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Perspectives and experiences of Zambian pregnant and postpartum women receiving two intervention models to increase uptake of male partner HIV testing

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ABSTRACT

This study explored the experiences of pregnant women who received two intervention models for increasing uptake of male partner HIV testing in antenatal settings. As part of a randomised trial, we interviewed twenty participants who received partner notification services only while 22 received the partner notification plus HIV self-testing. Thematic analysis was used to analyse the data. Partner notification services helped to initiate discussions of HIV testing with partners, influence partners to undergo testing, and encouraged disclosure of HIV status. Some women experienced difficulties engaging partners due to fear of their partner's reaction. Some partners were unable to test due to time constraints. The partner notification plus HIV self-testing intervention, stimulated discussion about HIV testing; facilitated testing for men at their convenience; addressed privacy/confidentiality, and stigma concerns; and provided the opportunity to disclose HIV status. Some women feared disclosure and retribution in case of discordance results. There were also challenges with men making follow-ups for confirmatory HIV tests. The addition of HIV self-test kits to partner notification services can expand HIV testing services to male partners, including those of HIV-negative women. Additional efforts are needed to link men to appropriate HIV prevention, care, and treatment services.

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Introduction

In sub-Saharan Africa, a significant number of new HIV infections in children occur during breastfeeding resulting from women's heightened risk of HIV acquisition during pregnancy and postpartum (Graybill et al., 2020; Thomson et al., 2018). Engaging male partners in HIV testing and counselling enables them to understand the importance of exclusive breastfeeding or safer infant

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feeding options to minimise the risk of transmission (Rujumba et al., 2021). This knowledge can help break the cycle of HIV transmission from mother to child, ultimately reducing the burden of HIV in the community and the region. Additionally, PMTCT programmes that involve both partners in the HIV testing and treatment process can adopt a family-centred approach (Betancourt et al., 2010). This approach recognises that HIV affects not only women but also the entire family unit. By engaging male partners, PMTCT programmes can provide comprehensive care and support to families affected by HIV, addressing their physical, emotional, and psychosocial needs (Sifunda et al., 2019).

Male partner HIV testing – either alone or as part of a couple – can have important benefits, including HIV risk assessment and, where appropriate, entry into comprehensive HIV prevention services. This can in turn lead to decreased risk of HIV acquisition by pregnant women and ultimately reduce transmission to infants (Chi et al., 2018). For these reasons, reaching male partners of all pregnant women – including those of HIV-negative pregnant women – is an important priority for integrated HIV programmes (Manjate Cuco et al., 2015).

To contribute to research on effective male partner engagement strategies in antenatal settings for both HIV-negative and positive pregnant women, we conducted two parallel randomised trials – separately enrolling HIV-positive and HIV-negative pregnant women – to increase uptake of male partner HIV testing. We compared two strategies: partner notification services only versus partner notification services plus secondary distribution of HIV self-test (HIVST) kits (2021). A key feature of our study was its 'status neutral' approach that provided similar services regardless of a pregnant woman's HIV status (Myers et al., 2018). In this report, we describe the experiences of women randomised to these two different strategies for increasing male partner HIV testing. Understanding the experiences of women participating in different strategies provides valuable insights into the effectiveness of these strategies. By assessing the outcomes, challenges, and successes of each approach, researchers and policymakers can determine which strategy is more effective in increasing male partner HIV testing. This information can guide future programme implementation and resource allocation.

Methods

Study design

The methods and primary findings of the parent trial have been described elsewhere (Mutale et al., 2021). Briefly, all women enrolled in the two parallel trials received partner notification services, adapted from the World Health Organization (WHO) guidelines. This included the elicitation of primary and secondary sexual partners, and then four options for partner notification for each: client self-referral, provider contract referral, provider referral, and dual referral (World Health Organization, 2019). HIV-positive women received these services as part of the standard of care, in alignment with the Zambian Consolidated HIV Guidelines (MOH, 2020). Because these services are not typically offered to HIV-negative women in the clinical setting, they were provided in the context of this study. Regardless of their HIV status, all pregnant women allocated to the intervention arm were also offered HIV self-test kits for secondary distribution to their partners. They were instructed on the use of HIVST kits and counselled on how to introduce the topic of HIV testing and how to facilitate disclosure. Women in the intervention arm were asked to encourage their partners to get confirmatory HIV testing by a trained healthcare worker at the health facility. Approximately one month following enrolment, women were scheduled for a follow-up visit, to report on the HIV testing uptake by their male partners. We also gathered information about experienced adverse events, including social harm.

Qualitative study approach and methods

We employed a qualitative case study approach to better understand the experiences and acceptability of our two approaches to increase male partner HIV testing in antenatal settings. Such an

approach allows for detailed explorations of key issues within different categories according to HIV status (HIV-positive and HIV-negative) and study arm (control and intervention). We recruited women for the qualitative interviews at their follow-up visit, purposively selected using quota sampling, a non-probability sampling technique that involves creating quotas or predefined categories based on specific characteristics or traits of a population (Sharma, 2017). We used this strategy to ensure that the sample represented the diversity of the population, i.e. women whose male partners used the self-testing kits and women whose male partners did not use the kits. We first identified key characteristics of participants, which included age categories for women, HIV status, and use of HIVST by male partners. In each category, we included the number of participants that were needed and sampled participants based on our predetermined categories.

We interviewed a sample size of 20 women in the control arm (12 HIV positive, 8 HIV negative) and 22 (10 HIV positive and 12 HIV negative) women in the intervention arm from June 2020 to November 2020. All participants adhered to the study interventions of HIV testing and distributing the HIVST to their male partners, women were interviewed regardless of their male partner testing or not. In-depth interviews were conducted in a private setting to ensure confidentiality. The majority were conducted at the health facility, with their permission, and a few were performed at the participant's home. Native Zambian interviewers experienced in qualitative research led the interviews in the woman's preferred language; English, Bemba, or Nyanja. Interviewers used an interview guide developed based on a review of the literature and similar studies in the region and earlier studies conducted by the research study. Questions in the guide focused on experiences with partner HIV testing and the approach used, previous experience with partner HIV testing, any social harm experienced while requesting a male partner to test, and concerns about the testing approach used. Before the commencement of data collection, a pilot exercise was conducted to ensure that the interview guides solicited the required information and that women would be comfortable answering the questions. The interview guides were revised during the study training workshop to reflect contextual issues, and after the pilot study, the interview guides were revised to reflect new insights in consultation with the larger study team. Each interview lasted between 30 and 45 min.

All audio recordings were transcribed verbatim and translated for analysis with all identifiers redacted from the interview transcripts before analysis. To ensure good data quality, each interview transcript was checked by the lead qualitative researcher to ensure questions were in line with the objectives of the study and language translations were correct. An independent reviewer also provided feedback on the shared meaning and comprehensiveness of the transcripts. The transcripts were then shared with the study team and, through regular data meetings, major themes from the data were discussed.

These qualitative data were analysed thematically using steps by (Braun & Clarke, 2006) where transcripts were reviewed to identify the major themes. A codebook was then developed based on these reviews and discussed by team members to reach a consensus on its working structure. NVivo (version 12, QSR International Pty Ltd, Chadstone, Victoria, Australia) was used to code, categorise, classify, and manage the data.

The process started with familiarisation with the data, and thoroughly immersing ourselves in it to gain a deep understanding of the interviews. Transcripts were read multiple times to become familiar with the context, themes, and nuances while taking notes and making initial observations to capture initial impressions. The next step was reflexive coding, which involved an iterative and reflective process of coding and analysis in which the team's perspectives and assumptions were actively engaged. Two team members (TFLM and AdK) independently coded the first five transcripts and compared them to establish inter-coder reliability. We used NVivo coding comparison tool to compute the inter-coder reliability. Discrepancies in coding were discussed until consensus was achieved. We continued this process until inter-coder reliability was >85%. Our approach consisted of both deductive (a priori) codes from the interview guide and research inductive (emergent) codes (see supplement table of themes).

Through reflexive coding, we identified information and meanings from the transcripts that relate to the perspectives and experiences of participants on the two models of male engagement in HIV testing. Direct quotations are used to support themes and to demonstrate confirmability (Drisko, 1997). The final themes we report include women's perspectives and experiences, as well as men's responses to HIV testing. We also used open coding to identify and label meaningful units of data to ensure codes emerged directly from the data without preconceived categories. Trustworthiness was also ensured through triangulation, which involved the use of multiple sources of data, including reviews of literature and documents on HIV testing policies. Peer debriefings were also conducted with the research team, and discussions were held at each stage of the data collection and analysis process.

Ethical review

The study protocol was reviewed and approved by the University of Zambia Biomedical Research Ethics Committee (Lusaka, Zambia) and the University of North Carolina Institutional Review Board (Chapel Hill, NC, USA). Our protocol was also reviewed by the Zambia National Health Research Authority (Lusaka, Zambia) and leadership at the Lusaka Urban District Health Management Team and the Chipata Level One District Hospital.

Results

A total of 42 women were interviewed. Of these, 22 women had been randomly allocated to receive the partner notification plus HIVST kits (10 HIV-positive and 12 HIV-negative), while 20 women had received partner notification alone (12 HIV-positive and 8-HIV negative). At the time of the interviews, 37 were pregnant and five had delivered and were breastfeeding. The sociodemographic characteristics are shown in Table 1. Below, we describe the experience of participants in the trial, as well as partner response, according to the type of male HIV testing services received. The stated strengths and limitations of these approaches – from the participants' perspectives – are summarised in Table 2.

Experiences with the partner notification services alone (control arm)

Initiate a discussion about HIV testing and disclose HIV status

In the control group, some women from both HIV-negative and HIV-positive groups found that the partner notification strategy enabled them to initiate discussions with their partners about HIV testing. This was worthwhile because, before entering the study, most were unaware of their partner's HIV status.

> The difference [with partner notification strategy] is that after I explained to him, he was excited and asked 'Oh this is what they have started now.' I said, 'Yes that is what is going on.' So, before the child is born, they should know both our [HIV] statuses so that the child isn't affected. So, he was impressed and he said he will test. (Married, 27 years old, HIV-negative)

Both HIV-negative and HIV-positive women reported that the male partner's HIV testing strategies created an opportunity to disclose their HIV status and encouraged their partners to visit the health facility to get tested. Their partners acknowledged the need to test for HIV to learn their status.

> I wanted him to know that I am ok [HIV-negative], and yet you can find that he isn't ok and end up thinking I am also not ok. Because he had developed a rash [suspected STI] at some point and he thought I also had the infection [suspected STI] but, after I came for antenatal, I came and tested for syphilis, I was just ok and I took even the results to him. (Married, 29 years old, HIV-negative)

Table 1. Participant demographic characteristics.

	Control Arm (20)	Intervention Arm (22)
Age		
18–24	4	9
25 and above	16	13
Highest education level completed		
Primary school	9	6
Secondary school	8	14
Tertiary education	3	2
Marital status		
Married	18	20
Single	2	2
Employment status		
Employed (full- or part-time)	3	4
Homemaker	1	9
Unemployed/other	5	9
Pregnant/breastfeeding		
Pregnant	20	17
Breastfeeding	0	5
Number of living children		
0–2	16	16
Above 3	4	6
HIV Status		
HIV Positive	12	10
HIV Negative	8	12
How long have you been taking ARVs		
Less than 1 year	8	6
1 year and above	4	4

Difficulty to get partners to test for HIV

Regardless of HIV status, women commonly reported that they struggled to persuade their partners to test for HIV, with most of their partners entirely refusing to go to a health facility to get tested. These women also reported difficulties in discussions and negotiations. These women

Table 2. Control vs intervention by positive vs negative experiences.

	Positive experiences	Negative experiences
Experiences in the control group	• Partner notification services helped them open up discussion HIV testing and influence their partners to test for HIV • Partner notification services created an opportunity to disclose their HIV status	• Some women found it difficulty to engage the partners for fear of partner's reaction and belief that their partners would not listen to women. • Some male partners refused to go for HIV testing at the facility due to time constraints. • Discussing HIV testing created tension and conflict among some couples • Some HIV positive women avoided discussing HIV testing for fear of retribution • Some male partners to HIV positive women refused to go an HIV test because they did not show any symptoms of HIV infection
Experiences in the intervention group	• Partner notification services + HIVST kits were a stimuli to discussion about HIV testing • HIVST kits made it ease to testing for HIV at their time and location of convenience, • HIVST kits helped men with busy schedule who can't access facility-based HIV testing • HIVST kits addresses concerns on privacy, confidentiality and stigma • Use of HIVST ST provided an opportunity to disclose HIV status.	• Some participants had difficulties to negotiate because their partners did not feel women were qualified to test. • Some partners got upset when told to test with HIVST. • Some HIV participants feared of disclosing their HIV status due to fear of retribution from partners in case of HIV discordance result. • Male partners would not seeking confirmatory testing or linkage to care.

reported that their partners were uncomfortable discussing HIV testing and even seemed to fear HIV testing.

> When I went home, I tried to explain the way the results came out but he didn't believe me. But when I was here [clinic] I left his line [phone number], and they tried to call him. He told me that, 'the people at the clinic called me, why did they call me, for what?' And I said over the same issue I told you last time … it's like he didn't believe because even when I told him, 'I will start medication,' he said: 'If you start it's for your benefit, me I can't try because I know the way my ways are and I believe in myself … even if they find me with it [HIV] I can't take the medication'. (Married, 26 years old, HIV-positive)

Some HIV-negative participants reported that their partners claimed to have tested elsewhere without their female partners, thus they felt that another HIV test was not necessary.

> I was told that when you reach, you can give him the paper then he can go to any clinic to go and get tested. When I went home, I told him, and he said he is just fine [HIV-negative] … he already tested. So, after some time I came back to the clinic and told them that he refused. (Married, 25 years old, HIV-negative)

Some HIV-positive women also revealed that their partners refused to go for HIV testing because they did not have any symptoms to warrant HIV testing, even after some of these women disclosed their HIV status.

> You have stayed with me here, not even a single day have I complained to say 'I am feeling this I am feeling that' … I am always fit. I go even from January to December without feeling any pain in my body. (Married, 26 years old, HIV-positive)

Time constraints due to employment and other competing priorities were also common reasons for male partners not seeking HIV testing. Prioritisation of jobs over clinic visits often resulted in men being unable to complete HIV testing even if they were willing to undergo HIV testing initially.

Fear of partner's negative reaction

Some women from both HIV-negative and positive groups also revealed that discussing HIV testing with their partners created some tension or even conflict between couples, with some feeling that the request for an HIV test was an accusation of their infidelity or an assumption that they were HIV positive.

> With him he would get upset and there would be confusion … He would say you think I am sick [HIV- positive] sometimes we would argue like I know the truth about him … it used to bring confusion. (Married, 27 years old, HIV-negative)

Unsurprisingly, concerns about partner response were most pronounced among HIV-positive pregnant women. Many avoided discussing HIV testing with their partner because they were convinced that their partner would not accept HIV testing or feared retribution. These women thought that provider-assisted approaches may be more effective since their partner would listen to a healthcare provider more than they would listen to the women themselves.

> For me to tell him again I think it can't work because the way he answers me is bad. Maybe if someone from here [clinic] maybe [they] can go and talk to him, because these people are trained so maybe they would know how to take him. (Married, 26 years old, HIV-positive)

Overall, both HIV-negative and HIV-positive women in the control group had largely similar experiences in engaging their partners about HIV testing. However, HIV-positive participants had an additional burden because engaging their partners also entailed disclosing their HIV status and they feared the potential consequences this would bring.

Experiences with the partner notification services plus HIV self-testing (intervention arm)

HIV self-testing kits as a stimulus for engaging male partners

Regardless of their HIV status, women allocated to the intervention group were offered a combination approach to increase male partner HIV testing. This strategy integrated partner notification

services with HIV self-testing, with kits provided for secondary distribution to male partners. HIV-negative and HIV-positive women alike reported how the availability of self-test kits served as the stimulus for engaging their male partners in discussions about HIV testing. The addition of an HIV self-test kit to partner notification services made it easy to negotiate and persuade their partners to get tested for HIV. The instructions on HIVST were easy to follow.

> When they gave me that self-testing kit, I went home … I told my husband that I am HIV-positive but I don't know your HIV status. I told him I have been given this self-testing kit to come and test you. Then if you want to know the full information, that's when I gave him the brochure so that he could read it, and he didn't even resist, he just said 'ok, test me'. (Married, 27 years old, HIV-positive)

> It isn't difficult, it's easy … I was able to teach him. It comes in a packet and you open and read the papers in Bemba [local language], there was also English and others … you just remove the long item and pass it around your gums and then put it in the solution … That's how I taught him …. (Married, 35 years old, HIV-negative)

HIV self-testing kits are convenient and easy to use

The participants also felt that the addition of HIV self-testing was welcome since it allowed men who cannot access facility-based HIV testing services due to busy schedules. Women used this to frame the discussions about HIV self-testing and why it might be an appropriate option for their male partners.

> I was told that since your husband is not usually home and on antenatal days, he can't make it to the clinic then get these kits, let him test then on a day you will come for antenatal, carry them [test kits] with you, that's how he got tested for HIV using the kits. (Married, 33 years old, HIV-negative)

A few women liked the addition of HIV self-testing to partner notification because it was using a mouth swab to test rather than the blood-based test kits. Women also reported that their partners liked the HIV test kits for the same reasons. One HIV-positive participant whose partner tested negative reported that her partner liked the self-test kit and promised to continue getting tested.

> He liked it very much, he said it's very much comfortable. It is much better than the one [using blood] because he doesn't like needles so he said this one is much better. He said, 'You can even get some more if you want, I can be doing it every after three months if you like. (Married, 24 years old, HIV-positive)

Privacy, confidentiality, and disclosure of HIV status

More than half the participants also reported that adding HIVST to partner notification services would address concerns about privacy, confidentiality, and stigma associated with testing at the health facility because one can do it at home.

> For some people, the reason why they don't come here is maybe you find a person you know and is the one who is going to do the test and know your status then they start spreading the news. I think that's the reason why most people don't come especially men because they are afraid a lot of people will know their status, so I think doing it alone with your partner at home is better. (Married, 22 years old, HIV-negative)

Some HIV-positive participants also reported that the introduction of HIV self-testing helped them not only have their partner get tested but provided an opportunity to disclose their HIV status to their partners. One HIV-positive woman also indicated that, after learning their partner's status and then disclosing their status, they used the HIVST kit to test their child as well.

> First, when I came here, the nurse told me I am HIV positive. I went home and I didn't tell him, I just kept quiet. I even started medication [without telling the partner]. Then I joined the study, took the self-testing kit, and went home. The following day in the morning I talked to him. I asked, do you know this, he said no, I told him this is a test for HIV, and he asked where I got it from. I said I got it from the clinic, then he said OK no problem we can test, then I tested him and the results were positive. I told him. Then he said, 'Oh I'm HIV-positive.' I said yes. He asked, 'What about you?' I said, 'Yes even me I am HIV positive. That's why I brought this test' … He asked how many tests do I have. I said, 'I got two.' He said, 'Okay you can test the second born.'

> And I tested her and found her results were negative and she is 7, almost 8 years old now. (Married, 27 years old, HIV-positive)

Difficult to negotiate the use of HIV self-test kits

Despite the strengths of this approach, participants reported limitations as well. Similar to the participants in the control group, both HIV-negative and HIV-positive women indicated that the process of negotiating was not always easy with partners. Some partners would get upset when discussing HIV testing. Others refused to use the test kit and accused their partners of being paid by health staff to promote the use of HIVST kits in the community.

> For me sometimes he scares me as he gets upset so I have fear … I thought of my young sister who is a nurse at UTH [University Teaching Hospital in Lusaka], maybe one of these days she can come and visit us and talk to him to help take away the fear from him … he takes what I say for granted, he thinks all is well because his body is still ok and has a lot of strength … even your health workers can help by calling him, I can give you his number. (Married, 31 years old, HIV-positive)

> It was a bit difficult for me to do this, he started asking if I had now become a doctor to start testing him. 'Maybe these are Satanism-related. How can they give you these things, have you started getting paid, and they pay you to come and test people in the compounds, go and test other people?'. (Married, 33 years old, HIV-negative)

Disclosure of HIV status and confirmatory test

Similarly, most HIV-positive women in the intervention groups reported challenges disclosing their HIV status to partners. A few women expressed a desire for help from a health worker to disclose their HIV status and get their partners tested. A few HIV-positive participants whose partners tested HIV-negative after using the HIVST kit reported tension in the relationship afterward.

> When I came to the antenatal [clinic] and I found myself positive, I went back home. First I came here then they give me the self-testing, yeah then I gave it to him. For him the results were negative, so we had a misunderstanding. We tried to call the project staff to help, but she [study nurse] assured me things will get better with time, just try to avoid him. (Married, 26 years old, HIV-positive)

A few participants reported concerns and challenges in getting their partners to follow up on an HIV-positive result from a self-test kit with a confirmatory test at the health facility. Their partners' busy schedules made it difficult to get confirmatory testing scheduled.

> [After testing positive for HIVST] he asked what comes next, I said we can go to the clinic together so that he can confirm that he is HIV positive. He said ok. He said, when he has the chance, he will come. So, I have been waiting for him until now. He hasn't had a chance. (Married, 27 years old, HIV-positive)

Overall, both HIV-negative and HIV-positive women reported both positive and negative experiences with adding HIV self-testing kits to partner notification services. While HIV self-test kits presented an opportunity to engage men and get them tested, HIV-positive women in the intervention group also struggled with the issue of disclosing their HIV status to their partners.

Discussion

In this study, we explored the perspectives and experiences of HIV-negative and HIV-positive women when offered two models to increase male partner HIV testing in a trial setting. While partner notification services helped participants in the control group to initiate discussion of HIV testing, influence their partners to test, and disclose their HIV status, most participants found it difficult to engage their partner for fear of the partner's reaction and belief that partner would unlikely listen to the women. Several women reported that their partners refused to go for testing for HIV at the health facility due to time constraints. The addition of HIV self-testing as an option – via secondary distribution of test kits by pregnant women – mitigated some of these reported challenges. HIV

self-testing stimulated discussion on HIV testing, made it easy to test at the time and location of men's choice, helped men access HIV testing outside the health facility, addressed privacy, confidentiality, and stigma concerns, and provided an opportunity for the couple to disclose their HIV status. Nevertheless, there were some concerns. Some partners did not feel women were qualified to test, some partners got upset when told to test, some women feared disclosing HIV status, retribution from partners in case of discordance results, and men not seeking confirmatory testing or linkage to care.

One shortcoming of existing efforts to engage male partners in PMTCT is the narrow focus on partners of HIV-positive women only (Chi et al., 2018). In our study, HIV-negative women were offered partner notification and HIV self-testing as well, and their experiences largely reflected that of HIV-positive participants. For example, many HIV-negative women suggested that the distribution of HIV self-test kits would help identify cases of discordant HIV results, from partners who tend to use the negative status of women as their proxy HIV status. Expanding HIV self-testing to male partners could reduce the risk of seroconversion for women who initially test HIV-negative in antenatal care, by identifying HIV-positive partners and facilitating their linkage to HIV care and treatment services. However, countries struggling with resources may consider prioritising HIV-negative women who feel at risk given their circumstances in the relationship.

HIV self-testing is a convenient tool for HIV testing and provides opportunities for men who were unable to access HIV testing services at the health facility for various reasons. For example, many studies have reported high uptake of HIV testing among men and couples when HIVST kits are provided to pregnant women for secondary distribution (Gichangi et al., 2018; Korte et al., 2020; Marwa et al., 2019; Masters et al., 2016). The findings from this study and others have shown that HIV self-testing were seen to give autonomy and power to men while assuring privacy, confidentiality, and less stigma. These are important concerns for men when HIV testing is done at the health facility level, especially within the local community (Choko et al., 2017; Harichund et al., 2019; Knight et al., 2017; Offorjebe et al., 2020). Further, this study has shown that adding HIVST kits to partner notification services provided HIV-positive women, struggling with disclosing their HIV status to their partners, an opportunity to do so.

While the secondary distribution of HIVST is a promising approach that may lead to greater uptake of male HIV testing, some concerns should be considered in scaling up this approach. Programmes need to be tailored to the unique needs of women, particularly women who are in abusive or violent relationships. The PMTCT service providers need to be aware of the unique situation of participants in the programme and, where possible, should tailor their services accordingly. For example, it has been shown in this study and others that women in abusive relationships may fear the partner's reaction when told about the HIVST kit and the struggle to disclose of HIV status for fear of retribution (Knight et al., 2017; Kumwenda et al., 2019; Matovu et al., 2017; Pintye et al., 2019). Additional support may be needed for such individuals when they are taking HIV testing kits for secondary distribution to their partners. One way, as suggested in this qualitative study, is to identify a key confidant of the couple who can help in disclosing the HIV status of the woman and negotiate with the male partner on the need to test for HIV. Other suggestions included home-based testing with community health works and invitation letters from the health facility. Interestingly, these types of services were offered under the umbrella of partner notification services and thus provided to participants regardless of the study arm. However, they were rarely selected. There is a need to explore why this is the case.

The other concern on the secondary distribution of HIV self-testing is the identification of HIV sero-discordant couples. As shown in this study and others (Kumwenda et al., 2019; Offorjebe et al., 2020), some HIV-positive women reported some tensions and marriage break-ups after their husbands tested negative after using the HIVST. This suggests that additional support should be considered for HIV-positive women willing to take HIV self-test kits to their partners, such as follow-up couple counselling from qualified health workers (Choko et al., 2017; Harichund et al., 2019; Knight et al., 2017; Kumwenda et al., 2019; Matovu et al., 2017).

Another important challenge related to the male partners who are diagnosed with HIV via self-testing but do not follow through at the health facility for confirmatory test and be linked to care (Choko et al., 2017; Knight et al., 2017; Korte et al., 2020; Matovu et al., 2017). The implementation of the HIVST in the context of PMTCT, therefore, needs an active support and follow-up system that would handle cases of male partners who need confirmatory tests and linkage to care (Korte et al., 2020). These health workers may consider collecting specimens for confirmatory tests from home and if positive conduct some counselling including non-face-to-face counselling such as on the phone and link the male partners to community antiretroviral therapy or work-based ART support programmes (Harichund et al., 2019). Facilitated linkages to comprehensive HIV prevention services are also needed for men who test HIV-negative but have elevated risk for HIV acquisition (e.g. partnership with an HIV-positive female partner).

The findings from this study contributed to the body of knowledge on the issue of using HIV self-testing kits in the context of partner notification services. Strengths of the current study include the exploration of experiences with two strategies to increase male partner testing and a status-neutral approach that included both HIV-positive and HIV-negative pregnant women. From the findings, we make a case as to why antenatal services need to broaden their reach in the use of HIV testing kits to all women regardless of HIV status, while emphasising the need to support women who are struggling to engage their partners and whose male partners require linkages to HIV services but fail to access them. Further, this study complements the main quantitative paper that was published from the trial but provides specific contexts in which HIV self-testing kits helped improved male partner testing (Mutale et al., 2021) including the opportunities and challenges women faced in implementing the intervention.

We also note several limitations. First, as a qualitative study, the results are based on a small sample of women who participated in the parent trial, and as such the results may not be broadly generalisable. However, the depth of experience contributes to our understanding of the acceptability of two male partner testing models and provides an important complement to our quantitative findings (Mutale et al., 2021). Second, analysing the data by HIV status in each study group may have resulted in missing some people with unique experiences especially those who may have not been part of the intervention; however, we reached data saturation with the participants we interviewed, which gives us confidence that our sample was enthusiastic. Interestingly, as noted in this study, we noted similar experiences regardless of HIV status; however, it is possible that, with a larger sample, differences could emerge. Finally, this study was conducted in the setting of a controlled clinical trial. While it provides important insights about the interventions under study, it may not fully depict the real-life implementation of such services, particularly in settings of high HIV burden and resource constraints. Another limitation of the study is the lack of inclusion of male partners to the women who were enrolled in the study as this would have added a different perspective to the study.

Conclusion

Partner notification services combined with the secondary distribution of HIVST kits is an acceptable strategy for scaling-up HIV testing services among pregnant women. It also has the potential to expand the services and is acceptable to male partners with HIV testing who are not able to access services at the health facility compared to the current standard used in antenatal programmes. To date, most studies have focused on the use of such strategies for the male partners of HIV-positive pregnant women. In this trial, we show that such practices have a role for male partners of HIV-negative women as well. The provision of partner notification and HIV self-testing can help HIV-negative pregnant women get their male partners tested for HIV and linked to appropriate HIV prevention and/or treatment services. Despite the promise of HIV self-testing, our study suggests that additional support systems are needed to assist in disclosure and linkages to care.

Community support and follow-up systems will also be needed for HIV-negative male partners in HIV-sero-discordant couples and HIV-positive male partners who require HIV confirmatory tests and linkages to care.

Ethical review

The study protocol was reviewed and approved by the University of Zambia Biomedical Research Ethics Committee (Lusaka, Zambia) and the University of North Carolina Institutional Review Board (Chapel Hill, NC, USA). Our protocol was also reviewed by the Zambia National Health Research Authority (Lusaka, Zambia) and leadership at the Lusaka Urban District Health Management Team and the Chipata Level One District Hospital. All study participants were fully informed of the study procedures and provided informed written consent.

Ethical review number

The University of Zambia Biomedical Research Ethics Committee-Ref. No. 003-02-19.

Trial registration number/date

NCT04124536.

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Disclosure statement

No potential conflict of interest was reported by the author(s).

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Data availability statement

Transcripts from this study are only available upon request from the corresponding author at mweemba2@yahoo.com.

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