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Are facility service delivery models meeting the sexual and reproductive health needs of adolescents in Sub-Saharan Africa? A qualitative evidence synthesis

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Abstract

Background Adolescents in Sub-Saharan Africa (SSA) face significant health and social challenges related to sexual and reproductive health (SRH), including unwanted pregnancies, unsafe abortions, and sexually transmitted infections (STI). Barriers to information and services are compounded by lack of access to appropriate information, fear of being judged, health provider attitudes and contextual factors such as culture, religion, poverty, and illiteracy. Facility-based service delivery models for adolescents offer a structured environment and provide an opportunity to deliver such information and services. The review critically examined how well these models meet the SRH needs of adolescents in SSA.

Methods A systematic search was conducted using five databases: Web of Science, MEDLINE, Scopus, PubMed, and Google Scholar. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines were followed to maintain transparency and completeness. Covidence software was used for screening and data extraction, and NVIVO 12 PRO was used to manage the analysis. A narrative synthesis using Thomas and Harden's thematic analysis was used to identify themes.

Results The search yielded 14,415 articles, and 20 papers met the inclusion criteria and were included in this review. From the findings, adolescents expressed the need for comprehensive SRH information, adolescent-friendly facilities, parental and male involvement, and respectful healthcare providers. Three facility-based adolescent-friendly SRH delivery models are used in SSA: Stand-alone clinics, Youth-friendly corners, and Integrated/mainstreamed models. Adolescent-friendly interventions, friendly staff, and accessibility were reported as facilitators to services meeting the needs of adolescents and promoting positive experiences. However, several barriers were identified: negative attitudes of health workers, financial constraints, transportation challenges, waiting time, intimidating environments, and lack of confidentiality pose a challenge to the effectiveness of the model.

Conclusion Facility-based SRH service delivery models can improve access to information and services when complemented with community-based interventions, adolescent-friendly providers, and assurance of service accessibility. However, significant gaps, such as healthcare providers' negative attitudes and behaviours, concerns about privacy

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and confidentiality, financial constraints, and transportation challenges, limit their effectiveness. These findings call for expanding out-of-facility services, adopting mHealth solutions, enhancing provider training, strengthening confidentiality, and reducing financial barriers to ensure equitable and effective access to services.

Keywords Adolescents, Adolescent-friendly services, Delivery models, Sexual and reproductive health, Sub-Saharan Africa, Health facilities

Background

The World Health Organisation (WHO) classified adolescence as a period between 10–19 years [1]. The WHO also defines adolescent sexual and reproductive health (SRH) as the physical and emotional well-being of adolescents. This includes their ability to remain free from unwanted pregnancy, unsafe abortion, sexually transmitted infections (STIs), including human immunodeficiency virus (HIV), and all forms of sexual violence and coercion [2]. WHO further highlighted the need for adolescents to have equitable, accessible, acceptable, appropriate, and effective SRH services to improve their health and well-being [3]. Access and use of these services, such as comprehensive sexuality education (CSE), contraceptive services, antenatal, intrapartum and postnatal care, safe abortion care, sexually transmitted infections prevention and care, HIV prevention and care, prevention of violence against women and girls, and harmful traditional practices prevention are essential to reducing the burden of SRH problems among adolescents [4–6].

However, globally, particularly in Sub-Saharan Africa (SSA), adolescents continue to face challenges accessing SRH services [7, 8]. These challenges to accessing SRH service in SSA include unaffordability and lack of information and knowledge about services, SRH religious and cultural norms that impact service engagement, judgemental attitudes of healthcare providers and poor quality of services as well as lack of privacy and confidentiality [9–20].

Inadequate access to SRH services exposes adolescents to increased risk of HIV/STI infection, early marriage, unmet need for family planning and unintended pregnancy, among others [21–25]. For example, in 2021, there were 413,000 (16/1000 lives) adolescent deaths in SSA, and AIDS-related deaths accounted for about 130,000 of these [26, 27]. The use of modern contraceptives among sexually active adolescents in SSA remains low, with only (25.4.%) reporting using modern contraceptives in 2024 [28]. Adolescent girls experience high rates of unplanned pregnancies, which is expected to increase to 1.35 billion by 2050 [20]. Maternal mortality disproportionately affects adolescents as they are at higher risk of eclampsia, puerperal endometritis and systemic infections [2]. High rates of morbidity and mortality among adolescents aged 15–19 years are exacerbated by 3.9 million unsafe abortions each year [29].

Many countries in SSA have implemented various adolescent-friendly health services and health facility-based models to address the challenges of access and the poor quality of adolescent SRH services to reduce the burden of SRH problems [8]. For instance, Uganda has implemented training for healthcare providers and reorganised health facilities to improve the provision of youth services [30]. Similarly, South Africa, through its National Adolescent-Friendly Initiative (NAFCI), has trained healthcare professionals, improved health facilities and multimedia sensitisation to scale up adolescent-friendly service provision [31]. A youth-friendly programme in which services are provided in separate rooms and healthcare workers are trained in youth-friendly service provision was also implemented in Ethiopia [32].

Simon et al. (2015), the United Nations Population Fund (UNFPA) (2020), and WHO (2024) have documented a range of recommended health facility-based SRH service delivery models, including integrated/mainstreamed models (integration into existing services), separate adolescent and youth spaces in private and public health facilities, and stand-alone clinics [33–35]. Simon et al. (2015) synthesise evidence from existing reviews and provide a decision-making tool for adopting a facility-based adolescent-friendly service delivery model based on the country context, the target population, desired behavioural and health outcomes, and SRH services to be offered, factoring in sustainability and scalability [36]. Similarly, The Family Planning High Impact Practices (HIPs) (2021) also recommended a system-based approach where policies and programmes across the entire health system are adapted to respond to the diverse SRH needs of adolescents and their preferences [20]. However, these frameworks provide limited insights into adolescents' perceptions of these models and their effectiveness in addressing their needs.

This current review aims to systematically document evidence from qualitative and mixed-method studies (containing qualitative data) to understand the extent to which current facility-based SRH care delivery models meet adolescents' SRH needs. Specifically, we explore the SRH needs of adolescents in SSA and how they perceive

health facility-based delivery models meeting these needs. By synthesising evidence on adolescents' perceptions and experiences, this qualitative evidence synthesis seeks to provide actionable policy recommendations for improving the implementation of SRH service delivery models to address the SRH needs of adolescents in SSA.

Methods

This qualitative evidence synthesis is part of PhD study of YS, and the protocol was registered with PROSPERO: ID CRD42022383912.

Search strategy

A comprehensive literature search was conducted on the Web of Science, MEDLINE, Scopus, Pubmed, and Google Scholar to identify studies published on models and adolescent perceptions of the models used. A combination of keywords and key terms from the population, intervention, outcomes, and context (PICO) was used in searching for eligible studies [25]. We developed search terms: "Adolescents *OR* Adolescence *OR* Young People *OR* Youths *OR* Teenagers *OR* Boys and Girls" *AND* "Sexual and Reproductive Health *OR* Sexual Health *OR* Reproductive Health OR Sexually Transmitted Diseases OR Comprehensive Sexuality Education OR Antenatal Care OR Postnatal Care OR HIV OR Family Planning/ Contraceptive Service OR Abortion Care OR FGM OR Child Marriage OR Gender-Based Violence" *AND* " Health Service Models *OR* Service Delivery Models *OR* Service Delivery Strategies OR Healthcare Delivery Strategy *OR* Service Delivery Guidelines OR Health Care Delivery" *AND* "Needs *OR* Problems *OR* Demands *OR* Requirements *OR* Issues *OR* Matters *OR* Concerns" *AND* "Perception *OR* Feelings *OR* Opinions *OR* Thoughts *OR* Views" (Details in Table 1 of supplementary materials). Boolean operators such as 'OR', 'AND', wildcards (e.g., ?), and truncations (e.g., *) were used to capture variations of key search terms and to narrow the search. Additional studies were identified by hand-searching and reviewing reference lists of papers included in the review. The review process used the Preferred Reporting Items for Systematic Reviews (PRISMA) to select papers for inclusion [26]. Two researchers, YS and SS, meticulously screened and identified articles that met the review's inclusion criteria.

Inclusion and exclusion criteria

The review included qualitative and mixed methods studies that contained qualitative data. The included studies focused on adolescents' perceptions of their SRH needs, access to facility-based services, and experience obtaining SRH services in health facilities. The review focuses on health facilities (public and private) since they are the primary point of care for adolescents seeking SRH service in SSA and the primary target of government and bilateral partner investments such as The United States President's Emergency Plan for AIDS Relief (PepFAR) [37, 38]. Additionally, health facility-based services with linked community components such as social clubs, family clubs and outreach services were included. Search dates for the articles range from 2009 to 2024. This was done to select articles published after the widespread implementation of the WHO framework for adolescent-friendly services [39].

This review excluded quantitative studies and studies conducted outside SSA. Papers not written in English were excluded based on time constraints and resource challenges to source bespoke translation services appropriate for translating evidence-informed studies.

Selection of studies

The search output was exported into Endnote 20 for reference management and removing duplicate articles. The search results were exported from Endnote to Covidence [40]. Two reviewers (YS and SS) screened study titles and abstracts to ensure they matched the inclusion criteria. They also assessed the complete text of papers whose abstracts suggested a good fit with the study inclusion criteria. A senior researcher (FM) with extensive experience in systematic reviews conducted the final screening in consultation with YS. Twenty (20) studies were eligible for this review, as indicated in PRISMA flow diagram Fig. 1.

Assessing the methodological limitations of studies

Quality assessment was conducted using the Critical Appraisal Skills Programme Checklist (CASP) for qualitative studies [41] to assess the methodological limitations and relevance of the included studies. YS performed the quality appraisal, which was then shared with the review team. A numerical score was allocated to each criterion and used as a ranking mechanism for the quality of the studies (Table 3 of supplementary materials). The studies were ranked as poor (0–4), moderate (5–7) and high quality (8–10).

Data extraction

Two reviewers (YS and SS) developed a data extraction template. The template included the authors' names, year of publication, study settings, design, aims and objectives, age of participants, type of SRH clients, data collection methods, and analysis approach. Data extraction was carried out using Covidence software [40]. The review collated and explored the results of each study using author interpretations and verbatim quotes from participants.

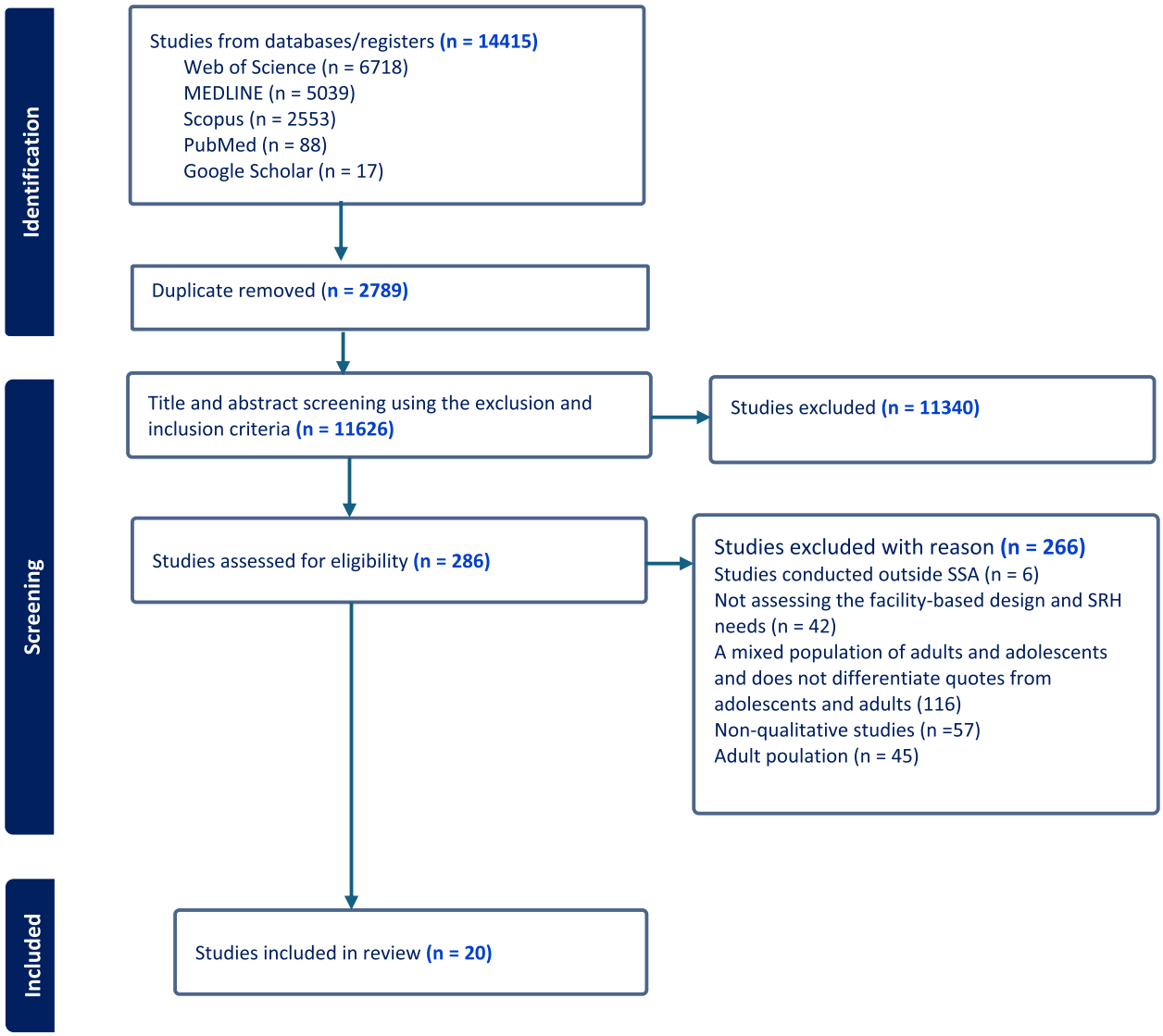

Fig. 1 PRISMA flow diagram

Table 2 in the supplementary materials summarises the characteristics of the included studies and the results.

Data synthesis

The extracted data was exported to NVIVO 12 PRO to manage the analysis. The thematic synthesis approach of Thomas and Harden (2008) was used to analyse the extracted data, which included line-by-line coding and developing descriptive and analytical themes [42]. Two reviewers, YS and SS, extracted findings from the studies. YS organised the data in NVIVO and conducted line-by-line coding of the extracted text. These codes were organised into descriptive themes relevant to the research questions. Afterwards, YS and SS developed analytical themes inductively. The reviewers identified SRH needs, barriers, and facilitators for facility-based service delivery models meeting these needs based on adolescents' experiences receiving SRH services at the facilities.

The developed themes were refined through discussions and continuous consultation between YS and SS until the final themes were considered to represent the review questions adequately. Four senior researchers (FM, ND, ANL, and MC) reviewed the final themes. The synthesis findings are presented by theme to highlight how facility-based service delivery meets the needs of adolescents in SSA.

Results

Description of the included studies

Twenty papers were included in this review: three from West Africa [43–45], seven from East Africa [46–52], nine from South Africa [53–61] and one from Central Africa [62]. Seven studies focused on general adolescent SRH services [43, 46, 48, 53, 55, 58, 59]. Six studies were on HIV [46, 48, 53, 55, 58, 59], two on antenatal care (ANC) [60, 61], one on postnatal care (PNC) [57], two on contraceptives [44, 45], HIV & contraceptives [56] and HIV & SRH [54]. All studies reported adolescents' perceptions regarding access to services and their experience seeking SRH services offered at health facilities using different delivery models to address their SRH needs.

SRH needs for adolescents

Adolescents expressed varied SRH needs. However, these were broadly categorised under three themes: The need for SRH information and services, adolescent-friendly services and parental and male involvement.

Need for SRH information and services

Adolescents expressed their need for SRH information to improve their knowledge of parenting, self-care, abstinence from sex, relationships and prevention of STIs and unwanted pregnancies [49, 52, 55–58, 60]. *''What I would have wanted to know is how you handle a child and how to care for a child. I think once you have given birth, you no longer have an option; you have to know"* [57]. *"I want to know if I can have a boyfriend because every time I ask my mum, she tells me not to; I would also love to learn about safe sex and motherhood" (female, aged 14 years)* [55].

Community sensitisation to raise awareness of family planning, positive attitudes towards pregnant adolescents, and support through reassurance were also expressed by adolescents [44, 47]. *''There is a need to sensitise the community on how to socialise with pregnant adolescents so that they exercise empathy and learn to live with some of us because we need their support too"* [47]. *''We want that [family planning promoters] raise awareness at the family level [most people] do not go to school, so [family planning promoters] have to come to the families, to the parents of the students, to explain to them that it is not taboo to take the time to talk with their daughter"* [44].

Adolescents expressed their need for family planning, STI/HIV testing, treatment and prevention, cervical cancer screening, pregnancy prevention and the human papillomavirus (HPV) vaccine [43, 52, 54, 55, 59]. *"As you know, we the youth may want to have sex and need protection … but sometimes they [condoms] are faulty … What we want is that they put for us dispenser boxes for good condoms in the community"* [39].

The need for these services is influenced by adolescents understanding of the benefits of these services [43, 55, 59]. For instance, the desire to live healthily and be productive motivates adolescents to use antiretroviral therapy (ART) services. Looking healthy also helps conceal their HIV status [55, 59]. *''I like taking my treatment because it helps me. It makes me look like I don't have what I have. Like, people can't see that I have it. It makes me feel healthy, and people don't know I have it"* [59].

Adolescents also understand that contraceptives enable them to have control over their sexual lives and can avoid early pregnancy, allowing them to complete their education [43, 45, 49, 56]. *''Due to my education, my mother personally took me to the health centre for me to use one of the contraceptives"* [43]. Moreover, perceived seriousness and fear of social consequences, such as embarrassment for being pregnant and infected with HIV, motivates many adolescents to seek information and use SRH services [43, 49, 53].

Adolescent friendly services

Adolescents expressed a need for affordable services, friendly healthcare providers, less waiting time and the provision of SRH services in the community [44, 52, 54, 58, 62]. *''For me, the condom must be free. Sometimes, I even don't have 100 Fc ($0.10 U.S.). At the moment when I want to have sex with my girlfriends, I do it without a condom"* [62]. They expressed the need for healthcare providers to be respectful, non-judgmental, empathetic, compassionate, respectful of their privacy and fair during delivery [44, 54, 58]. *''When the leaders (healthcare providers) are friendly and free, we can also be open to them"* [54]. *"They should not consider adults more than us when we go there if they want to encourage us to use contraceptives"* [44]. *''The adolescents frequently expressed the need for health providers to respect their privacy, be more friendly and less judgemental".* This need was reported in a study conducted in Zambia [54].

Furthermore, they expressed the need for SRH services to be integrated (one-stop centres) and youth-friendly to facilitate easy access and navigation through the health facilities for adolescents [44, 47, 53, 57, 58]. *''It would be appropriate to offer the drug where other services like social harm or family planning services are offered. Therefore, if there were a special room where someone would be tested for HIV and given the drug afterwards, then people would be assisted easily"* [53].

Adolescents also expressed the need for clean and improved service provision environments, working conditions, and availability of staff, equipment and

medications to improve the quality of services [44, 47, 57, 58]. *''Construct a labour suite for pregnant women, build more health facilities, and install scan machines for pregnant women, and the government should increase the number of health facilities and equip them with drugs"* [47].

The need to obtain confidential services to avoid stigmatisation and being judged was also highlighted [49, 53, 54, 56]. *''If we have a place where one can ask questions and get answers without physically meeting the person answering you, Like a hotline"* [49]. *''Maybe they should be packaged like contraceptive pills and not like antiretroviral drugs (ARVs) so that not everyone should know that I am using pre-exposure prophylaxis (PrEP)"* [53].

Adolescents emphasised the need to increase the number of staff to ensure fewer waiting times in health facilities [47, 54, 58]. *''The number of health workers should also be increased to minimise the waiting time, as this will encourage more adolescents to seek maternal health services"* [47]. The need for adolescents only space and room where they would feel free to express themselves and interact was also expressed by adolescents [50, 54, 58]. *''They should separate us from old people and help us with what is needed for us children like SRH [sexual and reproductive health]"* [50].

Additionally, they expressed the need for services like family planning, PrEP, and sexuality education to be available in schools, where they have a sense of ownership and comfort in improving understanding and ease of access to services [44, 53, 56]. *''Because most of the youth or let's say three-quarters of the youth we meet at school... As such, it can be good if these drugs are received in school"* [53].

Parental and male involvement in adolescent SRH service provision

Both unmarried and married adolescent girls in studies conducted in Guinea and Uganda particularly highlighted the need to involve parents and males in SRH services provision as essential in increasing their access, given their role as critical decision-makers and financial and moral support [44, 47]. *"We recommend that [family planning promoters] raise awareness of parents so that they involved themselves in their children's family planning"* [44]. In the Ugandan study, both married and unmarried adolescent girls emphasised the need for policies to make it mandatory for male partners to accompany their wives to antenatal care services [47]. They view the lack of male involvement as affecting their access and utilisation of services due to their reliance on them for support. *''We look up to our men; for that reason, they make most of the decisions about pregnancy. They pay hospital bills and transportation, among other basic needs. It will be good if they accompany us to the hospital, so they can understand the challenges we face on the way and in the hospital"* [47].

Types of facility service delivery models

The facility-based service delivery models were classified as adolescent-friendly or un-specified [33].

Eleven studies reported three facility-based adolescent-friendly service delivery models as classified by Simon et al. (2015).

1. Stand-alone Clinics: This was reported in two studies conducted in Uganda [47, 48]. These clinics are separate health centres or clinics specifically designed to provide a wide range of clinical services to adolescents and youths alone [33]. The intended goal of this model is to create an environment that improves access and uptake of SRH services for adolescents [33]. Health facilities using this model have implemented adolescent-friendly interventions such as community sensitisation, counselling, educational messages and adherence tools (alarm clocks and adherence cards) for adolescents to achieve this objective. The focus of one of the clinics is on HIV prevention, care and treatment services, and sexual reproductive health services to women at high risk of HIV infection, such as female sex workers [48], while the other provides comprehensive SRH services to adolescents [47]. Both clinics are led initiatives by non-governmental organisations (NGOs).
2. Youth-Friendly Corners (Separate Spaces): This was reported in five studies conducted in Ghana, Namibia, Uganda, Malawi and Zambia [43, 46, 52–54]. SRH services are provided to adolescents in separate rooms, buildings or on specific days within the health facility by trained SRH providers [33]. The youth corners in Namibia and Zambia are mainly dedicated to providing PrEP and HIV services [46, 54]. The Youth Corner in Malawi was dedicated to providing HIV testing, syndromic management of STIs, family planning, and condom distribution [53]. The one in Ghana was a dedicated project to reduce adolescent birth rates and maternal mortality rates in Ghana's Brong Ahafo Region [43]. The Ugandan one was established to provide SRH services to Slum dwellers in Kampala [52].
3. Integrated/Mainstreamed Models: Four studies conducted in Kenya, Zambia, and South Africa reported this [49, 55, 56, 59]. This model allows for integrating adolescent SRH services into healthcare providers' routine service delivery. The model requires all healthcare providers and support staff to be trained

to provide the high-quality SRH services needed by adolescents [33].

The types of service delivery models used to provide service to adolescents were not reported in nine studies conducted in Guinea, Uganda, Tanzania, Zambia, South Africa, Namibia and the Democratic Republic of Congo and were classified as 'unspecified models [44, 45, 50, 51, 58, 60–62]. One study in Ghana reported two service delivery models: a youth-friendly corner and a facility without a youth corner [43].

Adolescent perceptions of facility-based SRH service delivery models

Eight themes emerged from the synthesis of studies. The themes were categorised as facilitators (three themes) and barriers (five themes) to adolescent SRH service delivery models meeting the SRH needs of adolescents in SSA.

Facilitators to facility-based adolescent SRH service delivery models

Three themes were identified as facilitators of facility-based service delivery models that met the needs of adolescents: Adolescent-friendly interventions, Respectful and friendly staff, and Accessibility of services.

Adolescent-friendly interventions to improve service delivery

Twelve studies conducted across various SSA countries reported positive aspects of adolescent-friendly facility-based models [43, 46–49, 51–56, 59]. Adolescents in a study conducted in Malawi and Zambia highlighted the importance of peer navigators in youth-friendly corners who helped them navigate through the health facility, further improving access to SRH services they need [53, 54]. In five studies conducted in Ghana, Uganda, Malawi and Zambia, adolescents mentioned that youth-friendly corners were particularly effective in creating a comfortable environment for them to discuss their SRH problems with nurses and peers without fear of stigma [43, 52–54]. As one adolescent put it, *"It is a place with no big people, no parents… and people under (same age as herself), and so you just feel free"* [54]. Moreover, creating youth-specific clinic days in the health facility allows healthcare providers to prioritise the adolescents' SRH needs [54].

Adolescents also reported improved knowledge and understanding of SRH with the community sensitisation component by the healthcare providers in the integrated, stand-alone clinics and youth-friendly corners [43, 49, 54, 56]. *"'Like contraceptives, I did not know the different types, but now I have a little bit of knowledge about them"* [56]. Moreover, adolescents reported that support groups, such as family clubs, social clubs, youth clubs and risk of treatment failure clinics (ROFT) available in both youth-friendly corners and integrated clinics, facilitate their access to psychological support and enhance adherence, utilisation and access to SRH services [43, 52, 54–56, 59]. One health facility using an integrated model in Zambia provides social and vocational skills training to supplement the medical approaches in ART clinics. This support was essential in enabling newly diagnosed HIV adolescents to cope with their condition [55]. *"I belong to a support group, and every time I feel I need someone to talk to, I know who to go to"* [55].

Counselling, incentives, and educational messages provided by healthcare providers in stand-alone and integrated clinics were appraised for improving adolescents' understanding of SRH problems, adherence to SRH treatment and contraceptive use [48, 56]. *''Rise [Rise Clubs] has changed me because I wasn't preventing [not using contraceptives], and then after we were told that you could be pregnant while using a condom because it can burst. Then I went to prevent (use of contraceptives)"* [56]. In one stand-alone clinic in Uganda, support tools such as alarm clocks, phones and adherence cards were given to adolescents as reminders to take medications [48]. *''That card [adherence assessment card given at the study site when a volunteer starts [PrEP], let me say that it reminds me. Because I don't want to see that space not filled"* [48].

Respectful and compassionate staff

Adolescents in six studies conducted in Uganda, Kenya, Zambia, South Africa and Namibia highlighted that friendly, supportive, and welcoming staff in all the models gave them the confidence to communicate their SHR problems [48, 49, 54–56, 61]. *''Other than my mother, they are the only people I confide in"* [55].

Across all the models, adolescents appreciated open communication, discussion, and respectful treatment and care from some healthcare providers [50, 55, 56, 60]. They perceived that open discussions with healthcare providers helped improve their understanding and encouraged them to continue using SRH services [56, 60]. *''She discussed it with me and made me understand the difference between the injection and the tablet"* [56]. *"Some nurses are nice to you and show you respect. They are always helpful, talk to you, ask you questions …, and treat you with love and respect. They made me feel welcome."* [60]. In the Ugandan study, adolescents receiving SRH services in Youth Friendly Corner reported non-discrimination by healthcare providers based on socio-economic status [52]. *''They don't discriminate. They treat*

all of us the same regardless of how you are dressed or if you're rich or poor" [52].

However, adolescents seeking services in an integrated model in Zambia [55] and un-specified models in Uganda and DR Congo [57, 62] reported dissatisfaction with the quality of care and healthcare providers' unwillingness to provide them with information on SRH. *''I expected that the midwife would give me so much care to make sure that I got all the care needed to keep my baby and me alive. I did not expect to give birth and be abandoned by the health worker'* [57]*.' ''One day, I went to the health centre to ask for information about sex, and a nurse scolded me. And so, I will not return for fear of being scolded again"* [62].

Accessibility

Adolescents who lived closer to health facilities with a youth-friendly corner and integrated delivery models offering free services have reported improved access to SRH services [54, 56]. *''For most of us here, we live nearby, so the day hospital is within walking distance, so it's easy for us to get condoms and family planning, and it 's free also"* [56]. Additionally, the availability of services and receiving treatment that improved their SRH ailment (STI and HIV) in these models led to satisfaction with services and motivated adolescents to come to health facilities [54, 56]. However, in some contexts, such as in Uganda and Namibia, adolescents lived far away from health facilities, requiring them to pay for transportation, which has impeded access to SRH services, irrespective of the model used [47, 48, 61].

Barriers to facility-based delivery model meeting the needs of adolescents

Five themes were identified as barriers to the facility-based delivery models' ability to meet adolescents' SRH needs. These include financial constraints, lack of confidentiality and privacy, long waiting times, intimidating environments, and negative attitudes and behaviour of healthcare providers.

Financial constraints

Cost appeared to be a significant hindrance to adolescents accessing the services at the health facilities. Regardless of the facility-based models used, the cost of services posed a considerable challenge for adolescents in accessing the services they need. High-cost consultation fees, investigations, contraceptive products and treatment inhibit them from accessing SRH services [45, 47, 50, 52, 54, 62]. *''The poverty is very high, and when you get infected with diseases like Candida, you can't even go for treatment because of lack of money"* [52]. The lack of ability to afford the cost of services sometimes makes adolescents resort to unsafe traditional options [45, 50]. *''When I reached the pharmacy where I was to buy the drugs from, the drugs were 30,000ugx,*[1] *and I only had 10,000ugx in my bag, so I found that medication too expensive. In that case, I will pluck some "omululuza" and "kamunye"* [local herbs], *and I drink because it is the cheaper option that will help me"* [50]. *''The costs are high and unaffordable, while the distance to the health facilities is also terrible because, for every antenatal visit, I need over Ugx 20,000 for transport, which I can't afford"* [47].

Lack of confidentiality and privacy

The lack of privacy and confidentiality in health facilities makes access to SRH services difficult for adolescents [43, 45, 47, 49, 58]. Adolescents in one un-specified -model in Ghana felt embarrassed because others heard about their discussions with healthcare providers [43] *''Looking at the place where services are offered in the community clinic, sometimes I feel embarrassed discussing contraceptives with the nurse because other patients always hear whatever you discuss"* [43]. The indiscreet nature of healthcare facilities and providers when asking adolescents questions regarding their SRH issues further causes embarrassment to adolescents [43, 46, 47, 57]. *''When I went to the registration desk, I was asked sensitive questions, and the answers I gave drew everyone's attention to me, and I felt ashamed"* [47]. The fear that they would meet relatives and acquaintances in public health facilities makes some use the Internet to obtain SRH information, visit distant health facilities, private clinics, shops, and pharmacies or visit clinics in the evenings to avoid being seen by their relatives and acquaintances [45, 49, 51, 54]. *''Some don't want to do things in their neighbourhood, so they can go to a friend's house in another neighbourhood to plan ahead"* [32]. *''When we are looking for sexual reproductive health information on the internet, this remains between you and the internet, and no one will know of it"* [49].

Waiting time

Long waiting times were a common problem for adolescents seeking services across all facility-based delivery models. Adolescents reported discomfort and discouragement in seeking services at the health facility due to an extended waiting period before receiving SRH services [46, 47, 52, 54, 58, 60, 61]. The long waiting time was reported to be mainly caused by the congestion in health facilities, poor work ethics, unfamiliarity with the hospital environment, and disregard for adolescents [46,

[1] Ugandan shilling (currency).

47, 54, 60, 61]. *"Ok, my first follow-up was here in Windhoek at [the clinic] …[T]hat was my first time going to that clinic. So, I stood in a long line…and we had to go back; people were sending me back. So that took almost the whole day for me to get the PrEP"* [46].

Intimidating environment

In one integrated model in Zambia, adolescents reported fear about the location of the clinic, which was near the mortuary and attended by severely ill patients [55]. *"They sometimes bring very sick old people on the bicycle and wheelbarrow [and] just teach us together"* [55].

Adolescents seeking services in an integrated model and unspecified model in Zambia, South Africa and Namibia reported that being mixed with younger adolescents and adults creates discomfort for adolescents and exposes them to stigmatisation [55, 59, 61]. *"sometimes, when we meet, you find people of 14, 12 and even 8, and you cannot talk about certain things like sex"* [55]. *"When I was at the sister, it was something like the RTX. There were only old people there, you know. And you hear them talking a lot … like what am I doing here?"* [59]. A similar feeling of discomfort mixing with younger adolescents (10–14 years), particularly during teaching sessions of SRH, was expressed by older adolescents (15–19 years) [52]. *"They should separate us from the children. We can be seated at the health facility, and the health worker starts teaching us things that concern us, the adolescents, yet young children (10–14 years) are also around"* [52].

Negative attitudes and behaviour of healthcare providers

Seven papers revealed that adolescents described negative attitudes of healthcare providers towards adolescents who sought services like contraceptives and ANC in an integrated, stand-alone and unspecified model. Adolescents were labelled stubborn, promiscuous and shameless for seeking such services [45, 47, 49, 50, 56, 60, 62]. *"The nurses do not receive us well because when we ask questions, they see us as bad girls who seek prostitution. Thus, I cannot ask the nurses or the doctors* [49]. Most papers [10] highlighted that healthcare providers in all models often disrespect, shout, criticise, reprimand and embarrass adolescents [45, 47, 50, 51, 54–56, 60–62]. Sometimes, they are reluctant to provide contraceptives and PrEP services to young and unmarried adolescents [46, 51, 60, 62]. *"They always speak to us rudely and loudly, drawing everyone's attention to you* [34]. *For us minors, it is difficult for nurses or doctors to give us contraceptive methods"* [62]. The negative attitudes and behaviours make adolescents apprehensive and unwilling to come to health facilities and seek expert advice on SRH [49, 50, 54, 60, 62]. *"Some of the nurses are intimidating because you just take one look at them, and they seem so unapproachable that you feel scared to ask questions"* [60].

Excessive questioning and the need to justify service use, stigmatisation and hypercritical behaviour of healthcare providers towards adolescents who come for contraceptive services, PrEP and ANC can cause frustration and embarrassment. The negative behaviours occasionally cause adolescents to leave the facility without access or, in the worst-case scenario, discontinue seeking treatment [46, 51, 52, 56, 62]. *"You would go to a clinic for contraception, and the nurses will start asking all sorts of questions: why are you here? Young as you are! Do you have a boyfriend? And because of these questions and that you feel embarrassed, you end up leaving without accessing the services"* [56]. In some instances, adolescents are required to disclose their pregnancy, be accompanied or obtain consent from parents, sexual partners, and spouses, and have a specific number of children before receiving services [51, 61, 62]. These requirements also complicate access to services, as noted in this quote by an adolescent seeking services in a non-youth-friendly facility, *"It is not easy because going there at the health centre [to seek treatment for STIs]. You must be with your parents; that is when you will be received and given treatment"* [51].

Discussion

This qualitative evidence synthesis examined qualitative research across SSA to evaluate the effectiveness of health facility delivery models in meeting the SRH needs of adolescents. The synthesis identified adolescents' SRH needs, types of health facility-based service delivery models, and adolescents' perceptions of how the models address their SRH needs. Being the first qualitative evidence synthesis focusing on adolescents' perspectives and experiences concerning facility-based SRH delivery models, the synthesis adds to the existing literature by highlighting the strengths and gaps of these models in addressing the unique SRH needs of adolescents in SSA. It underscores the need to strengthen the existing interventions and address the gaps to ensure services meet adolescents' SRH needs.

The review findings identified the following SRH needs expressed by adolescents, such as access to information and services, adolescent-friendly services, and male involvement to improve SRH service uptake. There is a strong need expressed by adolescents for education on topics such as parenting, self-care, abstinence, safe relationships and prevention of STIs and unintended pregnancies, highlighting the scope of SRH knowledge they need. Adolescents also emphasise the need for services to be confidential, affordable, non-judgemental, and provided in a clean environment. They also advocated for

parental and male partner involvement in adolescent SRH service provisions. The need for alternative service delivery, particularly school-based service delivery, was also expressed by adolescents.

Furthermore, the findings showed that adolescent-friendly service models, such as stand-alone clinics, integrated/mainstreamed clinics, and youth-friendly corners, can be effective in addressing the SRH needs of adolescents in SSA when supported by tailored interventions. These include educational messages, community sensitisation, psychosocial support, and using peer navigators. Additionally, respectful and non-judgmental staff, affordability, accessibility (geographical access), and non-discrimination were found to be crucial factors in ensuring the effectiveness of the models in addressing the SRH needs. This finding highlights the importance of a comprehensive approach to addressing the SRH needs of adolescents, as recommended by the HIPs, which have been shown to increase adolescent contraceptive use in Ethiopia and Chile [20].

In this study, educational messages and community sensations provided to adolescents were effective in improving adolescents' and community members' knowledge and understanding of SRH services, which was valuable in ensuring adherence to HIV treatment and increasing service uptake. Evidence from the literature has shown that informing adolescents about SRH services and sensitising community members to gain their support is among the most effective interventions to increase the use of SRH services [63].

Furthermore, psychosocial support (family clubs, social clubs and youth clubs) and vocational skills training implemented in youth-friendly corners and integrated models were crucial to helping adolescents adhere to treatment and cope with their SRH problems, particularly HIV. These interventions addressed mental health needs, a pressing concern given the high burden of mental health issues among adolescents living with HIV [64, 65].

Using peer navigators and establishing youth-specific clinic days in health facilities with youth-friendly corners improved access to SRH services. A study in Kenya supported this finding that peer navigators effectively promoted HIV testing, ART initiation, and linkage to care [56]. This might be due to their role in helping individuals, particularly HIV patients, overcome logistical challenges in accessing services and engaging in care [66].

One of the most important factors that play a critical role in the effectiveness of facility-based models is healthcare providers. The open communication and respectful, compassionate, and supportive staff across all delivery models enable adolescents to feel welcome, safe, and well-respected. These behaviours and attitudes of healthcare providers ensure effective communication with adolescents [3], enabling informed decision-making [67]. In addition, evidence has shown that respectful treatment of adolescents encourages them to continue using the SRH services [3, 68]. Furthermore, the lack of discrimination based on socioeconomic status in youth-friendly corners ensures that adolescents from poor backgrounds can access services without fear of being discriminated against in health facilities. Evidence has shown that discrimination in facilities can prevent adolescents from accessing services [3].

Furthermore, this review found that proximity to a health facility, availability of services, and quality of care play vital roles in integrated and youth-friendly corners to meet the SRH needs of adolescents. Evidence from the literature has highlighted the adolescents in SSA's preference for free or low-cost SRH services [8]. Moreover, the free cost, availability, and proximity to services can mitigate the widely reported unaffordability, unavailability of services, and transportation challenges that affect many SSA adolescents [7, 8, 69, 70].

This review identified gaps that limit the effectiveness of the health facility-based delivery models in addressing the SRH needs of adolescents in SSA. Adolescents frequently experience negative attitudes and behaviours from healthcare providers, which might be due to a lack of training. This study's findings underscore the need to train healthcare providers to be competent in adolescent-friendly approaches such as being friendly, welcoming and non-judgemental towards adolescents. Evidence has shown that training health workers is one of the most effective interventions to improve health worker competency and performance [71]. The training will ensure that they are skilful, compassionate, and dedicated to responding to the unique SRH needs of adolescents [72]. SRH services tailored to the needs of adolescents increase their satisfaction and likelihood to return for future use of SRH services [73].

Furthermore, the problems of confidentiality and privacy in health facilities identified in this review were significant challenges for adolescents in accessing the needed services in health facilities. Studies have shown that privacy and confidentiality are among the critical priorities of adolescents regarding the quality of SRH services [33, 68, 74]. The absence of these vital elements discouraged adolescents from accessing and utilising SRH [7]. Therefore, training of healthcare providers is essential to improve their skills to safeguard confidentiality and privacy.

Similar to findings in other reviews [7, 8], distance and service cost were significant barriers to access to SRH services. Overcoming these financial barriers to access through economic empowerment interventions

is essential to improve access to services. Interventions such as skill training, cash transfers, free services, transport refunds and removing structural barriers to education could reduce poverty among adolescents and help improve access to and use of services [75, 76]. It is also essential for countries in SSA to reduce out-of-pocket expenditures to ensure universal health coverage through tax funding and social insurance schemes to ease the financial constraints faced by adolescents and increase access to SRH services [76].

One of the SRH needs emphasised by adolescents is the need for SRH services in environments such as schools where they have a sense of ownership. Given the limitation of facility-based models identified in this review, alternative service delivery models such as community-based and Mhealth provide a valuable opportunity to address adolescents' needs. These models offer an additional layer of comfort by reducing travel costs and problems of confidentiality that exist in health facilities. School-based education can enhance the knowledge and attitude of adolescents towards SRH service use [77, 78]. Other alternative service delivery models, such as using private pharmacies, dispensers for condoms and self-testing kits for HIV, mHealth interventions are proven to be feasible and acceptable and significantly increase access to SRH services [79–83]. MHealth Interventions, in particular, have been proven to be effective in improving adolescents' access to information and have shown to be effective in enhancing their self-care knowledge, sexual behaviour and contraceptive use [83, 84]. In addition, providing online consultation and self-testing kits has the additional advantage of reducing the cost of travel and waiting times and maintaining the confidentiality of adolescents, which were significant concerns of many adolescents in this review [77, 85].

Strength and limitations

The major strength of this synthesis is that only the perception and experience of adolescents are included to avoid conflating it with adults and healthcare providers. Therefore, it provided an opportunity to understand the SRH needs of adolescents in SSA from the perspective of adolescents. The synthesis also highlighted areas adolescents considered as facilitators and challenges for service delivery models meeting their SRH needs. The major weakness is that only English language articles were used; therefore, there might be a possibility of excluding other studies published in different languages. Furthermore, this review used only qualitative data to highlight the effectiveness of facility-based models in addressing the SRH of adolescents. Thus, it lacks quantitative data to directly compare how different models impact adolescents' access to and uptake of SRH services.

Recommendations

At the policy level, the governments in SSA should allocate financial resources to improve health facility conditions to make them more appealing and welcoming to adolescents. The government should introduce policies to make all SRH services free for adolescents, and they should undertake economic empowerment programs such as skill training to lessen their vulnerabilities. Governments/ministries of health in SSA should also invest in community awareness campaigns to educate people and communities about the importance of adolescent SRH.

At the service delivery level, Governments, NGOs, and donor partners should invest in training healthcare providers to enhance their competency in adolescent-friendly service provision, such as being non-judgmental and ensuring the confidentiality and privacy of adolescents. Integrate alternative service delivery models such as using private pharmacies, dispensers for condoms, self-testing kits for HIV, and mHealth interventions to give adolescents a wide range of choices, confidentiality, and accessibility.

At the community level, the government, NGOs and healthcare providers should engage community members, notably parents, spouses, and religious leaders, to support adolescents' access and use of SRH services. They should also partner with community leaders to conduct awareness campaigns to promote the importance of adolescent SRH services.

Further research is required to determine the efficacy of combining alternative service (community-based, school-based and Mhealth services) delivery models with facility service delivery, especially in improving service access and utilisation. Quantitative studies are also needed to compare the effectiveness of different facility-based service delivery models.

Conclusion

The review evaluates the effectiveness of health facility-based service delivery in meeting the SRH needs of adolescents in SSA. The findings can be used to inform the adoption of health-facility service delivery models to address the SRH needs of adolescents. The paper adds to the literature by focusing exclusively on adolescents' perceptions of the effectiveness of the model in addressing their SRH needs. The findings highlight that the models can be effective when strengthened with community-based adolescent-friendly interventions, supportive and friendly healthcare providers, and the assurance of accessibility of services. However, gaps, such as financial constraints, negative attitude of providers, lack of privacy and confidentiality, long waiting times, intimidating environment and transportation

challenges, limit the effectiveness of the health facility-based delivery models in addressing the SRH needs of adolescents in SSA. These highlight the need to strengthen the existing community-based adolescent-friendly interventions and expand out-of-facility-based service delivery and innovative service delivery such as Mhealth to complement facility-based delivery models. It is also essential to enhance provider training, prioritise confidentiality, and reduce financial barriers to address the gaps in health facility-based service delivery models.

Abbreviations

AIDS	Acquired immunodeficiency syndrome
HIV	Human immunodeficiency syndrome
PICO	Population intervention comparison and outcome
SRH	Sexual and reproductive health
UNFPA	United Nations population fund
WHO	World health organization

Supplementary Information

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Supplementary Material 1.

Supplementary Material 2.

Supplementary Material 3.

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