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Willingness to use and distribute HIV self-test kits to clients and partners: A qualitative analysis of female sex workers' collective opinion and attitude in Côte d'Ivoire, Mali, and Senegal

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Abstract

Background: In West Africa, female sex workers are at increased risk of HIV acquisition and transmission. HIV self-testing could be an effective tool to improve access to and frequency of HIV testing to female sex workers, their clients and partners. This article explores their perceptions regarding HIV self-testing use and the redistribution of HIV self-testing kits to their partners and clients.

Methods: Embedded within ATLAS, a qualitative study was conducted in Côte-d'Ivoire, Mali, and Senegal in 2020. Nine focus group discussions were conducted. A thematic analysis was performed.

Results: A total of 87 participants expressed both positive attitudes toward HIV self-testing and their willingness to use or reuse HIV self-testing. HIV self-testing was perceived to be discreet, confidential, and convenient. HIV self-testing provides autonomy from testing by providers and reduces stigma. Some perceived HIV self-testing as a valuable tool for testing their clients who are willing to offer a premium for condomless sex. While highlighting some potential issues,

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overall, female sex workers were optimistic about linkage to confirmatory testing following a reactive HIV self-testing. Female sex workers expressed positive attitudes toward secondary distribution to their partners and clients, although it depended on relationship types. They seemed more enthusiastic about secondary distribution to their regular/emotional partners and regular clients with whom they had difficulty using condoms, and whom they knew enough to discuss HIV self-testing. However, they expressed that it could be more difficult with casual clients; the duration of the interaction being too short to discuss HIV self-testing, and they fear violence and/or losing them.

Conclusion: Overall, female sex workers have positive attitudes toward HIV self-testing use and are willing to redistribute to their regular partners and clients. However, they are reluctant to promote such use with their casual clients. HIV self-testing can improve access to HIV testing for female sex workers and the members of their sexual and social network.

Keywords

ATLAS, female sex workers, HIV self-testing, partners, perception, secondary distribution, West Africa

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Introduction

Seven in 10 new HIV infections in West and Central Africa in 2019 occurred among key populations—sex workers, people who use drugs and men who have sex with men—and their sexual partners.[1] In some West African countries, such as Senegal, female sex workers are more than 10 times more likely to be living with HIV than women not involved in sex work.[2] Female sex workers are faced with overlapping vulnerabilities, including gender, power imbalance, and sexual risk factors. They also face social, individual, and structural barriers to testing, including perceived or real stigma within their communities and in facilities, as well as negative attitudes due to the perception related to sex work,[3–6] financial constraints associated with the cost of travel and services, lack of time,[4] and the inadequacy of the hours at which some service are offered, given their work schedule.[3,6] In this West African region, perceived health care stigma was found to be prevalent and associated with experienced and social stigmas for female sex workers.[7] In addition, any breach of confidentiality on a positive test result could have negative consequences, such as loss of clients. To limit negative impacts, specific HIV services have been implemented in different countries by non-governmental organizations in collaboration with policy makers. Most often, community health workers are employed and they provide HIV decentralized services.[8] These are often responsive to the needs of the members of key population, who are often very stigmatized.[9] Attention is also paid to female sex workers accessibility to prevention services by policy makers who monitor access and report them to the *Joint United Nations Programme on HIV/AIDS* (UNAIDS).[10]

Female sex workers remain particularly vulnerable to HIV and their partners and clients[2] since the use of condoms cannot always be negotiated and access to biomedical prevention remains insufficient. Although the majority of female sex workers who identify themselves as women who sell sex use condoms in most situations, it is difficult for them to negotiate safe sex with some partners, such as life partners, regular clients, those clients who are ready to pay a large amount of money for condomless sex, and clients who perpetrate violence.[11] Programs' efforts, including the development of community-based approaches, have improved female sex workers' access to HIV testing in sub-Saharan Africa.[10] However, the HIV testing frequency of female sex workers remains suboptimal, and knowledge of HIV status among their sexual partners and clients is low, as most programs do not prioritize these individuals.

HIV self-testing (HIVST) could be an opportunity to improve female sex workers' regular testing.[12] The World Health Organization (WHO)[13] defines HIVST as "a process in which people collect their own specimen (oral fluid or blood) using a simple, rapid HIV test and then perform the test and interpret their results when and where they want." It is a screening test that requires confirmation if the HIVST's result is reactive. When using HIVST kits, people can perform the test either with the assistance of trained staff (supervised testing) or by themselves (unsupervised testing). HIVST provides flexibility and empowerment and, thus, could improve the frequency of HIV testing among female sex workers. In addition to primary distribution—HIVST kits are distributed by peer educators to female sex workers for their personal use—HIVST allows secondary distribution as primary contacts are invited to redistribute some HIVST kits to their peers, partners, and relatives. As such, HIVST could be an opportunity to reach female sex workers' partners and clients, provided that they are willing to redistribute them. A few studies, however, have explored this type of female sex workers-led secondary distribution of HIVST.

HIVST implementation has been shown to improve the uptake and frequency of testing in most-at-risk populations.[12–14] In West Africa, a few studies of HIVST have been conducted among members of key populations. The

little information on their perceptions and attitudes has been conducted in Nigeria and concerns men who have sex with men.[15,16] The majority of the studies of perceptions of HIVST in key populations have been among men who have sex with men and little is known about other non-men who have sex with men key populations. Perception studies among female sex workers in Eastern and Southern Africa have found that they are generally enthusiastic about the opportunity to use HIVST kits.[14,17–19] In francophone West Africa, a few studies on HIVST self-tests have been conducted among female sex workers. Until now, the literature has only included the results of a quantitative survey in Senegal, which indicated good acceptability of HIVST by key populations, including female sex workers.[20] Little is known about their opinions on HIVST utilization and their willingness to redistribute it to their partners and clients.

The ATLAS program aims to promote and implement oral fluid HIVST in three West African countries (Côte d'Ivoire, Mali, and Senegal). It is funded by Innovation in Global Health (UNITAID) and implemented by a consortium led by Solidarité Thérapeutique et Initiatives pour la Santé (Solthis) and the French Research Institute for Sustainable Development (IRD) in close collaboration with national AIDS programs/councils in the three countries, civil society organizations, and the communities themselves. Over the period 2019–2022, ATLAS plans to deliver 400,000 HIVST kits through eight delivery channels combining facility- and community-based strategies and primary and secondary distribution. Taking into account the West African epidemiology, the main focus of the ATLAS program are key populations, that is, sex workers, men who have sex with men, people who use drugs and their sexual partners, peers and clients, people with sexually transmitted infections and their partners, and partners of people living with HIV and AIDS. Key population channels represent more than 85% of the total distribution. Tools and instructions for use have been developed to enable the accurate use of HIVST and promote and facilitate the link to confirmation and care, including complimentary leaflets, a demonstration video in French and national languages and a national free hotline in each country.

Given the epidemiological importance of female sex workers, we conducted a qualitative study within the ATLAS project. This study aims to understand the collective attitudes of female sex workers toward the use and distribution of oral fluid HIVST in three French-speaking West African countries: Côte d'Ivoire, Mali, and Senegal. Specifically, this article focuses on (1) female sex workers' attitudes toward HIVSTs and motivations for HIVST utilization, (2) their preferences for HIVST performing modalities, (3) their willingness to redistribute HIVSTs to their partners and clients, and (4) their perceptions of barriers to HIVST utilization by female sex workers.

Methods

Study setting

A qualitative study was conducted in 2020 in Côte d'Ivoire (February), Mali (November), and Senegal (December): 1–2 years, after the implementation of the ATLAS program in these countries. Data were collected in urban and semi-urban settings in each country, where it is more likely to bring female sex workers together for focus group discussions (FGDs): Abidjan and Aboisso in Côte d'Ivoire; Bamako and Kati in Mali; and Dakar, Mbour, and Ziguinchor in Senegal. The ATLAS program was implemented in all study sites.

Data collection

Peer educators from ATLAS implementation partners (community-based organizations) recruited the female sex workers using a convenience sampling design. Specifically, the participants were women and beneficiaries of community-based prevention, support and care organizations, and were identified as female sex workers by their peer educators. In collaboration with the researchers, eight to ten female sex workers who had previously used HIVST kits or not were invited by them to participate in FGD about HIVST. Peer educators who helped recruited participants were not involved in FGD.

The FGDs were organized by a core team of one female field coordinator (first author) and three research assistants (B.A.K., C.S.C., S.S.). They had a minimum education level of a master's degree in Sociology or public health (two PhD and two master's degree) and experience in conducting FGDs (O.K.Z. and B.A.K. in Côte d'Ivoire; FGD in Mali and Senegal were, respectively, lead by C.S.C. and S.S., supported by two young researchers). These teams were previously trained by the field coordinator on FGD organization. Researchers and participants did not know each other before. These researchers used a semi-structured guide covering four topics: (1) female sex workers' knowledge and perceptions of HIVST, (2) their opinions on the facilitators and barriers to HIVST use and self-referral to confirmation services after a reactive HIVST result, (3) their willingness to distribute HIVST kits to their partners, clients and peers, and (4) their suggestions for effective HIVST distribution in their respective countries. Depending on the participants' statements, the sequence of questions could be altered. If clarifications were needed, simple follow-up questions were asked (e.g. "Could you tell more about that?"). The FGDs were conducted in French and/or in local languages (i.e. Bambara in Mali and Wolof in Senegal) according to the participants' preference. Before the start of the FGD, basic socio-demographic information of the participants was collected. If some participants had never previously used an HIVST, a peer educator provided information on HIVST and operating instructions

and answered participants' questions before leaving the group. The FGDs lasted between 1.5 and 2 h. A snack was served to the participants and, at the end of the FGD, each participant was reimbursed for her transportation costs (i.e. 2000 FCFA; about US$4). Nine FGDs were organized in the seven sites. FGD ceased in the countries if no new information emerged from female sex workers.

Data treatment and analysis

The FGDs were audio-recorded with participants' consent. Non-French interviews were simultaneously translated and transcribed into French by one of the FGD organizers in each country. The transcripts were proofread by the field coordinator. The corrected versions were pseudonymized by deleting the names of people and places that were mentioned by the participants. Then, based on the FGD guide and the content of the transcripts, codes and subcodes were defined by the first author for data processing with Dedoose® software (https://www.dedoose.com/). The coding database was pretested by two researchers (first author and B.A.K.) and then corrected before the data were coded by the same researchers. The coding report was exported into word, and then a thematic analysis was carried out code by code, followed by a cross analysis to examine whether there are convergences or divergences according to the countries or the profiles of the sex workers. Because the focus of this article is perceptions and attitudes, participants' real experiences with HIVST use are not included in the analyses, although this will be the subject of a future one.

Ethical considerations

ATLAS program is set up in close collaboration with the national AIDS program, implementing partners and communities. Three representatives of the national AIDS programs (A.K. in Mali, E.E. in Côte d'Ivoire, C.T.N. in Senegal) are co-authors of this article and they are involved in each step of the study (discussion on tools and protocol validation, data collection, analysis during the ATLAS consortium meeting). Both the research protocol and the data collection tools were approved by the WHO and the countries' ethics committees: WHO Ethical Research Committee (7 August 2019, reference: ERC 0003181); National Ethics Committee for Life Sciences and Health of Côte d'Ivoire (28 May 2019, reference: 049-19/MSHP/CNESVS-kp); Ethics Committee of the Faculty of Medicine and Pharmacy of the University of Bamako, Mali (14 August 2019, reference: 2019/88/CE/FMPOS); and the National Ethics Committee for Health Research of Senegal (26 July 2019, protocol SEN19/32). Prior to FGD initiation, an information sheet was read to participants and translated into the local language when necessary. Confidentiality within the group was part of the content of the information sheet. All participants signed a consent form to participate in the study and the audio recordings. No names were recorded. To ensure anonymity, each participant was assigned an identification number at the beginning of the interview, which was used to identify her. The FGDs were conducted in private spaces in community-based organizations' offices where staff members are well informed about the importance of confidentiality for key populations. The audio recordings will be destroyed at the end of the project.

Table 1. Focus group discussions participants' profile.

Characteristics	Côte d'Ivoire	Mali	Senegal	Total
Age (years)				
18–24	17	9	1	27
25–34	13	18	18	49
35 and above	1	1	10	12
Education				
Not school	2	2	5	9
Primary school	7	15	6	28
High school	18	10	14	42
University level	1	1	3	5
Marital status				
Single	28	26	24	78
Married	3	2	3	8
Divorced	0	0	1	1

Results

Participants

A total of 87 female sex workers were recruited: 30 in Côte d'Ivoire, 29 in Mali, and 28 in Senegal. The average age of the participants was 27 years. The majority were single (78 single, 8 married, and 1 divorced). They often had some schooling (29 had primary education, 42 secondary education, and 6 higher education) (Table 1). In four FGDs (two in Côte d'Ivoire and two in Mali), 14 female sex workers (14/87) had never used HIVST before.

Female sex workers' attitudes toward HIVSTs and motivations to utilization. A total of 73 female sex workers had used HIVST at least once. Based on this experience, they stated that they were ready to use them again. All participants who were new to HIVST because they had never heard of it or had never used it (14 female sex workers) expressed their willingness to use this new tool if it was offered to them. Their positive perceptions of HIVST drove these favorable attitudes of the participants.

HIVST as a tool for addressing stigma in health facilities. According to the participants, some of their female sex workers peers are reluctant to be tested in facilities because they do not want to meet someone they know who

might tell others that they have been tested for HIV. This could lead to a suspicion that they have taken sexual risks related to HIV or that they are HIV-positive. With HIVST, there is no need to attend a place that is considered to be related to HIV:

> Some are also afraid to meet their relatives, they are afraid that these people will go and tell people that they have seen that person go for a HIV test, perhaps that person has AIDS. So for fear of being indexed in society they prefer to avoid testing. (Female sex worker, 19 years, Mali)

In addition, going to health facilities would expose female sex workers to the stares and judgment of people around them. Some female sex workers reported that they had experienced stigma in such public places, including health and HIV testing facilities. Therefore, they reported that using HIVST helps maintain discretion, something that is difficult to achieve with facility-based testing. From their perspective, HIVST proposed by providers or distributed through their peers could help avoid some of the negative attitudes toward them. Such attitudes are also related to the behaviors of some providers that do not offer a hospitable environment. The way health services are organized does not always ensure the level of privacy expected by participants:

> It's more confidential. You do it at home, and even the people you live with may not know. But with facility-based testing, you end up going to the hospital in large numbers to get it done. (Female sex worker, 27 years, Senegal)

Overall, most female sex workers expressed a positive opinion about HIVST because they could use it to test in the place that was most convenient for them, in private, without exposing themselves to others. This aspect of HIVST seemed to be more critical for female sex workers in semi-urban areas, where there is more social proximity. In this context, there are more constraints on avoiding being identified as female sex workers.

HIVST, a tool that provides greater control over information and reduces the risk of inadvertent disclosure of HIV status. Outreach or mobile HIV testing services with peer educators remove the barriers associated with facility-based testing identified above by participants. However, the organization of some community-based HIV testing services does not respect the private and confidential setting preferred by female sex workers. They criticize the attitudes and practices of some providers, usually peer educators, who offer services at the community level:

> Picking [tests with blood sampling], they [community providers] are sitting, they're watching. If you have a disease even, the ones around you, they're going to hear, "Baby, it's two lines, huh. Baby, it's one line." (Female sex worker, 25 years, Côte d'Ivoire)

In addition, female sex workers do not have complete confidence in community providers to manage the confidentiality of their results when testing is done through these outreach strategies. Female sex workers and community providers often know each other, and there are fears that the providers will reveal their status to others if they test positive. This discretion with HIVST is even more appreciated in one of the semi-urban localities where it appeared that some female sex workers would be suspicious about mobile unit vehicles because they think there could be hidden cameras. This distrust does not seem to be limited to providers but also concerns peers and other members of their social network. Indeed, disclosure of their HIV status could leave them without clients.

For all these reasons, learning about one's HIV status "alone" seems an important first step for female sex workers. In the opinion of the study participants, conducting HIVST at home is better for maintaining confidentiality. In the case of a reactive test result, they could choose their care facility location, possibly outside of their living environment where they are known, or likely to be recognized. FGD participants in semi-rural areas of Côte d'Ivoire reported a preference for soliciting confirmatory testing and care at distant locations, such as Abidjan, if they were HIV-positive rather than in their locality of residence.

HIVST, a tool to increase testing uptake and female sex workers' autonomy and empowerment. Beyond the discretion and privacy that HIVST would provide, female sex workers expressed that HIVST empowered them. With HIVST, they can decide when, where and how to test, without relying on the services of a peer educator or health care professional. Doing the test "on their own," interpreting the results "on their own," and seeking care "on their own initiative" seems to be necessary to some female sex workers, who can assert control on their situation. Most participants desired this empowerment offered by HIVST:

> I do it by myself, and then I can see my result myself. In addition, if it's positive, I can go to the hospital by myself. (Female sex worker, 26 years, Côte d'Ivoire)

This autonomy is facilitated by the oral fluid HIVST (as opposed to blood-based HIVST) and the availability of support tools to use the HIVST kits. In all three countries, most participants reported that they were not comfortable with needles or the sight of blood. The needles and syringes that are given as part of routine testing are said to cause pain. Female sex workers who are uncomfortable with pain or the sight of blood are unlikely to undergo conventional HIV testing. The perception that the blood collection equipment used by providers is a

potential source of HIV contamination was reported in one FGD. A couple of them said they had never been tested before oral fluid HIVST became available because they were afraid of being pricked.

Female sex workers also mentioned that, due to their activities, condoms might sometimes be damaged during sex. In such cases, they need to check their HIV status, and doing it immediately reassures them, although the results might be falsely negative due to the "window period" for seroconversion:

> The condom sometimes may break when you enter the room with some [clients]. . . before, if the condom was damaged, you had to go to the health facility yourself to get tested, but now you can do it yourself . . . (Female sex worker, 26 years, Mali)

HIVST can be available on demand and, according to some female sex workers, being able to use HIVST kits would help them save on transportation costs and time lost that they would incur if they had to go to a health facility for testing.

Finally, in addition to the ease of testing themselves for HIV, some female sex workers saw the HIVST as a risk-reduction tool. They mentioned that some clients prefer not to use condoms. To protect themselves, female sex workers who know they are HIV-negative could offer HIVST kits to clients and limit their risk of acquiring HIV if the client's result is reactive. According to some, HIVST would be a tool for improving their "business," as it would help select those HIV-negative partners and clients to become regulars or help in the acceptance of unprotected sex, which pays better:

> There are clients who don't like to use condoms, so they offer a lot of money for unprotected sex. . . If you have a HIVST kit with you, you give it to him so that he can do his test. . . If his result is non-reactive and you know that you don't have anything, then you negotiate for the money, and he becomes one of your favorite clients. (Female sex worker, 36 years, Mali)

Supervised or unsupervised use of HIVST kits for female sex workers? The vast majority of study participants stated that they would prefer to perform HIVST on their own, without supervision from peer educators. In addition to perceptions of enhanced confidentiality with unsupervised testing, this attitude was motivated by two main factors.

First, HIVST support tools for testing and referral to confirmation and care facilities were made available by the program: video, leaflets and brochures, free hotline, etc. They found that performing HIVST using these support tools was appropriate, allowing them to access information anonymously and more confidentially through the free hotline:

> That's the purpose of the HIVST. It's to allow the user to do the test under confidentiality. So when you perform the HIVST alone, there is already the hotline that you can call or go to a center for more information in case the result is reactive. (Female sex worker, 29 years, Mali)

The second reason was that HIVST is so easy to perform that they do not necessarily need physical assistance. Some participants expressed that supervision for HIVST should be reserved for two categories of female sex workers: (1) those who did not attend school and (2) those who "do not trust themselves," that is, those who have a higher probability of living with HIV and who have not yet to be diagnosed, to provide them with psychological support in case of a reactive result. The few female sex workers who expressed a preference for supervised testing justified for this latter reason.

Female sex workers' perceptions of care referral after a reactive test. According to most study participants, they and their peers who test positive would go for confirmatory testing to "get medication and live longer" and avoid transmitting the virus to their partners. However, for a few participants, female sex workers may face difficulties in confirming a reactive result. Such impediments include embarrassment/shame in reporting to caregivers that they had taken an HIVST that yielded a reactive result. In addition, barriers to routine HIV testing service uptake, such as lack of resources to travel to care sites and fear of breach of confidentiality, including fear of meeting an acquaintance at the care site, were also cited. This could result in female sex workers' stigmatization and the risk of losing clients. To encourage their peers who have a reactive result to seek confirmation, they made suggestions. These included the need to better inform female sex workers about the availability of effective HIV treatment and the need for providers to stay in touch with HIVST kit users. A practical solution was also proposed in Côte d'Ivoire and Senegal, namely, "community-based confirmation," which consists of mobile teams going to female sex workers' sites to confirm the results:

> I think that those who came to us to give HIVSTs kits could also come back for confirmation. (Female sex worker, 38 years, Senegal)

Female sex workers' willingness to redistribute HIVSTs to their partners and clients. In all three countries, participants most often reported that they were willing to redistribute HIVST kits to their sexual partners. They would be more likely to offer HIVST kits to some sexual partners than to others, according to the nature of their emotional or social relationship. They distinguish three kinds of partners: their main partner, regular or preferred partners/clients, and casual clients.

Main partner. Female sex workers would be more concerned about the welfare of their main partner (i.e. the one they live with most often) and would want them to have access to care if they were found to be living with HIV or to adopt protective measures if they were HIV-negative. Some women felt that it would not be helpful for them to know their HIV status while ignoring their partners' status:

> I think that if I get an HIVST kit for the person I'm with [the person she's living with], I'm going to give it to him because there's no sense in knowing my status, and he doesn't know about him. . . I can be negative while he is positive. I will say to myself, "Ok, I am healthy" and tomorrow [later] I can find myself infected. (Female sex worker, 26 years, Côte d'Ivoire)

In women's opinion, the partners with whom it would be easier to distribute HIVST kits are those with whom they live, who they depend on and who care for them when they are sick, for whom they have feelings. With these life partners, sex can often occur without condoms while they suspect that these men may have relationships with other women.

Preferred or regular clients. Women make a slight difference between their "main partner" and "preferred partners" or "regular clients." Condom use with regular clients would not be systematic. Female sex workers, especially if they are HIV-negative, would be willing to offer clients HIVST to determine their HIV status.

Casual clients. Some female sex workers were enthusiastic about using HIVST as a mean of improving their business and prevention for themselves by testing clients who refuse to use condoms:

> When you receive a client who asks for unprotected sex, you offer him the HIVST kit. . . if the test is not reactive, you can earn more money with him, but if it is reactive, you have to use condoms. . .there are clients who don't like to use condoms, so they offer you a lot of money for unprotected sex. (Female sex worker, 36 years, Mali)

In addition, some women expressed reluctance to distribute HIVSTs to casual clients for three main reasons. First, proposing HIVST requires prior preparation to introduce the topic of HIV and its consequences into the discussion/negotiation. If the partner or client expresses an interest, HIVST can be proposed. However, casual clients spend little time with female sex workers, which does not allow for bringing up the subject of HIV and then making the HIVST proposition:

> Sometimes you can meet occasional people in passing, they offer you money for sex that you quickly share in 5 minutes and then everyone continues on their way . . . it's usually guys who do not even meet you. (Female sex worker, 30 years, Senegal)

Second, casual clients do not have an emotional attachment to female sex workers and would be likely to seek out others if an female sex worker talked to them about HIV. This would be a financial detriment to the female sex workers:

> However, if you want to give it to a client, it's not easy because he comes and goes. If you offer it to him, he may not come back, and when he leaves, it's a loss for you. (Female sex worker, 20 years, Mali)

Finally, some women fear that casual clients may have a violent reaction to the HIVST proposition:

> For someone you just met for one night and you give him a test? However, instead, he's going to throw the test at you because it is not normal. (Female sex worker, 24 years, Côte d'Ivoire)

For these reasons, a few women have stated that they would not offer HIVST to casual clients. Female sex workers' personal narratives of their HIVST experiences show slight differences according to the context of their sexual transactions, which shapes their partners' and clients' profiles.

Potential barriers to HIVST utilization by their peers

According to FGD participants, their peers (i.e. declared or clandestine female sex workers) will also have a positive appreciation of HIVST and will adhere to this new HIV testing strategy. Women were confident that most of them would confirm the results if they tested reactive. However, two types of barriers specific to HIVST may limit female sex workers' willingness to use them. The first is the fear of technical innovation, which was especially noted in Mali. Indeed, according to those who mentioned it, this is a new approach to testing in the country, and some female sex workers may not trust this new tool to detect HIV correctly. This perception is partly related to the process that implies that there is a need to use the blood test for confirmation in case of a reactive result. For some, the requirement of a blood test would question the reliability of the HIVST kits:

> The blood test is more complete for me because they take a blood sample, whereas when you do the HIVST, if the result is positive, you have to go and confirm it to know what it is. (Female sex worker, 25 years, Senegal)

In Côte d'Ivoire and Senegal, some reported that female sex workers, mainly those who have never been to school,

might refuse HIVST because they would doubt their ability to correctly perform the test and interpret the results on their own.

Discussion

In this qualitative multi-site study conducted in three West Africa countries, it was found that female sex workers have a favorable attitude toward using oral HIVST kits. They also acknowledge that some barriers could potentially limit utilization of HIVST by their peers. With the support of the ATLAS program's tools and instructions for use, most women are interested in using kits without supervision. They are generally confident that female sex workers will follow up with confirmatory testing in the case of a reactive HIVST. They are also willing to redistribute them to their partners and clients. Secondary distribution to life partners and regular clients by female sex workers seems to be easy, while secondary distribution to occasional clients might be more difficult and limited.

Female sex workers' perceptions of HIVST

From the perspective of HIVST utilization, female sex workers were enthusiastic about some of the perceived benefits, including (1) discretion, which helps to reduce stigma, (2) control over information about HIV status, which improves confidentiality management, and (3) practical benefits, including empowerment and self-esteem. Overall, HIVST addresses some barriers specific to both facility-based testing and community-based outreach strategies using rapid tests. Qualitative and quantitative studies among female sex workers in sub-Saharan Africa have also found that HIVST is preferred to routine testing in facilities.[15–17,19,21,22] Confidentiality is one of the advantages of HIVST, which was found in almost all perception analyses among female sex workers.[17,19,23] HIVST can help reduce the fear of a confidentiality breach by providers and through peer gossip.[23] In addition, women value perceived empowerment and self-responsibility as a benefit of choosing when and where to test and seek care, as described elsewhere.[19] HIVST allows them to bypass service providers who perform outreach testing.[17,19] Confidentiality and perceived ownership of the decision about testing may also explain the preference for unsupervised HIVST that female sex workers often expressed in this study.

In addition, WHO[13] guidelines recommend that key populations be tested frequently, that is, every 3–6 months, based on individual risk factors. This leads to several trips to facilities when testing is carried out at fixed sites. Although a reactive test requires referral to facilities for confirmation, performing a screening test first was perceived as an advantage by our respondents. As described elsewhere, this study found the perceived benefits of saving time and financial resources related to transportation costs to facilities.[17,21,23] The oral fluid-based nature of the test, as opposed to blood-based, was also seen as an advantage in this study, as it was in most studies among key populations.[24,25] The reluctance toward oral testing expressed in one focus group in this study is justified because female sex workers were familiar with using blood tests. This was also found in a study among female sex workers in Botswana, where they had doubts about HIVST's reliability.[19] The need for a blood test after a reactive oral HIVST, perceived as a limitation by a few female sex workers, has been described in other settings.[23] The results from previous studies have found anticipated concerns about female sex workers' ability to perform HIVST and correctly interpret the results.[17,19] These were minimized in this study, where the majority of participants had already used HIVST. The availability of various support tools in the ATLAS program may have positively influenced their opinions: a video in different languages, a free hotline, and other written and visual materials.[26]

Although the majority of the participants stated that their peers would go for results confirmation following a reactive HIVST, some of them mentioned difficulties that they might face. Concerns about not following up with care have also been described in findings in Botswana.[19] As alternatives, participants in this study proposed two options, namely, maintaining contact with peer educators and outreach units at female sex workers' sites to facilitate access to confirmation services. While these suggestions are somewhat contradictory to their general perceptions of HIVST benefits, they may help some female sex workers follow up with confirmatory testing and linkage to care services.

Concern about negative reactions to a reactive result from users, such as violence, depression, or suicide, as described elsewhere,[17,23] were not found to be prominent themes in this study.

An opportunity to test sexual partners and clients

The WHO[27] recommends social network-based approaches to HIV testing for key populations as part of a comprehensive package of care and prevention. The majority of female sex workers expressed their willingness to distribute HIVST kits to their sexual partners. However, female sex workers are concerned about the reaction of their partners, and they propose strategies to avoid violent reactions.[19,23,28] They also tend to make distinctions between partners and clients in offering HIVSTs. According to the results of this study, they would be more reluctant to propose HIVST to casual clients than to regular partners/clients, with an intermediate category related to their main partner that may include dependency (economic or other), attachment, parenthood, and so on.

Regular partners have already been considered in some cases as fathers or spouses in the prevention of mother-to-child transmission (PMTCT) programs, even in pre-nuptial testing. With HIVST, those who have escaped these two strategies of testing could be reached.

The difficulties in offering HIVST to casual clients compared to partners were reflected in the results of a previous study among key populations in Senegal.[20] The authors found that 78.5% of female sex workers would be willing to offer HIVST to their primary partner, while only 65.8% were willing to offer it to casual partners. The complexity of dealing with casual clients may be related in part to the short time female sex workers spend with them. Serosorting clients who refuse condoms were seen as an opportunity by participants in this study, as previously described in Uganda. Faced with vulnerability in terms of lack of resources to convince clients to use condoms, the risks of condom breakage and clients' incentives to have sex without condoms, female sex workers perceived the rollout of HIVST in their settings as an opportunity for them to test clients before sex.[23] In a PrEP program in Uganda, female sex workers reported using HIVST to test clients to earn more money by accepting condomless sex.[29] This "benefit" was also perceived by female sex workers in this study. Without pre-exposure prophylaxis (PrEP), there could be a risk of HIV exposure if HIVST is performed with a partner or client who was recently exposed to the virus. Indeed, with HIVST, the window can be as long as 12 weeks.[30] This attention also applies to female sex workers who may use HIVSTs immediately after exposure to the virus to ensure that they are still HIV-negative. However, it could be a risk-reduction strategy if female sex workers refuse condomless sex with a client that has a reactive test, while they could have accepted the transaction in the absence of HIVST.

Concerns that female sex workers with a reactive test result would willingly expose their clients and partners to HIV were not found in this study.[17] In practice, authors have reported that HIVST did not increase female sex workers exposure in terms of risk-taking (condomless sex) with partners and clients.[31,32] Others reported that HIVST use would have positive effects on female sex workers behavior in terms of reducing the number of sexual partners, a topic that we did not analyze in this study.[33]

In the end, previous findings from a perception study among major HIV testing stakeholders in the study countries raised concerns about female sex workers' willingness to distribute HIVSTs to their partners and clients due to a lack of technical expertise in explaining how to perform it. This limitation was not mentioned at all by the female sex workers participants in this study. Neither was the fear of HIV-related stigma as a limitation to the willingness to redistribute HIVSTs to partners and clients, which had also been previously raised.[34]

Study limitation

The participants discussed information in groups and disclosure may have been influenced by social desirability. Important biases are unlikely, however, as participants seemed to express themselves freely in the presence of data collectors who are not peer educators, nor health providers, and who guaranteed confidentiality. A second limitation is that some female sex workers were already familiar with HIVST and others were not. Those who were newly aware of HIVST may have been influenced by others. Finally, the study participants were mobilized by peer educators. The participating female sex workers could have been easier to reach and therefore have better access to services, including testing and HIVST. Their opinion could be different from non-professional female sex workers who might have a different access to health services. This explains why most had already used HIVST kits and they were thus able to express themselves about their experiences rather than their perceptions, which further consolidate the results.

Conclusion

Globally, female sex workers in Côte d'Ivoire, Mali, and Senegal have some favorable attitudes toward the use of oral HIVST, namely, reduction of facility-based stigma, more confidentiality, autonomy, and empowerment. Few believe that their peers would be reluctant to engage in such a practice. HIVST is perceived by female sex workers as a facilitator to access HIV testing, reduce stigma, and facilitate transactions with clients. The perception that condomless sex is safe just after a non-reactive HIVST needs program managers' attention. Most are willing to redistribute HIVST to their sexual partners, depending on the nature of their social relations with them. They feel more comfortable distributing it to those with whom condom use is inconsistent for any reason and to those who have time to talk. This favorable attitude is an opportunity to improve regular testing among female sex workers and HIV status knowledge among sexual partners and clients. Ending the AIDS epidemic by 2030 hinges on achieving high HIV diagnosis coverage, especially among key populations, and HIVST can improve access to HIV testing for female sex workers and the members of their sexual and social networks.

Author contribution(s)

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Ethical approval and consent to participate

Both the research protocol and the data collection tools were approved by the WHO and the countries' ethics committees: WHO Ethical Research Committee (7 August 2019, reference: ERC 0003181); National Ethics Committee for Life Sciences and Health of Côte d'Ivoire (28 May 2019, reference: 049-19/MSHP/CNESVS-kp); Ethics Committee of the Faculty of Medicine and Pharmacy of the University of Bamako, Mali (14 August 2019, reference: 2019/88/CE/FMPOS); and the National Ethics Committee for Health Research of Senegal (26 July 2019, protocol SEN19/32). Prior to FGD initiation, an information sheet was read to participants and translated into the local language when necessary. All participants signed a consent form to participate in the study, as well as for the audio recordings.

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Availability of data and materials

The data sets analyzed during this study are not publicly available due to conditions agreed upon with the participants but are available from the corresponding author on reasonable request.

Supplemental material

Supplemental material for this article is available online.

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