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Client perspectives and satisfaction with integrating facility and community-based HPV self-sampling for cervical cancer screening with family planning: a mixed method study

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Conclusion Our findings highlight that women were satisfied with HPV self-sampling, valuing its convenience, privacy, and cost-e□ectiveness, which enhanced their willingness to undergo CCS. These findings suggest that integrating CCS self-sampling into FP services could potentially improve CCS uptake in Malawi.

Keywords Cervical cancer screening, Family Planning, HPV self-sampling, Thermo ablations

Background

Cervical cancer (CC) is the fourth most common cancer among women globally and the leading cause of cancer deaths, with the highest burden in low and middle-income countries (LMICs) [1, 2]. In 2020, there were an estimated 604,124 women newly diagnosed with CC, and about 342,000 women died from the disease. CC accounted for 37% of all new cancer cases among females in 2020 [3]. e proportion of new cases and women who die from CC is particularly high in sub-Saharan Africa (SSA) and countries with high HIV prevalence, accounting for 22.2% of all cancer deaths in women globally [4]. Women living with HIV are more than 6 times more likely to develop precancerous cervical lesions compared to the general population, and an estimated 5% of all CC cases are attributable to HIV [5–7].

Malawi, a country with a high HIV prevalence rate, has the highest age-standardized CC incidence and mortality in the world, with an age-standardized incident rate of 72.9 and a mortality rate of 54.5 per 1,00,000 women per year, respectively. CC is responsi9(e)6(t1Mira)9p prCte-6.9(ly)]TJ .672 Tw 0 -1.224 Td [295% of all femalw cancesy in the ectivd predention prC-.5(g)-11ramCCs populatioased(s)-6nceae shigantlypreed the incidence CC i hige-incomeIn2020,es([01],TJ .338 Tw -6.496999724 -1.224 Td [(W)73(or)6(lh H)6.1(e)98alithOar-10gtadieation rWancke tbr, t(e(e)7(im(nal9[(tion of C)-8(Cbyn 230.s)]TJ .808 Tw 0 -1.224 Td [i)-5(sst ra)9(t)1(b)-5.9g-)-20ylaimse t

e study was conducted in two districts in Malawi: Lilongwe in the Central Region and Zomba in the Southern Region. ese districts were chosen because they are in the two geographical regions of Malawi with the highest HIV prevalence in the country, with the Southern region at 12.8% and the Central region at 5.6% [29]. Nine facilities implemented Model 1, and seven implemented Model 2, with randomization stratified by district and health facility type. Facilities were selected based on where the models were most likely to be implemented, and each district included one Central/District Hospital, one Mission Hospital, one urban health center, one peri-urban health center, and four rural health centers. ese 16 health facilities were chosen in consultation with the District Health Management Teams. e trial was implemented from January 2020 to December 2021. Additional details about this trial's design, randomization process, and the conduct have been published elsewhere [24].

Study participants and recruitment procedures

For the qualitative component, we purposely recruited and interviewed 29 women aged 25–50 who underwent CCS through HPV self-sampling from both models soon after receiving their test results. We used purposive sampling to ensure equal representation of women from both models until data saturation was reached [30]. In Model 2, participants were further stratified based on where they collected results. e women who completed the in-depth interviews (IDIs) comprised of a) nine women who underwent HPV self-sampling at a facility in Model 1 (one from each Model 1 facility); b) seven who underwent HPV self-sampling at the facility in Model 2 (one from each Model 2 facility); c) seven who underwent HPV self-sampling in the community through Model

set above 95%, and weekly checks were done with the team from KUHES to discuss any coding disagreement below 95%. Once coding was completed, coding reports were produced, and data was displayed in matrices. e-matic analysis was applied to analyze the data. Narratives for specific themes were written through memos, and the qualitative team met weekly to discuss key findings.

me that you should come tomorrow…maybe I could have failed to come. I was very excited because that day it was possible for me to access both services. (IDI 008, Client, Zomba)

Many of the women screened at the health facility appreciated receiving results and treatment on the same and that this helped them to save time and money further since they were not expected to come back for treatment.

"*We felt that it was good for us to get our results from the hospital because when we received our results, they also gave us treatment right there at the hospital. "(IDI 011, client, Lilongwe).*

On the contrary, some women screened at the community level and those who did not receive same-day results expressed their concerns about the cost incurred to come back to the hospital for results and treatment.

"For the results, they should start giving the results on the same day so that one must know the kind of medication she has to receive because like that time I went home without knowing my results and I didn't get any medication."(IDI 002, Client, Zomba)

get screened today, they are already here, yeah." Opportunity never knocks twice on everybody's door, so it means I am just lucky that the sampling equipment is available, then I should just get screened, sure. (IDI 003, Client, Zomba)

Women expressed that they encouraged each other to access the screening services available within their communities.

"My additional ideas are that I am supposed to reach out to my friends explaining to them that they should go to the hospital to get screened for cervical cancer to know their health status; I want them to know their healthy statuses." (IDI 010, Client, Lilongwe)

e use of available Health Surveillance Assistants (HSAs) was also seen as a better way to encourage women to undergo CCS within the community because they are already trusted by the community members and chiefs as "Adokotala Akumudzi" *(Meaning village doctors)* and major providers of outreach services within the communities in Malawi.

" rough the advice that the HSA gave us about health issues, we consider them as our doctors and parents such that we accept and adhere to whatever they tell us." (IDI 003, Client, Lilongwe)

Privacy

During IDIs, most women screened in the community were happy and satisfied with self-sample collection within the community because they collected their samples at places convenient to them that ensured good privacy. ese included their homes, particularly their bedrooms or bathrooms, at the chief's house, or within the building where the outreach clinic was taking place.

Yes, it was inside the house, and everyone was given a room to use. What happened was that everyone was given the brush and was told to go and do the self-sampling at any place where they felt there was privacy and where they could feel comfortable to collect the cervical samples and then put the brush into a plastic pack and bring it to the community health service provider confidentially. (IDI 012, Client, Lilongwe)

Similarly, some women who collected samples at the facility level reported that there was good privacy because they were allowed to collect samples on their own despite being at the hospital where screening using VIA is common.

"We were told to go to the bathrooms, and they were private because you could lock yourself in. I was all alone. And after I did it, I submitted it by myself; no one saw what I was doing. If there was a person who saw it, it was only the doctor that I handed it to. (IDI 008, Client, Zomba).

However, other women who collected samples at the clinic reported feeling embarrassed due to lack of privacy since they collected the samples within the busiest toilets within the facility with some of their fellow women queuing outside waiting to use the toilets.

"At the hospital, the toilets or private places are few as compared to at home where you can just lock yourself up in a bedroom and collect the sample. Here [at the hospital] someone can find you and when you are doing it in a hurry you can harm yourself." (IDI 011, Client, Zomba)

Additionally, others complained of collecting the samples within the consultation room in the presence of health personnel, which compromised privacy.

"It was the same room where the doctor was…Yeah, there were people. ey just gave me the swab and told me to insert it in my vagina, so they told me that I should rotate it five times. (IDI 009, Client, Zomba)

Motivation to undergo self-sampling for CC screening through the two models

ree main themes emerged from qualitative data as motivation for accepting CC Screening among participants in both models, including (1) availability of services, (2) perceived risks to cervical cancer, (3) Gynecological symptoms (Fig. 1).

Availability of services

Most women in both models reported having heard about the CC screening opportunity while at the clinic or within the community when they had gone to access other services, especially family planning and under-five clinics, and decided to participate in the self-sample collection. Most participants expressed their desire to be screened for cervical cancer but reported experiencing challenges due to limited screening days at the nearest health facility (twice a week), suggesting that integrating CC screening education and services with other healthcare services can increase awareness and participation.

" I just met this service by surprise, but I have been wanting to go for cervical cancer screening. So today I came for other services because I heard that cervical cancer screening is done on Wednesday or urs-

Some participants reported having accepted to be tested because of a family history of cervical cancer or because they had seen friends and other people in their communities who had cancer. Some also reported feeling at risk, having seen some of their friends who were diagnosed with HPV or cancer during the study. ey acknowledged the importance of early screening and diagnosis for cervical cancer and treatment to prevent further spread of the disease.

> *"Uhmm…in the first place, I heard about the screening through health education, the second thing that made me do it was that at home there are people who su ering from it [cervical cancer] that are closely related to me, so this made me also go for screening." (IDI 011, client, Zomba)*

Experiencing gynecological symptoms

e majority explained they had been experiencing gynecological and other health problems such as itching of the vagina, abnormal/smelly vaginal discharge, and pelvic bleeding for some time, which they attributed to symptoms of cervical cancer. Consequently, they accepted being screened for cancer and reported having wanted to be screened, but the services were not available.

> *I was not feeling well in my body and my vaginal fluid was mixed with pus I was also feeling some pains in my private part mostly the top part of it. So, I said that if the government has provided us with these tools (Self-test kits), I better get them and collect the samples to be tested so that I know how I am in my body." (IDI 007, Client, Lilongwe)*

ose who were on family planning and experiencing vaginal bleeding associated the bleeding with cervical cancer disease and wanted to rule out whether it was cervical cancer despite the knowledge that pelvic bleeding could be caused by FP use, especially Injectable Depo Provera which is commonly used by women in Malawi.

> *"Yes, for me to have doubts, maybe it was because of the injections, but I noted that recently, for a month, I was just bleeding and bleeding. en, I realized that this was not true. could it be that I was experiencing the symptoms of cancer since I was experiencing the signs that I have heard people talk about regarding when a person has cancer?" (IDI 008, Clis experi*

overwhelming majority of women mentioned receiving support from their partners on their decision to undergo cervical cancer screening, highlighting the importance of partner involvement in cervical cancer screening pro-

play an important role in improving the global coverage of CCS.

Another key finding was that women screened at the health facility incurred double transportation costs since they did not receive their results and treatment on the same day and needed to return compared to women screened in the community who could choose to receive their results in the community without having to come to the health facility. Similar to findings from earlier studies, failure to receive same-day results resulted in some women screened at the health facility being unable to return for their results [39, 40]. is suggests the need for proper planning for sample testing to meet the demands and improve the number of women receiving their HPV results.

We found that the satisfaction related to the screening program emanated an important part from the feeling of being empowered to make an informed decision to undergo cervical cancer screening in an environment where women often do not have any control over their health-seeking behavior due to cultural and gender norms. Unlike findings from other studies, the women in our study did not report experiencing any blame or social harm for choosing to undergo screening without seeking approval from their partner or significant others. is highlights the demand for cervical cancer screening within the communities [41]. furthermore, community sensitizations by the program team created an opportunity for men and other community members to learn about the importance of early screening for cervical cancer and the availability of the cervical cancer screening program in their community. is contributed to the support for women who were screened.

Fewer than 2% of women rated themselves as "somewhat" or "very dissatisfied" with the cervical cancer screening and treatment services they received. Delayed or unavailable results were an important reason for experiencing less than high satisfaction with HPV self-sampling, which was a concern that did not impact on VIA screenings. e expected timeframe for receiving HPV screening results should, therefore, be discussed with women when selecting between available screening options. Further, some women performing HPV self-sampling experienced a lack of confidence that they had done so correctly, which also was not a concern during VIA. Methods for instilling confidence in the HPV swabbing process are a potential area of future research. Conversely, VIA screening was reported by a proportionally higher percentage of respondents as being uncomfortable than those screened with HPV self-sampling. Despite these occasional concerns, approximately 93% of women reported feeling "very satisfied," another 5% reported feeling "somewhat satisfied" with their cervical cancer services, and in nearly all cases surveyed, women would recommend the services to a friend. ese findings support the high client acceptability of integrated CCS and FP services.

A key strength of our study is the inclusion of clients from multiple locations across two districts, which enabled a richer understanding of clients' perspectives on self-sampling and the two models of cervical cancer screening. is geographical variation enhanced the credibility of our findings by capturing the experiences of women across di erent settings. However, our study does have some limitations. Our cohort was limited to women who attended community outreach or facility-based family planning services and agreed to participate in cervical cancer screening. As a result, our sample did not include women who refused to be screened, who may have unique reasons for not participating, such as fear of the procedures, anxiety about positive results, and stigma. Consequently, our findings do not capture the reasons for non-participation among those women who declined screening or did not present themselves at the clinic or community to undergo self-sample collection. Additionally, this may have also introduced selection bias, as the findings primarily reflect the perspectives of only those who underwent the screening and were willing to participate in the interview. Despite these limitations, the use of both qualitative interviews and client exit survey data strengthened the comprehensiveness of our findings, thereby providing an understanding of women's perceptions and satisfaction with the models.

Conclusion

Our findings highlight that women had high levels of satisfaction with HPV self-sampling and the integration of self-sample collection for CCS with family planning at both community and facility levels. ey valued this approach due to its convenience, privacy, and reduced financial barriers, such as transportation costs and time. Additionally, the ability to collect their own samples within their communities without requiring a speculum examination contributed to greater trust and comfort with the screening process, increasing their willingness to undergo CCS self-sampling.. ese findings highlight the significant opportunities for further integration of CCS with other reproductive health services such as family planning, antenatal, postnatal care, at facility and community level. A key factor contributing to positive perceptions of self-sampling and the integration was the autonomy it o ered in decision-making, with many women across both models feeling empowered to accept screening without requiring prior consultation with their

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