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Acceptability of oral HIV self-testing among female sex workers in Accra, Ghana

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Abstract

Background HIV testing is a key entry point to prevention and treatment measures. Key populations mostly have a lower uptake of HIV testing services because of several factors. In Ghana, HIV prevalence among Female Sex Workers is 4.67%, which is disproportionately higher in comparison to the national general population prevalence at 1.49%. This study investigated the acceptability of oral HIV Self-Testing (HIVST) among FSWs in Accra, Ghana. The study aimed to explore awareness of oral HIVST, perceived self-efficacy and perceived effectiveness of the oral HIVST.

Methods A phenomenological qualitative design was employed to explore the acceptability of oral HIV self-testing (HIVST) among female sex workers (FSWs) in Accra, Ghana. Convenience sampling was used to recruit participants for 5 FGDs ($n = 30$) and 13 IDIs conducted in Ashaiman, East Legon, and Adabraka between May and September 2023. All interviews were audio-recorded and transcribed verbatim and analyzed thematically using NVivo 14.

Results Findings generally showed a low level of awareness of oral HIVST. Despite this, several advantages were attributed to using oral HIVST, including confidentiality, convenience, and ease of use. The study further showed a preference for oral HIVST as compared to the standard HIV testing, as it is painless and does not involve blood. However, concerns arose about the accuracy of the test in diagnosing HIV, mostly because of the use of saliva as a sample specimen. Even though many participants (38/43, 88%) expressed confidence in performing the test, all of them could not correctly outline the procedure, and only 2/38 (5%) could correctly interpret the results.

Conclusion Acceptability of oral HIV self-testing was high among FSWs, with many of them willing to use the oral HIVST, attributing it to the benefits of the test. The results suggest that the implementation of oral HIVST among FSWs can have a high uptake and help increase HIV testing coverage. There is a need for health education in the form of mass media campaigns, peer-led outreach campaigns and integration of the HIVST in routine services to improve awareness, testing techniques, and address individuals' concerns about the test kit.

Keywords HIV, Female sex workers, HIV self-testing, Awareness, Health belief model and theoretical framework of acceptability



1 Background

HIV continues to be a major global health problem. Globally, 40.8 million people were living with HIV, 1.3 million people acquired HIV and 630,000 people died from HIV-related causes in 2024, according to the Joint United Nations Programme on HIV/AIDS (UNAIDS) 2025 report [1]. Despite comprising only about 12% of the global population, Sub-Saharan Africa carries the greatest HIV burden, accounting for approximately 71% of the global burden [2]. Across Africa, the epidemic is more severe among Key Populations (KPs), including Female Sex Workers (FSWs), Men who have Sex with Men (MSM), people who use injectable drugs, transgender individuals, and detainees [3]. Majority of the new infections in West and Central Africa are accounted for by key populations, despite constituting a relatively small proportion of the population, with the incidence being too high to achieve epidemic control [4]. Nearly 1 in every 10 sex workers is estimated to be living with HIV, despite the many advances in preventative and treatment measures [5].

Ghana has approximately 334,721 people living with HIV (229,261 females, 105,460 males), an estimated 15,290 new HIV infections and 12,614 AIDS related deaths [6]. Geographical areas such as Greater Accra and Ashanti region, and subpopulations, FSWs and MSM, have the highest prevalence [7]. Ghana has an estimated total of 60,049 FSWs, more roamers than sitters, who only constitute 4,363 of the total [8, 9]. Greater Accra has the highest number of FSWs, with a total of 20,524, comprising 34.2% [9]. The HIV prevalence among FSWs in Ghana is estimated at 4.67% which is disproportionately higher than that of the general population at 1.49% [6, 10, 11]. Female sex workers are categorized into two groups: sitters and roamers. The sitters offer services at the comfort of their home, and clients go to them whilst roamers are very mobile, they move around from one point to the next looking for clients.

UNAIDS 95-95-95 states that 95% of the people among all subpopulations and age groups who are living with HIV should know their status, 95% of those who know their HIV status should be on antiretroviral therapy and 95% of those who are on antiretroviral therapy should be virally suppressed [12]. Ghana is currently at 71–99-79 [8]. HIV testing is a key entry point to prevention and treatment measures. To achieve the first 95% target in Ghana, there is a need for a massive increase in HIV testing coverage and utilization of innovative testing strategies in KPs [13]. KPs mostly have a lower uptake of testing services because of several factors, including healthcare provider stigma, discrimination, lack of legal protection, long waiting lines at health facilities and worries about confidentiality of health workers [14–16]. The World Health Organisation (WHO) produced guidelines related to HIV self-testing (HIVST) and recommended that HIVST be offered in addition to the standard HIV testing to help achieve the realisation of the UNAIDS targets [17].

HIVST is a process by which an individual takes his or her specimen, either oral fluid or blood and performs an HIV test, after which he or she interprets the result. The 3 steps to be conducted during an oral HIV self-test are to open the test kit, swab once along the upper gums, then swab once along the lower gums to collect oral fluid. Then insert the swab into the test tube with the test fluid then you wait 20 min before reading the results. After an individual is done, you pack the test kit in a bag and throw it away. It is mostly done in a private setting, alone or with a trusted person. HIVST is a useful strategy for improving the frequency of HIV testing in persons at risk of acquiring HIV,

and helps screen people who infrequently engage in routine health care [18]. HIVST is acceptable and feasible in KPs [19]. These alternate testing strategies may help in closing the gap between the present HIV testing coverage among FSWs and achieving UNAIDS' first 95 by 2025 [20].

HIVST has been identified as one of the critical policy gaps that need to be rolled out to help increase HIV testing in Ghana in order to achieve the first 95% [8]. The priority for the nation is to utilise smarter testing strategies on KPs. According to the Ghana National AIDS Strategic Plan 2021–2025, the plan is to roll out HIVST by 2025. Ghana policymakers' perspectives stipulate the need to develop national policies around HIVST, which are important for increasing access to HIVST, ensuring quality of products and safe and ethical usage [21]. There is limited data on the acceptability of HIVST among KPs in Ghana and, in particular, FSWs; hence, the need to carry out a qualitative research study to determine acceptability and perceptions of FSWs towards oral HIVST.

To guide this, the Health Belief Model (HBM) provided a useful lens, as it theorizes that individuals' uptake of health interventions is influenced by their perceived susceptibility, perceived severity, perceived benefits, perceived barriers, and cues to action [22]. In addition, the Theoretical Framework of Acceptability offered a structured way to assess acceptability by examining domains such as affective attitude, perceived burden, ethicality, intervention coherence, and self-efficacy [23, 24]. Together, these frameworks helped to understand how FSWs perceived oral HIVST, the barriers and facilitators to its use, and the acceptability of oral HIVST. The study will be pre-intervention implementation research before rolling out HIVST in the country, with the main focus on FSWs, a key population and hence a priority group when targeting HIV/AIDS interventions.

2 Methods

2.1 Study design

This study was a qualitative study with a phenomenological study design. It was conducted in Accra Ghana where the HIV prevalence is estimated at 1.8% higher than the national general prevalence and the highest number of FSWs in the country [6, 25]. 95.9% of health facilities in Accra Ghana, offer the standard HIV testing and counselling [26]. This Study was guided by the Consolidated criteria for Reporting Qualitative research (COREQ) checklist.

2.2 Study population

Study participants included girls or women who sell consensual sex services in return for cash or payment in kind and may sell sex informally/formally, regularly, or occasionally [27]. They had to be ≥ 18 years old and provide consent to take part in the study. FSWs are in 2 categories: roamers and sitters, and this study included both. Sitters offer services at specifically defined locations; homes, hotels or lodges, and have a form of permanent affiliation to the venue, whilst roamers are very mobile, moving from one point to the next looking for clients. There were no prior relationships established with participants before the interviews.

2.3 Sampling strategy

The study employed nonprobability sampling using a convenience sampling technique. The research team worked with a local NGO working with FSWs to identify

peer educators to coordinate FSWs. Together, 3 areas were identified in Accra representing high-class, middle-class, and low-class: East Legon, Adabraka and Ashaiman, respectively. Categorisation of the areas is according to the socioeconomic stratification of neighbourhoods in Accra, Ghana using socioeconomic stratification scales adapted from the Ghana Demographic and Health Survey [28]. In the sample units, peer educators identified the community leaders for approval and then assisted with the identification and coordination of eligible participants.

2.4 Recruitment

Five Focused Group Discussions (FGDs) were conducted among sitters, with 6 participants in each FGD, making a total of 30 and 13 IDIs among roamers [29, 30]. This sample size was determined to ensure saturation. FGDs were selected for sitters in Ashaiman because they reside within communities, which made it feasible to convene them in groups. This approach was suitable for exploring group norms, shared experiences, and collective perceptions. In contrast, IDIs were conducted with roamers, as they typically operate in solitude and are more difficult to gather in groups. Individual interviews were therefore more appropriate for capturing their personal perspectives and experiences.

2.5 Data collection

Eligible participants were interviewed between May 2023 and September 2023. Participants were given a pack of condoms and 100 cedis as compensation for their time and travel costs. Separate semi-structured interview guides were developed for each interview category and were constructed in English, the national language. The guide was first piloted, then necessary adjustments and corrections were made before using it in the main study [24]. All participants were interviewed by female research staff. Interviews were conducted in a private space convenient for the participants. All research staff were trained on the study protocol and ethical conduct of human subject research. Staff were trained for a week on qualitative research, interview skills and interview guides and had refresher courses. Field notes were also collected during the interviews.

2.6 Theoretical frameworks

The Health Belief Model (HBM) and Theoretical Framework of Acceptability (TFA) were the frameworks that guided this study [22–24]. The HBM is well-suited for understanding health behaviours, as it highlights how perceived susceptibility, severity, benefits, barriers, and cues to action influence uptake of interventions. Complementing this, the TFA provided a structured approach to assess the multifaceted nature of acceptability, including domains such as affective attitude, perceived burden, ethicality, intervention coherence, and self-efficacy. Together, these frameworks offer a comprehensive lens for examining both the cognitive and contextual factors shaping FSWs' perceptions and acceptance of HIVST [23]. We examined the constructs of both the HBM and TFA and synthesized them into seven critical components, recognizing that several domains overlap across the two frameworks. This integration allowed for a more streamlined and comprehensive assessment of acceptability. The guide incorporated these 7 critical components: (1) Cues to action, (2) Perceived severity, (3) Perceived susceptibility, (4) Self-efficacy, (5) Affective attitude, (6) Effectiveness (7) Intervention coherence, which

all inform an individual’s behaviour to take up an intervention. All domains remained constant in both guides.

2.7 Data analysis

Data obtained from FGDs was analysed as follows: interviews were transcribed verbatim. Transcripts were reviewed by a second member of the Qualitative Research Team (QRT) for quality assurance. The QRT had regular weekly meetings to discuss and refine the data collection and analysis process. Data was analysed using thematic analysis using a hybrid approach [31, 32]. The QRT combined a deductive (theory-driven) and inductive (data-driven) strategy. An initial priori coding framework was derived from the HBM and the Theoretical Framework of Acceptability and was applied across transcripts. The other new codes emerged from the data, which was done through frequent discussions of interview transcripts and study objectives. Two members of the QRT coded the interview transcripts. The code book was applied to all the transcripts independently, and a second member of the team assessed for inter-coder reliability. Codes were iteratively grouped into themes through team discussion and reflexive memoing. Themes were refined by checking against the full dataset and with peer educators. The themes were then supported with illustrative quotations. This same systematic step-by-step process was also used to analyse data obtained from IDIs. NVivo software version 14 was used to manage all the data.

2.8 Ethics approval

This study involved human participants and was conducted with the relevant guidelines and regulations, including the Declaration of Helsinki (World Medical Association, 1964), which is widely recognized as the cornerstone of human research ethics. Ethical approval was granted by the University of Ghana, Ethics Committee of Humanities (Ref. No: ECH 185/22-23). All participants provided written informed consent for study participation, including interviews and focused group discussions.

3 Results

3.1 Sociodemographic characteristics of participants

A total of 43 participants were recruited, 30 participants in FGDs and 13 participants for IDIs.

The median age of IDI participants was 24 years, with an interquartile range (IQR) 20–26.5 years. Most of them were single and had no children. Regarding their educational level, though most of them got to secondary school, many of them reported that they did not complete the school. The participants were mostly self-employed, running

Table 1 Summary of study participants and location

| Location | FGDs | | IDIs |
|------------|----------------|----------------------------|----------------|
| | Number of FGDs | Number of participants/FGD | Number of IDIs |
| Ashaiman | 3 | 6 | 5 |
| East Legon | – | – | 8 |
| Adabraka | 2 | 6 | – |
| Sub total | 5 | 30 | 13 |

a small-scale business. Most of the female sex workers in this group had been in service for less than one year.

The median age of FGD participants was 29, with an interquartile range (IQR 26–37 years). Most of them were single and had between 1 and 3 children. Regarding their educational level, many of them only attended primary school. The participants were mostly self-employed, running a small-scale business. Most participants had been in service for more than one year.

3.2 Awareness of oral HIV self-testing

3.2.1 Knowledge of oral HIV self-testing

Participants stated the various ways a person can be tested for HIV and the facilities that offer these services. Participants were more familiar with the standard HIV testing using the blood test, which is mostly performed at the hospital.

HIV testing can be done through blood. You will go to the hospital, or sometimes the pharmacies do it, and some health centres also do it. They will collect your blood, and they will tell you to wait for a few minutes or a few hours. Then after time passes, they give you your results. If they give you your results and it is positive, only you know it, you start medication. If it is negative, they also tell you. (East Legon IDI, 24 years)

The HIV test I know is the blood one. You will just go to a facility where they take your blood, you wait for a few minutes to confirm whether you are infected or not. That's the only way I know that can be used to check HIV. (Ashaiman FGD 3 participant #2, 27 years)

The study generally revealed a low level of awareness of oral HIVST. The baseline knowledge of oral HIVST was poor among participants. Only 15/43 (34.9%) knew or had ever

Table 2 Sociodemographic characteristics of IDI participants

| Background information | Number | Percentage (%) |
|----------------------------|--------|----------------|
| <i>Age</i> | | |
| < 20 years | 1 | 7.7% |
| 20–30 years | 10 | 77% |
| > 30 years | 2 | 15.3% |
| <i>Marital status</i> | | |
| Single | 12 | 92.3% |
| Married | 1 | 7.7% |
| <i>Number of children</i> | | |
| 0 children | 8 | 61.5% |
| 1–3 Children | 5 | 38.5% |
| <i>Educational level</i> | | |
| Primary | 2 | 15.3% |
| Secondary | 7 | 53.8% |
| Tertiary | 4 | 30.8% |
| <i>Employment status</i> | | |
| Employed | 1 | 7.7% |
| Self-employed | 7 | 53.8% |
| Unemployed | 5 | 38.5% |
| <i>Duration in service</i> | | |
| < 1 years | 10 | 77% |
| 1–3 years | 2 | 15.3% |
| > 3years | 1 | 7.7% |

Table 3 Sociodemographic characteristics of FGD participants

| Background information | Number | Percentage (%) |
|----------------------------|--------|----------------|
| <i>Age</i> | | |
| < 20 years | 1 | 3.3% |
| 20–30 years | 14 | 46.7% |
| > 30 years | 15 | 50% |
| <i>Marital status</i> | | |
| Single | 26 | 86.7% |
| Married | 1 | 3.3% |
| Divorced | 2 | 6.7% |
| Widowed | 1 | 3.3% |
| <i>Number of children</i> | | |
| 0 children | 8 | 26.7% |
| 1–3 Children | 19 | 63.3% |
| > 3 children | 3 | 10% |
| <i>Educational level</i> | | |
| No education | 4 | 13.3% |
| Primary | 14 | 46.7% |
| Secondary | 10 | 33.3% |
| Tertiary | 2 | 6.7% |
| <i>Employment status</i> | | |
| Self-employed | 21 | 70% |
| Unemployed | 9 | 30% |
| <i>Duration in service</i> | | |
| < 1 years | 8 | 26.7% |
| 1–3 years | 14 | 46.7% |
| > 3years | 8 | 26.7% |

heard about oral HIVST. Two-thirds of the FSWs (28/43, 66.1%) did not know or had never heard anything regarding oral HIVST.

I do not know anything about the test you are talking about. (Ashaiman FDG 1 participant #3, 27 years)

No, please, I do not know anything, and I cannot answer anything regarding that (East Legon, IDI, 24 years).

Of the FSWs who indicated they were aware of the oral HIVST, most of them were sitters (10/15 66.6%) as compared to roamers (5/15, 33.3%). The source of information for the oral HIVST was mostly from peer educators within their networks.

Self-testing is something that can prove that you have HIV. I have used the self-test before. The way it shows, it tells you that this is HIV, and this is not HIV, so that is what I know. All I know about the oral test is that you put it in your mouth, touch your saliva or any other part of your body, so long as it is in your body and then it will show in a few minutes. (Ashaiman FDG 1 participant #4, 37 years)

For me to know about oral self-test, it was through the peer educators, whom we call our mothers, who introduced the test to us and told us how to do it. They also support us in knowing the meaning of the results. (Ashaiman, IDI, 27 years)

3.2.2 Willingness to use and buy oral HIV self-test

Despite most participants indicating that they did not know about the self-test, after being told about the oral HIV self-test, all the participants expressed interest in using the test as a way of testing for HIV.

I had never heard of it, but now that you have told me about it, it would be my pleasure if you gave it to me. It would be my pleasure if you gave it to me right now to use. (East Legon IDI, 19 years)

I would use this test to test for HIV because it is so easy to perform. The instructions are also easy to follow. (East Legon IDI, 24 years)

In addition, all participants showed interest in buying the test if it was being sold and was not given to them for free. They stipulated the risk that the job comes with and wanted to take precautionary measures against contracting HIV.

I will be willing to buy this test because I do not joke with my health, so if it were being sold, I would buy it. It should be a price which most of us can afford, that's it, so that we should not be looking at the price and thinking twice. (Ashaiman FDG 2 participant #4, 29 years)

3.3 Self-efficacy for oral HIV self-testing

3.3.1 Confidence to conduct oral HIV self-test

Of the people who were aware of the oral HIVST, the majority of them (13/15, 86.7%) were confident to carry out the test by themselves.

That day, they showed us how we can use it. So, if they bring it now and say use it, I can do it by myself. It is easy. For example, it is like the way we are taught to use a pregnancy test kit, now anybody can do it. You just put it in your urine, and then you see it, so it is very easy to use. (Ashaiman, IDI, 38 years)

For the participants who were not aware of oral HIVST, during the interviews, the interviewer would explain the step by step process needed to correctly conduct the test. After being informed of the test and how to use it, some participants (21/28, 75%) also indicated that they could perform the test.

Yeah, just as you have said. The thing is, I studied a bit of nursing, but I did not finish because of money so as you have explained, I can do it myself. It is just to pick it up and do as per instructions. Let me even re-explain the process to you, you pick it up, put it in your mouth, wait for 2 min, two lines is positive, one line is negative. (East Legon IDI, 24 years)

Seven out of the total forty-three participants (9.3%) generally expressed doubt. They were not too sure that they could perform the test by themselves. They either needed further education or support when conducting the test.

Uhm the way you showed me, I might try it myself. Then if anything happens, I could just quit it for further confirmation. (East Legon, IDI, 19 years)

Well, if they do it again I can learn. Because I would like them to teach me so that I can learn it so I can do it by myself. (Ashaiman, IDI, 24 years)

All participants during the interviews were not able to accurately explain the steps to be taken when conducting the test. From the explanations given, the sample collection step was incorrectly explained by most participants.

The pack is sealed, so when you get it, you open it and then there is something inside like a brush, so you remove it and then you use it to clean your teeth, mouth, everything, everywhere. After that you put it in a bottle so when you wait for some time it will read. (Adabraka FGD 1 participant #5, 50 years)

You will clean corner to corner, under Your jaw, your tongue, everything. You brush everywhere. You brush it like you are brushing your teeth, your mouth, you brush it and then you put it inside. (Ashaiman IDI, 38 years)

3.3.2 Interpretation of oral HIVST results

Only two people in the study were able to correctly explain what the results of the test signify and mean.

The test will read and so if it is 1, it will show you; if it is 2 it will also show you. If it is one line, it means it is negative and if 2 it means positive. (Adabraka FGD 2 participant #2)

Most of the other participants stated that they would need help with the interpretation of the results despite carrying out the test by themselves.

After I perform the test, I would still need help in interpreting the results because I would not know what is what really. So I need a peer educator or anyone to help me interpret. (Ashaiman, IDI, 24 years)

3.3.3 Perceived risks and benefits of using the HIVST

FSWs explained how using the oral HIVST can be advantageous. Participants explained how the test is confidential, easy to perform and a convenient test to perform that helps to avoid spending so much time in a queue at the hospital.

It is confidential because when you keep secrets it is good. When you test the oral quick yourself, you will not disclose it to anybody. When you go to the facility, you are going to take your drugs, nobody will know about it but if you tell somebody, somebody too will go and tell somebody and by the time you realize, it has spread. Your secret is your power, your power. Do not allow anybody to know your secret. (Adabraka FGD 1, participant #2, 44 years)

The advantage of the oral quick is that when you compare the oral test to the blood test, with the blood test, you will be pricked, but with the oral test, you will not feel any pain in your mouth when you are doing it; that's the only advantage. (Ashaiman FGD 1, participant #5, 25 years)

You can use it anywhere you are. It is simple and easy. If you are travelling at least, you can put it in your box or your handbag in case of anything, maybe you do not have time to go to the hospital, so you can just use it. (Ashaiman, IDI, 34 years)

FSWs also explained that the test can be used to test the status of intimate partners and clients.

You can use it yourself or use it with your partner to know your status before you engage in unprotected sex. You can use the oral quick test to know if the person is negative or positive. (Adabraka FGD 2 participant #2, 26 years)

Despite the advantages that were mentioned, participants also raised some disadvantages associated with oral HIVST.

When you do the needle one, the nurse will do it for you and tell you to take your drugs but when you do the oral quick yourself, you might not go and tell the nurse that you have this or that. When you are not bold you will not go and tell the nurse that I did the test myself and I am HIV positive, the needle one is good because the nurse will trace you, take your contact and call you to come and do another test, confirm it again, they will also do your CD4 count. They will do TB test for you and give you drugs. (Adabraka FGD 2 participant #6, 45 years)

If the test result turns out to be positive, then after that what happens a person might not handle it well. (East Legon IDI, 26 years)

3.4 Perceived effectiveness of oral HIV self-test

3.4.1 Attitudes towards the accuracy of oral HIV self-test

Individuals' beliefs and views shape how they think and inform their attitudes. Thirty out of the forty-three participants (69.8%) had belief in the test, whilst (13/43 30.2%) participants had doubts about the accuracy of the test.

I do not have any doubts at all about this test and the results. It even makes life easier for us. (Adabraka FGD 1, participant # 6, 36 years)

It is something that works, and that is why you have brought it to us. If it does not work, you would not have brought it for us to use. (Adabraka FGD 1, participant #1, 38 years)

Despite being aware of oral HIVST and willing to use the kit, participants still had some preconceived ideas about the accuracy of the test.

Why I would not believe the test is because nowadays people are producing many things They will just produce things and tell you it works. They tell you many things about how it works just because they want to sell it. Nowadays, some people do drugs they tell you this one works for this, some do creams, some do soap different things and most times it will even worsen the situation. (East Legon IDI, 20 years)

Some of the concerns about the test arose because of the test sample that is used to make the diagnosis which is saliva.

I do not believe the results of this test, for me, I will not because my mouth does not rest. I am always chewing something, so I do not believe the result is from my blood. Even now I am chewing gum, so different-different saliva is coming, so I will prefer the blood test. Ashaiman FGD 1 participant #6, 34 years)

3.4.2 Preference for HIV test

Many of the participants (31/43, 72.1%) expressed their interest in using the oral HIVST, which was mostly attributed to the various benefits that the oral HIVST has, and the

commonly mentioned reason was that it was less painful because it did not require any pricking, as mentioned below:

I prefer oral self-test because it will not hurt, I will not scream hard because I am scared of any injection, anything that will hurt me. (Ashaiman FGD 1 participant #1, 28 years)

I prefer to use the oral HIV self-test because it is easy and provides confidentiality. After carrying out the test, only you will know about your HIV status. (Adabraka FGD1 participant #6, 36 years)

FSWs who preferred to use the standard blood test as compared to the new oral HIVST attributed this to that HIV is in the blood; therefore, that would be the best sample to use as indicated in the quotes below:

I prefer the blood test because it is your blood. It is in your body. Whatever you take, it must be in your blood. The blood is the main sample, yeah. (East Legon IDI 19 years)

3.4.3 Recommendations for a potential intervention

Community empowerment through education is one of the necessary steps to be taken to improve the uptake of oral HIVST. Participants had a strong belief that providing education on how the test is conducted is necessary to increase HIVST knowledge to change attitudes and personal actions towards HIVST. Participants also suggested the use of social media and mass media campaigns to raise awareness.

By educating people on how to use the oral test, like how to do it by themselves so that they can have confidence in doing it. It is now that you are going to explain it to people; it is not now that you are going to tell people how to use it. (Adabraka FGD 1 participant #1, 38 years)

4 Discussion

We sought to understand the acceptability of oral HIVST among FSWs. Generally, the study revealed a low level of awareness of oral HIVST. Though the level of awareness was low, all of the participants in the study were willing to use and buy the oral HIVST. Most FSWs were confident and found it easy to perform the test upon being informed about it. Of the FSWs that had prior knowledge of oral HIVST most of them were confident and found the test easy to perform, despite this, none of them correctly explained all the steps, and only two FSWs could correctly interpret the results. HIVST was associated with different benefits and there was a high preference to use this test in comparison to the standard HIV testing. Most participants felt that HIVST has significant benefits, although a few FSWs had concerns about the accuracy of the test, mostly attributing it to the saliva as a test sample to make a diagnosis of HIV. This posed a barrier towards the acceptance of this intervention.

This study aimed to explore the acceptability of oral HIVST among FSWs in Ghana, generating much-needed pre-implementation evidence for national rollout. A key strength of the design was the use of FGDs and IDIs, capturing both collective norms and shared perspectives from FGDs as well as personal, individual experiences from IDIs, enriching the depth of findings. However, the findings of this study may not be

directly generalized to all FSWs in Ghana. The purpose of the study was exploratory, aiming to provide pre-implementation insights rather than national representative estimates.

The low level of awareness of oral HIVST observed in this study was consistent with findings from most studies conducted in sub-Saharan Africa [2, 19, 33]. Although overall awareness was low, sitters were more knowledgeable than roamers. This may be explained by the fact that sitters have well-established networks of peer educators within their communities who provide information on preventive and protective measures as well as HIV/AIDS testing services, thereby acting as cues to action [34]. Participants' willingness to use and purchase oral HIVST was also consistent with findings from other studies [35]. However, none of the participants in this study could correctly explain how to perform the test, and only a few could accurately interpret the results. This is similar to findings from a study in Uganda [36]. It is worth noting that in the Ugandan study, FSWs were required to perform the test and interpret their results, whereas in our study, participants were only asked to narrate the steps involved in performing the test and interpreting the results. Many of the benefits associated with HIVST in our study mirrored those reported in previous studies [2, 18, 19, 33, 37–42]. Similarly, the preference for oral HIVST over standard HIV testing observed here has also been reported in other countries [43, 44]. Concerns about the accuracy of the test, particularly regarding the use of saliva as a sample, were also highlighted in a Ugandan study [45].

The country's National HIV Program needs to take the initiative to improve awareness of HIVST. This can be done through health education campaigns, a strategy recommended by WHO [46]. The campaigns can be done in various ways to reach the target population: door-to-door campaigns, health service provider-initiated education or rallies. The common source of information identified was peer educators. It is important to train peer educators to disseminate correct information on steps to be taken when conducting the test and how to interpret results. Visual aids such as posters, images and videos can be used during training programs. Mixed perceptions about the effectiveness of the oral HIVST will affect acceptability. The findings from this study are important as they provide necessary data to support the implementation of HIVST by the National HIV program and to inform the development of information, education, and communication materials to provide comprehensive knowledge targeting the participants' concerns and doubts.

5 Conclusion

This study found low levels of awareness of oral HIVST among FSWs, however, upon being informed, most participants expressed willingness to use the kit, largely due to its perceived benefits. None of the participants could correctly describe all the necessary steps for conducting the test, and only a few could accurately interpret the results. Concerns were also raised about the efficacy of the test, particularly regarding the use of saliva for HIV diagnosis. Overall, acceptability of oral HIVST was high among FSWs, suggesting that its implementation could achieve high uptake and contribute to increased HIV testing coverage. To achieve this, there is a need for comprehensive health education through mass media campaigns, peer-led outreach, and integration of HIVST into routine services to improve awareness, strengthen testing skills and interpretation of results, and address individuals' concerns about the test kit. Furthermore, It

is also important to utilize and take into consideration a continuum of different service delivery approaches of HIVST to reach most of the target population.

Abbreviations

| | |
|--------|--|
| AIDS | Acquired immuno deficiency syndrome |
| ART | Anti-retroviral treatment |
| ECH | Ethics Committee for Humanities |
| FGD | Focused group discussion |
| FSW | Female sex workers |
| HBM | Health belief model |
| HIV | Human immunodeficiency virus |
| HIVST | HIV self-testing |
| HTS | HIV testing service |
| IDI | In-depth interview |
| MSM | Men who have sex with men |
| PI | Principal investigator |
| PLHIV | People living with HIV |
| SDGs | Sustainable development goals |
| SSA | Sub-Saharan Africa |
| TB | Tuberculosis |
| UNAIDS | Joint United Nations Programme on HIV/AIDS |
| WHO | World Health Organisation |

Supplementary Information

The online version contains supplementary material available at <https://doi.org/10.1186/s12982-026-01345-y>.

Supplementary Material 1

Supplementary Material 2

Supplementary Material 3

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Author contributions

TN conceived the study, wrote the concept and drafted the data collection tools. TN coordinated data collection, analysed the data and drafted the first draft of the manuscript. EA supervised the research project, reviewed and approved the final manuscript.

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Data availability

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate

This study involved human participants and was conducted by the relevant guidelines and regulations, including the Declaration of Helsinki (World Medical Association, 1964), which is widely recognized as the cornerstone of human research ethics. Ethical approval was granted by the University of Ghana, Ethics Committee of Humanities (Ref. No: ECH 185/22-23). All participants provided written informed consent for study participation, including interviews and focused group discussions. All study participants had to sign a consent form before taking part in the study.

Consent for publication

Not applicable.

Competing interests

The authors declare no competing interests.

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