p.4)<sup>29</sup>

#### Socio-demographics and economics

There was evidence in three studies from South Africa that CHWs were unable to offer further HIV services to clients who repeatedly failed to attend referral facilities to which CHWs referred them due to lack of transport money.<sup>31-33</sup> The health state of these clients deteriorated, causing CHWs to lose hope for them and discontinue their services.<sup>31-33</sup>

Our client's [client 21] situation is not good and as we are also not earning there is nothing I can do. All we do is to give psychological support and nothing more. Sometimes we visit her and find that she doesn't have food in her house or money to go to the clinic to collect her treatment. That makes us feel sad but there is nothing we can do at this point. (p.4)<sup>31</sup>

### Age and gender

There was evidence in studies conducted in Zimbabwe, Kenya, Malawi, Uganda and South Africa that young clients and adolescents had more difficulty with HIV stigma and disclosure, which acted as a barrier in providing HIV services, by the CHWs.<sup>8 34-38</sup> However, these studies did not specify the actual ages of the young mothers or girls.

They [adolescents] come across several stumbling blocks—for instance when a youth knows that you are an HBC provider, he runs away from you. Others hide themselves while others just refuse getting associated to the provider. Just rejects him/her. (p.3)<sup>3</sup>

In Zimbabwe and South Africa, gender also acted as a barrier to rendering HIV services by CHWs in that HIV positive men felt vulnerable particularly in their socially valued roles as husbands, fathers and productive community members.<sup>33 39</sup> The CHWs were not able to offer HIV services (testing and ART initiation) to these men.<sup>33</sup>

Sometimes it happens [with] the married couples. If it is a woman, because women are easy to talk to, they easily accept it. A man will be so defensive, even if [the] woman has been initiated on the treatment, [the] man will refuse everything, and he will not accept it....Men will deny and say they are negative. (p.16)<sup>33</sup>

### Behaviour, attitudes and acceptability of HIV services

This subtheme involved behaviours and attitudes caused by underlying issues such as HIV stigma or fear of being HIV positive. In South Africa, CHWs could not offer any HIV services because the clients ran away from them when they were under the influence.<sup>33 40</sup>

There is time that I run away from her [CHW] when I'm drunk. Because I don't take medication when I'm drunk and I know she is going to shout at me not to take my medication [emotional]. (p.190)<sup>40</sup>

Some recipients were afraid and not strong enough to accept a positive HIV test and so they did not allow CHWs to test them.<sup>41</sup>

People are afraid to test because it is said that if a person has TB, they automatically have HIV, and they do not want to know. They are afraid of the fact that HIV is not curable. So when they have TB they are afraid to go and test and hear bad news. (p.4)<sup>41</sup>

In Uganda, Zambia, Congo and South Africa, communities expected CHWs to give them food and money.<sup>7 42-44</sup> When CHWs could not meet their expectation, the recipients were reluctant to receive any HIV services offered by the CHWs.<sup>7 42-44</sup>

Too much expectation of the patients from the Volunteers. Now they expect many things, now they ask you for sugar, soap expecting us to have it. (p.8)<sup>42</sup>

**Table 4** Codebook used in coding themes and subthemes

Theme and subthemes	Description
<b>Theme 1: Recipient of Care</b>	The people at households including PLWH that receive HIV services provided by the CHWs.
<b>Sub-themes: Motivation</b>	What motivates the recipient to behave in a certain manner towards the HIV service or CHWs.
<i>Socio-demographics</i>	These related to individual social and demographic structures (general ones for the entire community are under 'Social and Political Constraints'. The recipients age and or gender as a contributory factor to a certain behaviour towards HIV services and CHWs.
<i>Age and gender</i>	Related to recipients age/age group and gender.
<i>Behaviour, attitudes and acceptability of HIV services</i>	Recipient's opinion on the intervention including views about the acceptability and appropriateness of the intervention and the credibility of the provider.
<i>Knowledge and skills</i>	Recipients may have varying degrees of knowledge HIV services and CHWs or may not have the skills to understand HIV services and CHWs.
<b>Theme 2: Providers of care</b>	The CHWs themselves.
<b>Subthemes: Knowledge and skills</b>	CHWs knowledge and skills in proving HIV.
<i>Behaviour, attitudes and acceptability of providing HIV services</i>	CHWs attitudes and acceptability of the CHW programme that they have been assigned to.
<i>Motivation</i>	CHWs degree aspects that deal with what motivates them to behave in a certain manner.
<i>Working beyond their scope</i>	Tasks that CHWs were not supposed to do and affected efficiency.
<b>Theme 3: Other stakeholders</b>	Stakeholders that play a role in the CHW programme.
<b>Subthemes: Other healthcare workers</b>	Other health cadres that are in the chain of providing HIV services with CHWs.
<i>Donors or funders as barriers</i>	Situation of funders and donors towards the CHW programme.
<b>Theme 4: Health system constraints</b>	Factors that are inside the healthcare system itself that is outside of the CHWs or communities' control.
<b>Subthemes:</b>	Factors related to accessing households by CHWs and accessing health facilities by households due to any health system constraint (other than geographical location). For an example issues of transport that is supposed to be provided by the health facilities.
<i>Accessibility to provision and receiving HIV services</i>	
<i>Governance</i>	How the CHW is governed in terms of accountability, collaboration, referral systems, recruitment and the allocation of CHWs workload.
<i>Education and training</i>	The training of CHWs as part of their employment and deployment to communities to offer HIV services.
<i>Human resources</i>	Related to CHW staffing issues that impact on the provision of HIV services in the communities.
<i>Incentives</i>	Reimbursement systems for CHWs and how they affect the provision of HIV services.
<i>Supervision and support</i>	Support and supervision required by the CHWs as part of effective HIV service provision for the communities.
<i>Supplies and equipment</i>	Relates to items required by the CHWs when they are at the client's home, eg, pen, record book, HIV test kits, gloves.
<b>Theme 5: Social and political constraints</b>	Social even community and political aspects that influence the CHW to function or not to function well.
<b>Subthemes: Geography</b>	HIV services provision by CHWs in relation to recipients and their environments.
<i>Weather</i>	Weather conditions that may affect the provision of HIV services by CHWs.
<i>Language, religion and culture</i>	How culture and language.
<i>Political stability</i>	The stability of the political environment that may affect the functioning of the CHW programme.

CHWs, community health workers; PLWH, people living with HIV .



### Knowledge and skills

In some South African studies<sup>33 38 45</sup> and one study conducted in Zimbabwe,<sup>35</sup> there was evidence that if the recipients or their families had adequate HIV knowledge and skills, it facilitated the provision of HIV services by CHWs since the home environment had open communication with no HIV stigma. A CHW articulated this:

The family takes the CCW's [community care worker's] role. Because I think if the family can remind the patient to take his/her medication, then everything will be fine. (p.11)<sup>45</sup>

### Providers of care

There was evidence that CHWs facilitated the rendering of HIV services to the communities because of either intrinsic factors or extrinsic factors.

### Knowledge and skills

Community health workers who had good HIV knowledge, skills and formal training were efficient in rendering HIV services to the communities.<sup>36 44 46 47</sup> This evidence was on five studies conducted in South Africa, Zambia and Zimbabwe.

We are [now] able to recognise symptoms and interact with an [HIV-infected] individual with an intention of counselling or persuading them not to waste their time visiting traditional healers. (p.4)<sup>44</sup>

In one study conducted in Malawi, the HIV knowledge that CHWs had, made the communities trust them and see them as reliable sources of information.<sup>36</sup>

They see us as people who give them accurate information compared with that a doctor can give. (p.5)<sup>36</sup>

### Attitudes and acceptability of rendering HIV services

Evidence in studies conducted in Zambia, Malawi, Uganda, South Africa, Mozambique, Kenya and Zimbabwe, showed that CHWs who were personally invested in their job, could offer HIV services more efficiently and with positive outcomes<sup>26 32 36 37 44 48</sup> as articulated by one of the CHWs:

One of the most rewarding aspects of my work has been to save the lives of patients with HIV who had lost hope and are now up and strong again. (p.5)<sup>36</sup>

In Mozambique the CHWs went as far as forming peer support groups for PLWH and collected ART for those unable to attend their clinical consultations. In Malawi, Uganda and Zimbabwe, CHWs developed their own strategies of tracing ART defaulters using their financial resources (phone airtime, bicycles, transport costs, time) to find patients.<sup>36</sup>

### Motivation

There was evidence found in studies conducted in Zimbabwe, Zambia, Malawi, Uganda, Ethiopia, Namibia and South Africa, that HIV positive CHWs were motivated to render HIV services to the communities because they

understood what it meant to live with HIV while making a crucial contribution in HIV prevention, adherence and disclosure.<sup>36 38 40 46 49-52</sup>

To help the people to help the sick people, like me, I am HIV positive and that's why I like to be close to those people. (p.115)<sup>38</sup>

CHWs were also motivated and empowered when communities acknowledged and recognised their contribution in society as shown in studies conducted in Uganda.<sup>43 53</sup>

Also, they enjoy the fact that their community acceptance has increased now that they are no longer seen as people providing exclusive HIV/AIDS care alone. (p.8)<sup>53</sup>

Conversely, CHWs in Kenya were demotivated to provide HIV services when communities failed to adopt the promoted healthy behaviours for no apparent reason.<sup>54</sup>

### Working beyond their scope

Community health workers in Zimbabwe, Uganda, South Africa and Kenya provided services that were beyond their scope due to clients being too sick or impoverished.<sup>31 32 42-44 50 55</sup> These tasks included, for example, cooking for their clients, transporting them to health facilities using their own finances and doing laundry for them.<sup>31 32 42-44 50 55</sup> When CHWs performed tasks that they were not supposed to perform, they could not visit as many households as they were supposed to.

The Community Volunteer Worker cooked me food and made sure she mobilised people around me to collect water. (p.7)<sup>42</sup>

Sometimes we find out that a person is staying alone we are able to clean for him/her and we even make soft porridge for the person to eat. Sometimes we are able to wash their clothes so that they can be clean. (p.73)<sup>32</sup>

Community health workers felt compelled to assist households as they felt that they were the sole hope for the person or acted out of generosity.<sup>31 43 50</sup>

### Other stakeholders

Other stakeholders included other healthcare workers, donors and funders that are involved in the CHW programme.

### Other healthcare workers

There was evidence that good communication and relationship between nurses and CHWs strengthened the HIV programme's efficiency.<sup>46</sup> A CHW expressed this:

If children default or are refusing to go to the clinic, they [study nurses] always phone to say 'can you come and assist us and explain this to the child?' Like the case I am referring to, we had to go to talk to this girl ... to say .... 'first of all, take your treatment seriously.

You will have a healthy lifestyle just like anyone else but if you default on taking tablets as prescribed then you will have problems'. She is due for her visit today at the clinic. I will phone [the nurse] to find out whether she has come. (p.10)<sup>46</sup>

### Donors and funders as barriers

Funding from donors, mostly NGOs, was different in each country but its structure and governance affected the CHW programme positively or negatively. In Uganda, the donor-funded CHW programme enabled task shifting through the employment of CHWs thereby facilitating the provision of HIV.<sup>56</sup> However, these donated projects were short-lived, ad hoc and unstable, focusing not only on HIV services, but many other health problems as also seen in Lesotho.<sup>6 56</sup>

You have huge numbers of donors... all of them have implementing partners, many of whom have community-based activities. All the donors have their own priorities. (p.13)<sup>6</sup>

So, 90% of the funding for Option B+ (PMTCT for pregnant mothers), maybe 95%, actually is donor dependent. So if donors woke up tomorrow..., and said that we can't fund you... what would we do? (anonymous interviewee) (p.7)<sup>56</sup>

### Health system constraints

#### Accessibility to provision and receiving HIV services

In five studies conducted in Uganda, Ethiopia, Kenya and South Africa, lack of transport was mentioned as a barrier to accessing households by CHWs and to the continuum of HIV care for referred clients.<sup>8 42 52 54 56</sup> Three of five studies mentioned Uganda as having this barrier.<sup>42 52 56</sup> In one of the studies, a CHW in Uganda articulated the following

We have bicycles, but they are old and we have no spares for them. We are riding a bicycle to villages deep up country and the roads they are very bad and if it is raining we can fail to get there *the bicycles are old.* (p.8)<sup>42</sup>

In one study from Kenya, patients that were referred by CHWs for the continuum of care to the nearest health facilities could not go to the health facilities due to lack of transport that was supposed to be offered by the health system.<sup>54</sup>

#### Governance

For this review, governance related to accountability, collaboration, referral systems, recruitment and the CHWs' workload as factors that hindered or facilitated the provision of HIV services.

In Lesotho, there was evidence that the CHWs were successful in providing HIV services because there was accountability from district down to community levels.<sup>6</sup> A collaborative partnership between the community

programmes and the health systems offered acceleration in improving the CHW performance in SSA countries.<sup>7</sup>

Poor referral systems coupled with a weak link between CHWs and the health facilities in Mozambique and South Africa, were barriers to adequate provision of HIV services by the CHWs. The quote below was from a South African CHW:<sup>57</sup>

There is a need of a referral system in place that can improve a lot but well you cannot plan in the air ... we don't have any funding so we really don't know what is happening with these people. (p.6)<sup>58</sup>

Different countries in SSA had different recruitment strategies for CHWs, which either were barriers to or facilitators of providing HIV services by the CHWs.<sup>7 49 59</sup> In Ethiopia and Zimbabwe, the CHW deployment to areas which they were also residents, facilitated the provision of HIV services since they could find homes and demarcations easily; spoke the same language as the community and were readily accepted by the communities since they knew them.<sup>35 49</sup> In Uganda, the community members recruited CHWs themselves, which facilitated the provision of HIV services because of reduced.<sup>7</sup> However, in Zimbabwe, this also increased fear and HIV stigma among the households since they did not want someone who knew them to know their HIV status.<sup>35</sup>

#### Training

In 22 studies, there was evidence that the lack, improper and inconsistent HIV training was a barrier to rendering HIV services while proper training facilitated the delivery of HIV services by CHWs.<sup>6-8 26 32 36 41 43 46 47 49 51 54 57 58 60-64</sup> A quote below from a Mozambique study shows the improper training received by the CHWs, which led to inefficient delivery of HIV services.

Some partners bypassed MOH guidelines when training CHWs (such as for training about CHW-based defaulter tracing) and the delivery of CHW-led services, leading to confusion and delays with disseminating supplies and services for HIV. (p.16)<sup>6</sup>

Some studies mentioned that the training received by CHWs was not continuous but once-off, failing to respond to the continuously evolving HIV care context.<sup>26 41 62 64</sup> This led to the inefficient delivery of HIV services by CHWs due to lack of proper and correct HIV information.<sup>8 26 41 62 64</sup>

#### Human resources

Studies from Swaziland and South Africa had evidence that shortage of staff was a barrier to provision of HIV services by CHWs.<sup>7 65</sup> Some communities could not be reached due the limited number of CHWs.

#### Incentives

Twelve studies had evidence of negative feelings expressed by CHWs and other stakeholders regarding their remuneration. The CHWs had received no incentives, or if received, it was less. The studies were from

Zimbabwe, Zambia, Malawi, Lesotho, Mozambique, Botswana, Ethiopia, Kenya, South Africa, Uganda and Tanzania.<sup>6 7 26 44 46 52-54 56-60 64 66</sup> CHWs used all their money for the basic life necessities and had no money left to come to work.

The challenge we face in our work is the issue of not receiving any incentive. Because the major concerns in a person's life is soap to wash and food to eat ... in addition to washing and eating, is having shoes on one's feet, because one cannot come here barefooted; especially because some of us come from far, so we have to take public transport to come here. We don't have money for transport. (p.4)<sup>66</sup>

While volunteering without incentives, CHWs in Uganda and Tanzania had to hustle for other jobs to get money which resulted in less time spent visiting households to provide HIV services.<sup>53 56</sup> A CHW in Uganda illustrated this:

Since we are volunteers at this clinic, you find that we can't come every day. We come two days in a week or three, so you find that at least they get actually a burden of work on other days when we are not there. And if you find a small job to work [for] some money, you find that you have missed some for two weeks, hey? And it is a challenge somewhere at the clinic here. (p.7)<sup>56</sup>

### Supervision and support

In South Africa, Zimbabwe, Malawi, Namibia, Uganda and Swaziland, the support and supervision given to CHWs, facilitated the provision of HIV services<sup>6 38 46 49</sup> while the lack thereof, hindered the provision of HIV services.<sup>6 7 32 36 58 61</sup> Regarding support and supervision, a CHW in Zimbabwe said:

When I didn't know something, I would ask ... when we went to give our reports to [CHW supervisor]. She would say ... 'you are supposed to do this, you do this and that'. It was simple. I now knew what I was supposed to be doing. (p.4)<sup>46</sup>

In South Africa, the lack of supervision was an impediment to providing quality HIV services in the community as expressed by a CHW:

You could see that things are going wrong but it's just lack of proper supervision; we need a person, a post at facility level, institution level who will be in charge of community health workers. (p.6)<sup>58</sup>

### Supplies and equipment

Several studies identified both barriers<sup>8 41 42 52 54 56 61 62 64 66-68</sup> to and facilitators<sup>26 51 67 69</sup> of providing HIV services due to lack of equipment and supplies. The lack of supplies and equipment was a barrier in the provision of HIV services by the CHWs. When interviewed a CHW in Lesotho said:

We don't have the necessary supplies to assist the patients back home, such as gloves. That is a great challenge because when the patient has open wounds, his/her family members come to us as CHWs to ask for gloves, which we don't have. (p.5)

Facilitators of HIV services provision included cell phones given to the CHWs to set up appointments and also to remind clients to take their treatment.<sup>26 51 67 70</sup> The use of cell phones between CHWs and their clients improved confidentiality and decreased HIV stigma among the clients<sup>26 51 67 70</sup> since no one could listen to the telephone conversation. Only studies conducted in Uganda and Kenya reported the use of cell phones by the CHWs.

Maybe the client was supposed to come on Wednesday but she is having some commitments that day, now you can even tell her to come on Tuesday, the day she is free so that she doesn't miss [her appointment]. (p.4)<sup>51</sup>

### Social and political constraints

#### Geography

In South Africa, Uganda, Ethiopia and Zimbabwe, CHWs were unable to reach some households that lived too far.<sup>36 47 52</sup>

In some cases, when a phone number was available and the patient lived far away, some CHWs attempted to call patients, but "we use our own personal money so that we manage to contact the person in question". (p.4)<sup>36</sup>

#### Weather

In a study conducted in South Africa, there was evidence that hot weather prevented CHWs to visit households to provide HIV services.<sup>47</sup> CHWs could not travel by foot in extreme heat.<sup>47</sup>

Participants also reported challenges with extreme heat, despite the intervention being conducted during autumn and winter. (p.3)<sup>47</sup>

### Language, religion and culture

In Uganda, there was a language barrier between CHWs and households such that they could not adequately provide HIV services.<sup>42</sup>

Also there is a problem of language barrier, at times we move deep in the villages there and find the language they are using is not the one we are using, so there communication becomes difficult. (p.8)<sup>42</sup>

Additionally, in South Africa, Malawi, Zimbabwe and Kenya, CHWs could not offer their HIV services in some households because of the households' religious beliefs.<sup>36 37</sup> This was also the case for cultural beliefs in the same countries<sup>32 45 50 58</sup> except for Malawi.

They say 'I can't access ART treatment, I rely on prayers, I depend on Jesus'. (p.4)<sup>36</sup>

This people think that they need ancestral ceremony they will be healed. People like this do not even come to the clinic. (p.81)<sup>32</sup>

### Political stability

In South Africa, the CHWs often find themselves jobless and unable to provide HIV services because of short-term contracts based on the current ruling government.<sup>6</sup>

You know in South Africa when a new politician comes he changes everything and there is no continuity. So he comes with his own dream and says this is my dream now this is how we work things. (p.12)<sup>6</sup>

## DISCUSSION

This meta-synthesis showed that there are more barriers than facilitators for the provision of HIV services by the CHWs. Furthermore, this review showed that the same barriers continue to linger in the CHW programme in most sub-Saharan countries. The barriers demonstrated in this review included: HIV stigma that was more common among younger clients; unmet community expectations from the CHWs; lack of CHWs' job descriptions; disjuncture between the priorities of health systems and external donors; health system constraints which included lack of transport to visit households, low CHWs' incentives, lack of CHWs' supervision and lack of equipment. Lastly, social and political challenges, which included the far travelling, distance to the households; different language, religion and culture between CHWs and communities and lack of political buy-in from the relevant political structures were demonstrated as barriers to the provision of HIV services. The positive HIV status of some of the CHWs facilitated the provision of HIV services.

The HIV stigma in communities was a barrier to the provision of HIV services by the CHWs. Furthermore, younger clients in Zimbabwe, Kenya, Malawi, Uganda and South Africa had more HIV stigma than did the older clients.<sup>8 34-38</sup> This is a similar finding as in a study conducted in South Africa, showing that young adults on ART had more HIV stigma and hence hostile towards CHWs. In SSA, the younger population have the highest prevalence of HIV and therefore are a priority group in respect to home-based services offered by the CHWs.

In addition, most recipients of care did not understand home-based HIV services offered by the CHWs whereby they expected money, food and laundry chores from CHWs.<sup>7 42-44</sup> Moreover, when CHWs did not meet their expectations, communities were reluctant to receive HIV services that they offered.<sup>7 42-44</sup> Other studies conducted in SSA, noted a similar finding.<sup>71-73</sup>

When a CHW was HIV positive, it facilitated the provision of HIV services to communities since the CHW could relate to her own experiences of living with HIV as seen in studies conducted in Zimbabwe, Zambia, Malawi,

Uganda, Ethiopia, Namibia and South Africa.<sup>36 38 40 46 49-52</sup>

The lack of job descriptions for CHWs led to CHWs working beyond their scope, spending more time on tasks they are not supposed to do and ultimately missing opportunities to deliver the required HIV services in the households.<sup>31 32 42-44 50 55</sup> The job descriptions were either not there or poorly written.<sup>28 32 54</sup> Swaziland was the only country with a specific framework that list the tasks for different cadres.<sup>57</sup>

This meta-synthesis demonstrated a disjuncture between the CHW programme in the health system and the external donors' funding-initiatives, shown by the sudden discontinuation of projects leaving the communities with unmet needs.<sup>6 7 46 63</sup>

The findings of this review supported the view of many studies conducted worldwide, that the CHWs face many challenges because of the health system constraints. The health constraints shown in this review were: a lack of transport to visit households<sup>8 42 52 54 56</sup>; low or no incentives<sup>6 7 26 52-54 56 58 64</sup>; a lack of supervision<sup>6 7 32 36 38 46 49 58 61</sup> and a lack of equipment.<sup>8 41 42 52 54 56 61 62 64 66-68</sup> While most countries in SSA are low and middle-income countries,<sup>6</sup> it is vital that the MoH prioritise CHW services since HIV is the leading cause of morbidity and mortality in this region.<sup>1</sup>

Regarding the social and political constraints of the communities, this review showed that in South Africa, Uganda, Ethiopia and Zimbabwe, CHWs were unable to provide HIV services due to clients' homes being too far to travel to.<sup>36 47 52</sup> This finding is consistent with findings from other low and middle-income countries.<sup>71</sup> In addition, language barrier, religion and cultural beliefs by communities<sup>32 42 45 50 58</sup> introduced barriers in the provision of HIV services by the CHWs. Depending on their level of prioritisation of the CHW programme, political structures affected the delivery of HIV services by the CHWs.<sup>6</sup> This finding is similar to the ones observed in studies conducted in some SSA countries.

Almost a third of SSA countries were included in this meta-synthesis and therefore the results provides a limited description rather than a generalised view of the barriers to and facilitators of rendering HIV services by the CHWs in SSA. Furthermore, the inclusion of studies published only between 2009 and 2019 adds a limitation to the study. Additionally, the study is limited by the exclusion of grey literature, government documents and unpublished documents posed a limitation in the study. The inclusion of studies published only in the English language, introduced further limitations to the study. Furthermore, the poor disagreement of reviewers shown by a low Kappa statistic result may jeopardise study reliability. Despite the limitations, the authors ensured that all included studies underwent quality appraisal using the QARI tool and that the search strategy was widely inclusive of all relevant studies from SSA.

The lingering barriers to the provision of HIV services by the CHWs over the years may indicate a lack of attention drawn in mitigating these barriers by SSA countries.

Future studies may consider investigating the mitigating interventions that have been attempted or implemented in this region and how they have affected the HIV services provided by CHWs. Although there was evidence that young clients suffered more with HIV stigma than adult clients did,<sup>8 34–38</sup> the studies did not mention the specific ages of the participants. Future studies are required to understand the age dynamics in the HIV stigmatisation. Evidence has shown that in SSA countries CHWs work beyond their scope. Quantifying the time spent by CHWs performing tasks both within and beyond their scope may indicate the magnitude of this finding. Future research should explore the collaboration between the health government and funders in order to identify specific constrictions for targeted mitigating interventions and for improving the rendering of HIV services.

### Implications for practice

Evidence from this meta-synthesis supports the ongoing messages of reducing HIV stigma and increasing adequate HIV knowledge among communities in order to facilitate the provision of HIV services by the CHWs. Furthermore, our study showed the need for clearly defined roles, preferably as signed job descriptions in order to measure the performance of CHWs, health outcomes and service delivery impact.

The donors that collaborate with countries in SSA tend to have their own agenda that is influenced by political structures and may undermine the community needs.<sup>6 7 46 63</sup> Therefore, health governments should have precise contracts with clearly written outcomes and delivery periods when collaborating with external donors and/or funders for the sole benefit of communities.

There was evidence that when the health system provides the CHWs with all the necessary resources supplies and equipment, they are able to render the necessary HIV services effectively and efficiently.<sup>26 51 67 69</sup> This suggests that the importance of inventory within the health system in order to ensure high quality delivery of HIVs services by CHWs.

Our study findings have implications on the recruitment of CHWs based on the evidence that CHWs recruited from their areas of residence facilitated the provision of HIV services. This recruitment strategy alleviates barriers related to transport, language and culture since the CHWs are from the same community that they serve.

### CONCLUSION

In SSA, there are still barriers to the provision of HIV services by CHWs and they are common in most countries as indicated by several studies. Our study found that HIV stigma that was more common among younger clients unmet community expectations from the CHWs; lack of CHWs' job descriptions; disjuncture between the priorities of health systems and external donors; health system constraints; social and political challenges, were

demonstrated as barriers to the provision of HIV services. The positive HIV status of some of the CHWs facilitated the provision of HIV services.

As the fight against HIV goes on, task shifting by using CHWs remains one of the most significant level of care in SSA and if natured effectively, it could lead to better health outcomes as cited in many studies.

Where facilitators of HIV services provision have been identified, these should be intensified and if possible, improved for better utilisation of CHWs and ultimately improved HIV-related health outcomes.

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### REFERENCES

- 1 Kharsany ABM, Karim QA. Hiv infection and AIDS in sub-Saharan Africa: current status, challenges and opportunities. *Open AIDS J* 2016;10:34–48.
- 2 Mwai GW, Mburu G, Torpey K, *et al.* Role and outcomes of community health workers in HIV care in sub-Saharan Africa: a systematic review. *J Int AIDS Soc* 2013;16:18586.
- 3 McCord GC, Liu A, Singh P. Deployment of community health workers across rural sub-Saharan Africa: financial considerations and operational assumptions. *Bull World Health Organ* 2013;91:244–53.
- 4 Schuster RC, McMahon DE, Young SL. A comprehensive review of the barriers and promoters health workers experience in delivering prevention of vertical transmission of HIV services in sub-Saharan Africa. *AIDS Care* 2016;28:778–94.
- 5 Taylor C, Griffiths F, Lilford R. Affordability of comprehensive community health worker programmes in rural sub-Saharan Africa. *BMJ Glob Health* 2017;2:e000391.

- 6 De Neve J-W, Garrison-Desany H, Andrews KG, *et al.* Harmonization of community health worker programs for HIV: a four-country qualitative study in southern Africa. *PLoS Med* 2017;14:e1002374.
- 7 De Neve J-W, Boudreaux C, Gill R, *et al.* Harmonizing community-based health worker programs for HIV: a narrative review and analytic framework. *Hum Resour Health* 2017;15:1–10.
- 8 Trafford Z, Gomba Y, Colvin CJ, *et al.* Experiences of HIV-positive postpartum women and health workers involved with community-based antiretroviral therapy adherence clubs in Cape town, South Africa. *BMC Public Health* 2018;18:935.
- 9 Lazarus JV, Safreed-Harmon K, Nicholson J, *et al.* Health service delivery models for the provision of antiretroviral therapy in sub-Saharan Africa: a systematic review. *Trop Med Int Health* 2014;19:1198–215.
- 10 Bhutta ZA, Sommerfeld J, Lassi ZS. *Distribution and interventions for infectious diseases of poverty.* , 2014: 3, 1–7.
- 11 Chang LW, Mbabali I, Kong X, *et al.* Impact of a community health worker HIV treatment and prevention intervention in an HIV hotspot fishing community in Rakai, Uganda (mLAKE): study protocol for a randomized controlled trial. *Trials* 2017;18:494.
- 12 Moher D, Liberati A, Tetzlaff J, *et al.* Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *Int J Surg* 2010;8:336–41.
- 13 Liberati A, Altman DG, Tetzlaff J, *et al.* The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate health care interventions: explanation and elaboration. *PLoS Med* 2009;6:e1000100.
- 14 Higgins JP, Thomas J, Chandler J. *Cochrane Handbook for systematic reviews of interventions.* John Wiley & Sons, 2019.
- 15 Lockwood C, Munn Z, Porritt K. Qualitative research synthesis: methodological guidance for systematic reviewers utilizing meta-aggregation. *Int J Evid Based Healthc* 2015;13:179–87.
- 16 Blaikie N, Priest J. *Social research: paradigms in action.* Cambridge, UK: Polity Press, 2017.
- 17 The SURE Collaboration. Sure guides for preparing and using evidence-based policy brief 5: 5 identifying and addressing barriers to implementing policy options, version 2.1, 2011. Available: <https://www.who.int/evidence/sure/guides/en/>
- 18 Butler A, Hall H, Copnell B. A guide to writing a qualitative systematic review protocol to enhance evidence-based practice in nursing and health care. *Worldviews Evid Based Nurs* 2016;13:241–9.
- 19 Uwimana J. *Community participation in collaborative tuberculosis and HIV activities including prevention of mother-to-child-transmission (PMTCT): development and evaluation of an intervention to enhance integration of TB/HIV/PMTCT services in a rural area of South Africa.* University of the Western Cape, 2012.
- 20 Otiso L, McCollum R, Mireku M, *et al.* Decentralising and integrating HIV services in community-based health systems: a qualitative study of perceptions at macro, meso and micro levels of the health system. *BMJ Global Health* 2017;2:e000107.
- 21 Besada D, Goga A, Daviaud E, *et al.* Roles played by community cadres to support retention in PMTCT option B+ in four African countries: a qualitative rapid appraisal. *BMJ Open* 2018;8:e020754.
- 22 Pearson A. Balancing the evidence: incorporating the synthesis of qualitative data into systematic reviews. *Int J Evid Based Healthc* 2004;2:45–64.
- 23 Jones T, Evans D. Conducting a systematic review. *Aust Crit Care* 2000;13:66–71.
- 24 Ritchie J, Spencer L. Qualitative data analysis for applied policy research. In: *The qualitative researcher's companion*, 2002: 305–29.
- 25 Wakida EK, Okello ES, Rukundo GZ, *et al.* Health system constraints in integrating mental health services into primary healthcare in rural Uganda: perspectives of primary care providers. *Int J Ment Health Syst* 2019;13:16.
- 26 Mwai GW, Mburu G, Torpey K, *et al.* Role and outcomes of community health workers in HIV care in sub-Saharan Africa: a systematic review. *J Int AIDS Soc* 2013;16:18586.
- 27 Ramjee G, Daniels B. Women and HIV in sub-Saharan Africa. *AIDS Res Ther* 2013;10:30.
- 28 Mundeva H, Snyder J, Ngilangwa DP, *et al.* Ethics of task shifting in the health workforce: exploring the role of community health workers in HIV service delivery in low- and middle-income countries. *BMC Med Ethics* 2018;19:71.
- 29 Ware NC, Wyatt MA, Asiimwe S, *et al.* How home HIV testing and counselling with follow-up support achieves high testing coverage and linkage to treatment and prevention: a qualitative analysis from Uganda. *J Int AIDS Soc* 2016;19:20929.
- 30 Wools-Kaloustian KK, Sidle JE, Selke HM, *et al.* A model for extending antiretroviral care beyond the rural health centre. *J Int AIDS Soc* 2009;12:22.
- 31 Sips I, Haeri Mazanderani A, Schneider H, *et al.* Community care workers, poor referral networks and consumption of personal resources in rural South Africa. *PLoS One* 2014;9:e95324.
- 32 Naidoo N. Effects of implementation of a community health worker programme on HIV testing, treatment initiation, and patient retention in a rural South African district 2019.
- 33 Loeliger KB, Niccolai LM, Mtungwa LN, *et al.* "I Have to Push Him with a Wheelbarrow to the Clinic": Community Health Workers' Roles, Needs, and Strategies to Improve HIV Care in Rural South Africa. *AIDS Patient Care STDS* 2016;30:385–94.
- 34 Busza J, Besana GVR, Mapunda P, *et al.* Meeting the needs of adolescents living with HIV through home based care: lessons learned from Tanzania. *Child Youth Serv Rev* 2014;45:137–42.
- 35 Busza J, Simms V, Dziva Chikwari C, *et al.* "It is not possible to go inside and have a discussion": how fear of stigma affects delivery of community-based support for children's HIV care. *AIDS Care* 2018;30:903–9.
- 36 Cataldo F, Seeley J, Nkhata MJ, *et al.* She knows that she will not come back: tracing patients and new thresholds of collective surveillance in PMTCT option B. *BMC Health Serv Res* 2018;18:76.
- 37 Negin J, Wariero J, Mutuo P, *et al.* Feasibility, acceptability and cost of home-based HIV testing in rural Kenya. *Tropical medicine international health* 2009;14:849–55.
- 38 Visagie BB. *Work meaning constructions by lay community health workers in an HIV/AIDS palliative care setting: community and adult education perspectives.* University of Johannesburg, 2015.
- 39 Mantell JE, Masvawure TB, Mapingure M, *et al.* Engaging men in HIV programmes: a qualitative study of male engagement in community-based antiretroviral refill groups in Zimbabwe. *J Int AIDS Soc* 2019;22:e25403.
- 40 Masquillier C. *Bridging the gap: the intermediate role of the household in community-based support for people living with HIV/AIDS in South Africa.* University of Antwerp, 2016.
- 41 Heunis JC, Wouters E, Norton WE, *et al.* Patient- and delivery-level factors related to acceptance of HIV counseling and testing services among tuberculosis patients in South Africa: a qualitative study with community health workers and program managers. *Implement Sci* 2011;6:27.
- 42 Jack BA, Kirton J, Birakurataki J, *et al.* 'A bridge to the hospice': The impact of a Community Volunteer Programme in Uganda. *Palliat Med* 2011;25:706–15.
- 43 Perry S, Fair CD, Burrowes S, *et al.* Outsiders, insiders, and intermediaries: village health teams' negotiation of roles to provide high quality sexual, reproductive and HIV care in Nakaseke, Uganda. *BMC Health Serv Res* 2019;19:563–.
- 44 Cataldo F, Kielmann K, Kielmann T, *et al.* 'Deep down in their heart, they WISH they could be given some incentives': a qualitative study on the changing roles and relations of care among home-based caregivers in Zambia. *BMC Health Serv Res* 2015;15:36.
- 45 Masquillier C, Wouters E, Mortelmans D, *et al.* HIV/AIDS competent households: interaction between a health-enabling environment and community-based treatment adherence support for people living with HIV/AIDS in South Africa. *PLoS One* 2016;11:e0151379.
- 46 Busza J, Dauya E, Bandason T, *et al.* The role of community health workers in improving HIV treatment outcomes in children: lessons learned from the ZENITH trial in Zimbabwe. *Health Policy Plan* 2018;33:328–34.
- 47 Cobbing S, Chetty V, Hanass-Hancock J, *et al.* "Knowing I can be helpful makes me feel good inside, it makes me feel essential": community health care workers' experiences of conducting a home-based rehabilitation intervention for people living with HIV in KwaZulu-Natal, South Africa. *AIDS Care* 2017;29:1260–4.
- 48 Perry HB, Zulliger R, Rogers MM. Community health workers in low-, middle-, and high-income countries: an overview of their history, recent evolution, and current effectiveness. *Annu Rev Public Health* 2014;35:399–421.
- 49 Celletti F, Wright A, Palen J, *et al.* Can the deployment of community health workers for the delivery of HIV services represent an effective and sustainable response to health workforce shortages? results of a multicountry study. *AIDS* 2010;24 Suppl 1:S45–57.
- 50 Chibanda D, Cowan F, Verhey R, *et al.* Lay health workers' experience of delivering a problem solving therapy intervention for common mental disorders among people living with HIV: a qualitative study from Zimbabwe. *Community Ment Health J* 2017;53:143–53.
- 51 DiCarlo A, Fayorsey R, Syengo M, *et al.* Lay health worker experiences administering a multi-level combination intervention to improve PMTCT retention. *BMC Health Serv Res* 2018;18:1-N.PAG.
- 52 Gusdal AK, Obua C, Andualem T, *et al.* Peer counselors' role in supporting patients' adherence to art in Ethiopia and Uganda. *AIDS Care* 2011;23:657–62.

- 53 Shelley KD, Frumence G, Mpembeni R, *et al.* "Because Even the Person Living With HIV/AIDS Might Need to Make Babies" - Perspectives on the Drivers of Feasibility and Acceptability of an Integrated Community Health Worker Model in Iringa, Tanzania. *Int J Health Policy Manag* 2019;8:538–49.
- 54 Mireku M, Kiruki M, McCollum R. *Context analysis: close-to-community health service providers in Kenya*. Nairobi: Reachout Consortium, 2014.
- 55 . Towards a modified socio-ecological model for community-based HIV care. In: Masquillier C, Wouters E, Mortelmans D, *et al.*, eds. *Proceedings of the European society for health and medical sociology 16th biennial congress; 27-29 June 2016*. Geneva, Switzerland, 2016.
- 56 Doherty T, Besada D, Goga A, *et al.* "If donors woke up tomorrow and said we can't fund you, what would we do?" A health system dynamics analysis of implementation of PMTCT option B+ in Uganda. *Global Health* 2017;13:51.
- 57 Bemelmans M, Baert S, Negussie E, *et al.* Sustaining the future of HIV counselling to reach 90-90-90: a regional country analysis. *J Int AIDS Soc* 2016;19:20751-N.PAG.
- 58 Uwimana J, Zarowsky C, Hausler H, *et al.* Engagement of non-government organisations and community care workers in collaborative TB/HIV activities including prevention of mother to child transmission in South Africa: opportunities and challenges. *BMC Health Serv Res* 2012;12:233.
- 59 Aantjes C, Quinlan T, Bunders J. Integration of community home based care programmes within national primary health care revitalisation strategies in Ethiopia, Malawi, South-Africa and Zambia: a comparative assessment. *Global Health* 2014;10:85.
- 60 Bennett CA. *Urban health systems strengthening: the community defined health system for HIV/AIDS and diabetes services in Korogocho*. Kenya: The George Washington University, 2016.
- 61 Macintyre KCE, Littrell M, Hotchkiss DR, *et al.* Barriers to referral in Swaziland: perceptions from providers and clients of a system under stress. *World Medical Health Policy* 2011;3:1–29.
- 62 Schuster RC, de Sousa O, Rivera J, *et al.* Performance-Based incentives may be appropriate to address challenges to delivery of prevention of vertical transmission of HIV services in rural Mozambique: a qualitative investigation. *Hum Resour Health* 2016;14:1–15.
- 63 Uwimana J, Jackson D, Hausler H, *et al.* Health system barriers to implementation of collaborative TB and HIV activities including prevention of mother to child transmission in South Africa. *Trop Med Int Health* 2012;17:658–65.
- 64 Wademan DT, Reynolds LJ. Interrogating concepts of care in the HIV care continuum: ethnographic insights from the implementation of a "Universal Test and Treat" approach in South Africa. *AIDS Care* 2016;28:52–8.
- 65 Kalonji D, Mahomed OH. Health system challenges affecting HIV and tuberculosis integration at primary healthcare clinics in Durban, South Africa. *Afr J Prim Health Care Fam Med* 2019;11:1–7.
- 66 Seutloali T, Napoles L, Bam N. Community health workers in Lesotho: experiences of health promotion activities. *Afr J Prim Health Care Fam Med* 2018;10:e1–8.
- 67 Chang LW, Njie-Carr V, Kalenge S, *et al.* Perceptions and acceptability of mHealth interventions for improving patient care at a community-based HIV/AIDS clinic in Uganda: a mixed methods study. *AIDS Care* 2013;25:874–80.
- 68 Naidoo N, Matlakala N, Railton J, *et al.* Provision of HIV services by community health workers should be strengthened to achieve full programme potential: a cross-sectional analysis in rural South Africa. *Trop Med Int Health* 2019;24:401–8.
- 69 van Heerden A, Harris DM, van Rooyen H, *et al.* Perceived mHealth barriers and benefits for home-based HIV testing and counseling and other care: qualitative findings from health officials, community health workers, and persons living with HIV in South Africa. *Soc Sci Med* 2017;183:97–105.
- 70 Jennings L, Ong'ech J, Simiyu R, *et al.* Exploring the use of mobile phone technology for the enhancement of the prevention of mother-to-child transmission of HIV program in Nyanza, Kenya: a qualitative study. *BMC Public Health* 2013;13:1131.
- 71 Jobson G, Naidoo N, Matlakala N, *et al.* Contextual factors affecting the integration of community health workers into the health system in Limpopo Province, South Africa. *Int Health* 2020;12:281–6.
- 72 Ludwick T, Morgan A, Kane S, *et al.* The distinctive roles of urban community health workers in low- and middle-income countries: a scoping review of the literature. *Health Policy Plan* 2020;35:1039–52.
- 73 Majee W, Schopp L, Johnson L, *et al.* Emerging from the shadows: intrinsic and extrinsic factors facing community health workers in Western Cape, South Africa. *Int J Environ Res Public Health* 2020;17:3199.