PEER REVIEW HISTORY

ARTICLE DETAILS

TITLE (PROVISIONAL)	Service delivery models that promote linkages to PrEP for adolescent girls and young women and men in sub-Saharan Africa: A scoping review
AUTHORS	Ramraj, Trisha; Chirinda, Witness; Jonas, Kim; Govindasamy, D.; Jama, N.; McClinton Appollis, Tracy; Zani, Babalwa; Mukumbang, Ferdinand; Basera, W.; Hlongwa, Mbuzeleni; Turawa, Eunice; Mathews, C.; Nicol, Edward

VERSION 1 – REVIEW

REVIEWER	Hirschhorn, Lisa Northwestern University Feinberg School of Medicine, medical Social Sciences
REVIEW RETURNED	05-Mar-2022

GENERAL COMMENTS	The authors have embarked on an important goal of understanding service delivery models for AGYM and men. The methodology used to screen the papers in this scoping review is well described and they use relevant ratings for the quantitative and qualitative articles as well as overall reporting and registration. Unfortunately, the article falls a bit short in the goals of identifying SDM and feasibility and acceptability of these models in large part because of the dearth of published research (especially for ?heterosexual men (implied but not stated) and by some blurring between SDM and factors associated with provider characteristics (stigma, communication0 which are independent of these models. In addition, again I suspect reflecting the limitations of the available sources, some of the feasibility and acceptability is theoretical (esp. for men), which should be more clearly differentiated from experience with actual models. i was also unclear why research studies would be considered a SDM (looking towards scale and replication), unless the research is about the SDM. The very high acceptance rate in that context may be explained by the enrollment criteria. Finally, through many sections, the authors comment on AGYW and men, while most of the results are for AGYW. The clear differences in preferences (like in a FP clinic) and individual factors would make a reader question this combining or results. Other comments: Methods: The description of analysis from the qualitative literature needs more details (“analyzed them”).

	I was curious why exclude systematic reviews rather than looking at the bibliography to ensure that the search terms used captured relevant articles Defining what they are considering as Service delivery models, and their feasibility and acceptability would be helpful as well to clarify the results for a reader Were any articles excluded (looking at CASP ratings for example, some are missing many criteria) In the results, initiation and persistence are discussed as the same area of focus (uptake)-however emerging evidence is that while uptake is hard, persistence is even more of a challenge. I would be clearer in separating these out On Page 12-the discussion round preferences and the quote seem more about a one-stop shop versus not integrated (unless one stop is implied in integrated?) Similarly, serodiscordant couples are indeed an important group, however the higher risk if partners are on PrEP. I would think are men not in a monogamous partner and a discussion for this population should be pulled out (or identified as an area for future research) Minor: For the Lubwana article-would be good to know what % of the population were the AGYM and men and if results were disaggregated for them (versus key populations) The discussion has a lot of review of the results. More reflection perhaps on other SDMs (for ART or for other services) would be helpful. AS well as broader efforts to bring men into primary care.

VERSION 1 – AUTHOR RESPONSE

Reviewer: 1
Dr. Lisa Hirschhorn, Northwestern University Feinberg School of Medicine, Northwestern University Feinberg School of Medicine
Comments to the Author:
The authors have embarked on an important goal of understanding service delivery models for AGYM and men. The methodology used to screen the papers in this scoping review is well described and they use relevant ratings for the quantitative and qualitative articles as well as overall reporting and registration. Unfortunately, the article falls a bit short in the goals of identifying SDM and feasibility and acceptability of these models in large part because of the dearth of published research (especially for ?heterosexual men (implied but not stated) and by some blurring between SDM and factors associated with provider characteristics (stigma, communication0 which are independent of these models. In addition, again I suspect reflecting the limitations of the available sources, some of the feasibility and acceptability is theoretical (esp. for men), which should be more clearly differentiated from experience with actual models. i was also unclear why research studies would be considered a SDM (looking towards scale and replication), unless the research is about the SDM. The very high acceptance rate in that context may be explained by the enrollment criteria. Finally, through many sections, the authors comment on AGYW and men, while most of the results are for AGYW.

The clear differences in preferences (like in a FP clinic) and individual factors would make a reader question this combining or results.

Response: Thank you for this comment.
We have added the following to the Policy and programme recommendations and future research areas section:
We identified only one conference abstract that targeted PrEP SDM among heterosexual men. This study was also limited as PrEP was not provided, but hypothetical perceptions of PrEP were assessed. This dearth of published literature highlights a major gap in the knowledge with considerably more research needed to investigate SDMs among men.

We have added the following text to the limitations section:
Furthermore, there were limitations in the sources of evidence as many of the studies evaluated the hypothetical perceptions of PrEP uptake and some of the feasibility and acceptability is theoretical which may not translate to actual realities. Due to the dearth of literature on SDMs among AGYW and men and considering that PrEP roll out in this population in many SSA countries has only recently been maximized, we included research studies to understand the SDMs in this setting. Although the recruitment criteria in a research setting may have resulted in a higher uptake of PrEP, the lessons learnt from this setting could contribute to improving the roll out of PrEP in AGYW and men.

Other comments:

Methods: The description of analysis from the qualitative literature needs more details ("analyzed them"). Thank you for the comment.
We have expanded the text "For qualitative studies, we did a thematic analysis that resulted in organizing the data into themes, authors' interpretations, and quotes and integrated these findings to support the quantitative data."
I was curious why exclude systematic reviews rather than looking at the bibliography to ensure that the search terms used captured relevant articles
Response: Thank you for the comment.
We have added the following text to the information sources and research strategy section: "The reference list of systematic reviews was checked to identify relevant primary studies."
Defining what they are considering as Service delivery models, and their feasibility and acceptability would be helpful as well to clarify the results for a reader
Response: Thank you for the comment. We defined service delivery models as the setting used for delivery of PrEP viz. facility-only, community-only, research-only, mobile-only and a hybrid model encompassing two or more of the above settings.

Were any articles excluded (looking at CASP ratings for example, some are missing many criteria)
Response: Thank you for the comment.
Critical appraisal of evidence from conference abstracts was limited by the information provided in the abstract. As such, many items for conference abstracts on the CASP tool were adjudicated as can't tell or unclear risk. We have added this to the limitation sections.
In the results, initiation and persistence are discussed as the same area of focus (uptake)-however emerging evidence is that while uptake is hard, persistence is even more of a challenge. I would be clearer in separating these out
Response: Thank you for the comment. We have removed reference to persistence.

On Page 12-the discussion round preferences and the quote seem more about a one-stop shop versus not integrated (unless one stop is implied in integrated?)
Response: Thank you for the comment. One stop is implied in integrated models.

Similarly, serodiscordant couples are indeed an important group, however the higher risk if partners are on PrEP. I would think are men not in a monogamous partner and a discussion for this population should be pulled out (or identified as an area for future research)
Response: Thank you for the comment. We have added the following text to the section on Policy and programme recommendations and future research areas: “Further research is needed among couples where one partner is on PrEP, to understand if the perception of risk changes in the partner who is not on PrEP.”

Minor: For the Lubwana article-would be good to know what % of the population were the AGYM and men and if results were disaggregated for them (versus key populations)
Response: Thank you for the comment. This was a conference abstract presented at CROI in 2019. Data was not disaggregated by AGYW and men.

The discussion has a lot of review of the results. More reflection perhaps on other SDMs (for ART or for other services) would be helpful. AS well as broader efforts to bring men into primary care.
Response: Thank you for the comment.
We have added the following text to the discussion.
“Integration of HIV services and other health services has shown to be a useful strategy to improve linkage to HIV care, ART initiation and viral suppression. The most common forms of integration were (i) HIV testing and counselling added to non-HIV services and (ii) non-HIV services added to antiretroviral therapy (ART). The most commonly integrated non-HIV services were maternal and child healthcare, tuberculosis testing and treatment, primary healthcare, family planning, and sexual and reproductive health services.”

“Increasing the engagement of men with health services requires an understanding of the structural barriers that limit their access and requires targeted and adaptive interventions to meet the needs of men. Differentiated service delivery models (for example facility-based and/or community-based adherence clubs and quick pharmacy pick-up) has been shown to improve uptake and retention of men in HIV treatment services.”

VERSION 2 – REVIEW

REVIEWER	Hirschhorn, Lisa Northwestern University Feinberg School of Medicine, medical Social Sciences
REVIEW RETURNED	21-Nov-2022

GENERAL COMMENTS	The authors have completed a scoping review to help understand what are services delivery models which are best poised to increase uptake of PrEP as a means to reduce new infections among AGYW and men. The review is important in helping synthesize the emerging literature on PrEP implementation in SSA and the methods and results are well described with some additions needed detailed below. I was a little unsure why a research site would be included as an SDM, and if there are other ways to help understand (research in a particular site versus something only for research?). My main concern was that the extraction focuses on synthesizing where the PrEP is offered, which is only part of the SDM, , not the strategies or individuals providing etc. as a goal. This is a - limitation especially as the context may differ and strategies such as a dedicated PrEP nurse as noted from one study would be good to include under grouping (like additional staffing (not really task shifting alone versus how described in the discussion

	Introduction When barriers to care are described-if this for any care, or specifically PrEP-related. For example AGYW are often a target for reproductive health with access. This should be clarified (particularly as the reference is HIV) While I agree that “HIV prevention cascades have been proposed as a logical framework to monitor populations at substantial risk for HIV acquisition as they navigate the steps from HIV testing to assessing the risk of the individual to determining PrEP eligibility before PrEP initiation and continuation or discontinuation.”. this needs a reference and does not seem to be related to the discussion of service delivery models (SDM, not be confused with shared decision making-I find the acronym may be a challenge) While initiation is indeed critical, there is growing evidence that ignoring support for persistence results in the vast majority of PrEP initiators not remaining on PrEP even if HIV risk continues. This should be noted in the introduction and throughout (it is mentioned in some of the articles reviewed) The last paragraph is confusing-the authors start with implementation science, then discuss who is not starting PrEP, and then transition to SDM. This needs to be clarified. Methods The authors need to include when the literature review was conducted as this is a very active field (I suspect 2020 or early 2021 as most are from 2020 or earlier) Is the PRISMA-ScR included in the appendix? What is “IS” (table 2)-please spell out all acronyms at the bottom of a table In the result, pulling out a bit more about any sub analyses for men is needed Discussion The comment (p14, line 24 about additional time needs to be supported by the findings 9esp as the they looked at attitudes) -for example, while more time versus a RH visit, would be more efficient than having to go to 2 sites The discussion about integration of HIV services (and other areas where HIV SDM is used to compare) is a bit confusing and needs to be better linked as to why they are relevant and if other integration models of care, growing potential for PHC as a site and anything known about stigma as determining preference. The discussion about gaps (p16 first paragraph) is important and would send more time about heterosexual men and any insights from other work to engage this population in PHC in these settings. Similarly, the training on PrEP is certainly important but need to also discuss effective training and other strategies to change culture, reduce stigma around PrEP. Similarly a note that some men who may identify as heterosexual may also have same sex encounters as a risk for exposure and how to address stigma for bisexual individuals.

	For limitations would add the lack of updates since completed, as well as not having details on strategies and the uncertain utility of research sites Finally in the conclusion-hard to make the statement about subpopulations given the lack of studies on men

VERSION 2 – AUTHOR RESPONSE

Comment	**Response**
The authors have completed a scoping review to help understand what are services delivery models which are best poised to increase uptake of PrEP as a means to reduce new infections among AGYW and men. The review is important in helping synthesize the emerging literature on PrEP implementation in SSA and the methods and results are well described with some additions needed detailed below. I was a little unsure why a research site would be included as an SDM, and if there are other ways to help understand (research in a particular site versus something only for research?). My main concern was that the extraction focuses on synthesizing where the PrEP is offered, which is only part of the SDM, , not the strategies or individuals providing etc. as a goal. This is a - limitation especially as the context may differ and strategies such as a dedicated PrEP nurse as noted from one study would be good to include under grouping (like additional staffing (not really task shifting alone versus how described in the discussion	Thank you for the comment. We have now included some of the strategies/interventions and individuals providing the interventions in our syntheses as suggested. In addition, the following text in the limitation section notes that the inclusion of research studies is a limitation of the scoping review: “Due to the dearth of literature on SDMs among AGYW and men and considering that PrEP roll out in this population in many SSA countries has only recently been maximised, we included research studies to understand the SDMs in this setting. Although the recruitment criteria in a research setting may have resulted in a higher initiation of PrEP, the lessons learnt from this setting could contribute to improving the roll out of PrEP in AGYW and men.” We have also added the following text to the limitations section: “Also, the extraction focuses on synthesizing the setting where PrEP is offered, which is only one component of the SDM and does not focus on other components such as the strategies or individuals providing PrEP.”
Introduction When barriers to care are described-if this for	Thank you for the comment.

any care, or specifically PrEP-related. For example AGYW are often a target for reproductive health with access. This should be clarified (particularly as the reference is HIV)	The barriers described in this review are related to PrEP. We have checked the full manuscript to clarify that the description of barriers to refers to PrEP initiation or use and have amended text in the following sections to reflect this: Page 5: Background Page 5: Methods Page 17: Conclusion
While I agree that "HIV prevention cascades have been proposed as a logical framework to monitor populations at substantial risk for HIV acquisition as they navigate the steps from HIV testing to assessing the risk of the individual to determining PrEP eligibility before PrEP initiation and continuation or discontinuation.". this needs a reference and does not seem to be related to the discussion of service delivery models (SDM, not be confused with shared decision making-I find the acronym may be a challenge)	Thank you for the comment. The reference has been added. We have reformatted the structure of the paragraph. The inclusion of the PrEP cascade is to give the reader a diagrammatic presentation of the step in the cascade which focuses on PrEP initiation.
While initiation is indeed critical, there is growing evidence that ignoring support for persistence results in the vast majority of PrEP initiators not remaining on PrEP even if HIV risk continues. This should be noted in the introduction and throughout (it is mentioned in some of the articles reviewed)	Thank you for the comment. We concur that whilst uptake on PrEP is hard, persistence on PrEP is a bigger challenge. However, the main outcome of the scoping review was linkage to PrEP care and we did not want to discuss initiation and persistence as the same area of focus.
The last paragraph is confusing-the authors start with implementation science, then discuss who is not starting PrEP, and then transition to SDM. This needs to be clarified.	Thank you for the comment. We have removed the highlighted text from the paragraph and focused only on the aim and objectives of the review. PrEP is an emerging prevention implementation science (IS) research area. However, at present, there is a gap in knowledge on the characteristics of AGYW and men who initiate PrEP compared to those who do not initiate PrEP.
Methods The authors need to include when the literature	Thank you for the comment.

review was conducted as this is a very active field (I suspect 2020 or early 2021 as most are from 2020 or earlier)	In the search strategy, no restrictions on the date of publication were applied.
Is the PRISMA-ScR included in the appendix?	The PRISMA-ScR is included.
What is "IS" (table 2)-please spell out all acronyms at the bottom of a table	Thank you for the comment. IS referred to implementation science, we have removed the acronym and written this out in full text.
In the result, pulling out a bit more about any sub analyses for men is needed	We are unable to pull out information specific to men since the studies included AGYW and the results were not broken down by gender.
Discussion The comment (p14, line 24 about additional time needs to be supported by the findings 9esp as the they looked at attitudes) -for example, while more time versus a RH visit, would be more efficient than having to go to 2 sites	Thank you for the comment. We added the following text "Roche et al found in a study on integrated PrEP-FP service delivery that youth-friendly clinics are "low-hanging fruit" for PrEP delivery. The youth friendly approach and clinic flow implemented at one of the clinics required less room-to-room movement thus making PrEP delivery to AGYW easier. The second clinic which offered PrEP like any other outpatient service, with clients receiving HIV testing services at HTS points, PrEP counselling and clinical review in consultation rooms, and prescription dispensing at the pharmacy was not favored by AGYW who did not want to queue at each service point and discuss their sexual activity in crowded FP consultation rooms."
The discussion about integration of HIV services (and other areas where HIV SDM is used to compare) is a bit confusing and needs to be better linked as to why they are relevant and if other integration models of care, growing potential for PHC as a site and anything known about stigma as determining preference.	Thank you for the comment. We have added the following text to the discussion: "Innovative adaptations are needed at public health facility level to overcome PrEP delivery challenges and barriers that are faced by users and staff. Irungu et al reported adaptations within integrated models such as fast tracking PrEP users to minimise waiting times and clinicians dispensing PrEP from clinical rooms which removed waiting times at the pharmacy and mitigated any stigma associated with being seen at a pharmacy that mainly dispenses ART."
The discussion about gaps (p16 first paragraph) is important and would send more time about heterosexual men and any insights	We have added the following text.

from other work to engage this population in PHC in these settings. Similarly, the training on PrEP is certainly important but need to also discuss effective training and other strategies to change culture, reduce stigma around PrEP. Similarly a note that some men who may identify as heterosexual may also have same sex encounters as a risk for exposure and how to address stigma for bisexual individuals.	Gender-transformative interventions such as "One Man Can", a rights-based gender equality and health programme intervention, and Decentralized Medication Delivery (DMD) have shown success in reducing masculinity-related barriers to engaging in HIV prevention services (Fleming et al., 2016). A recent study conducted in South Africa revealed that these differentiated service delivery models have the potential to increase adherence to medication among men in particular (Fox et al., 2019). Other interventions/ models designed to help South African men initiate ART and remain in care such as the MINA and Coach Mpilo campaigns, which provide men with information and support that help them to get tested for HIV, to initiate and remain in care (The Aurum Institute, 2021; Hlongwa et al, 2022), could also be used to promote PrEP initiation among men.
For limitations would add the lack of updates since completed, as well as not having details on strategies and the uncertain utility of research sites	Thank you for the comment. The following text in the limitation section notes the lack of updates since completion of the review: In addition, due to a lag in adding and indexing articles in various online databases, our review could fail to locate the most recent publications and research on SDMs for PrEP initiation. The following text in the limitation section notes that the inclusion of research studies is a limitation of the scoping review: "Due to the dearth of literature on SDMs among AGYW and men and considering that PrEP roll out in this population in many SSA countries has only recently been maximised, we included research studies to understand the SDMs in this setting. Although the recruitment criteria in a research setting may have resulted in a higher initiation of PrEP, the lessons learnt from this setting could contribute to improving the roll out of PrEP in AGYW and men."

	We have added the following text to the limitations section: "Also, the extraction focuses on synthesizing the setting where PrEP is offered, which is only one component of the SDM and does not focus on other components such as the strategies or individuals providing PrEP."
Finally in the conclusion-hard to make the statement about subpopulations given the lack of studies on men	Thank you for the comment. We have removed the highlighted text from the conclusion: Community-based models at convenient locations were favoured by both AGYW and men.

VERSION 3 – REVIEW

REVIEWER	Hirschhorn, Lisa Northwestern University Feinberg School of Medicine, medical Social Sciences
REVIEW RETURNED	28-Dec-2022

GENERAL COMMENTS	The authors have done a good job addressing the comments. I would encourage 2 additions to address comments which were not fully addressed in the response. 1. Please include when the last literature was pulled-in the future knowing that the scan stopped in 2021 or 2022 would be important 2. The tile includes men but the response notes the inability to disaggregate for heterosexual men from AGYW. This should be added to the limitations

VERSION 3 – AUTHOR RESPONSE

Comment	**Response**
Please include when the last literature was pulled-in the future knowing that the scan stopped in 2021 or 2022 would be important	We have added the following text to the eligibility criteria section under methodology "…(last literature search was conducted in July 2021)."
The tile includes men but the response notes the inability to disaggregate for heterosexual men from AGYW. This should be added to the limitations	We have added the following text to the limitations section: "Additionally, sub analyses specifically for heterosexual men could not be done since

	results from some of the studies were not disaggregated by gender.”