


BMJ Open 'If there is joy... I think it can work well': a qualitative study investigating relationship factors impacting HIV self-testing acceptability among pregnant women and male partners in Uganda

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ABSTRACT

Objectives Secondary distribution of HIV self-test (HIVST) kits from pregnant women attending antenatal care (ANC) to their male partners is shown to increase HIV couples testing and disclosure, and is being scaled up in sub-Saharan Africa. Understanding couples-level barriers and facilitators influencing HIVST uptake is critical to designing strategies to optimise intervention coverage.

Design To investigate these couples-level barriers and facilitators, we conducted focus group discussions and in-depth interviews. Transcripts were analysed thematically and the interdependence model of communal coping and health behaviour change was adapted to explore factors impacting HIVST acceptability.

Setting We recruited pregnant women attending two public ANC clinics in Kampala, Uganda, and male partners of pregnant women between April 2019 and February 2020.

Participants We conducted gender-stratified focus group discussions (N=14) and in-depth interviews (N=10) with pregnant women with and without HIV attending ANC, and male partners of pregnant women (N=122 participants).

Intervention We evaluated pregnant women's and male partners' perceptions of HIVST secondary distribution in Uganda, leveraging the interdependence model of communal coping and health behaviour change.

Primary and secondary outcome measures Key areas of focus included HIVST interest and acceptability, perspectives on HIV status disclosure to partners and gender roles.

Results Participants felt that predisposing factors, including trust, communication, fear of partner and infidelity, would influence women's decisions to deliver HIVST kits to partners, and subsequent communal coping behaviours such as couples HIV testing and disclosure. Pregnancy was described as a critical motivator for men's HIVST uptake, while HIV status of pregnant women was influential in couples' communal coping and health-enhancing behaviours. Generally, participants felt HIV-negative women would be more likely to deliver HIVST, while women with HIV would be more hesitant due to concerns about discovery of serodifference

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ Recruiting men not directly accompanying their partners to antenatal care who would benefit most from HIV self-test (HIVST) kit use.
- ⇒ Oversampling people living with HIV to understand how perspectives differ by HIV status.
- ⇒ Men were not necessarily the partners of the participating pregnant women, which may have provided stronger evidence of the male and female perspectives of a couple.
- ⇒ We also only reached women and men who agreed to participate in in-depth interviews and focus group discussions, who may have different perspectives on HIVST and couples testing than men who did not agree to participate.
- ⇒ Experiences, acceptance and views of HIVST were discussed hypothetically, and actual experience with HIVST may differ.

and relationship dissolution. Participants stressed the importance of counsellor availability throughout the process including guidance on how women should approach their partners regarding HIVST and post-test support in case of a positive test.

Conclusions HIV-negative women in relationships with positive predisposing factors may be most likely to deliver HIVST and leverage interdependent coping behaviours. Women with HIV or those in relationships with negative predisposing factors may benefit from targeted counselling and disclosure support before and after HIVST kit distribution. Results can help support policy guidelines for HIVST kit distribution.

INTRODUCTION

Addressing the gender gap in HIV testing is crucial to achieving Joint United Nations Programme on HIV/AIDS 95-95-95 targets in sub-Saharan Africa (SSA). Men in SSA have lower HIV testing rates than women,

leading to poorer clinical outcomes and onward HIV transmission.¹ Facility-based HIV testing has achieved limited coverage among men, who face structural barriers including travel distance, wait times, lost wages, and social barriers including confidentiality concerns, stigma, and beliefs that clinics are places for women and children.¹⁻⁴ HIV self-testing (HIVST) is a convenient and discreet strategy which may overcome barriers associated with facility-based testing and achieve high coverage among men.⁵⁻⁷

A promising HIVST delivery strategy is secondary distribution, which entails healthcare providers giving HIVST kits to pregnant women attending antenatal care (ANC) to deliver to their male partners.^{5,8} High fertility rates in SSA coupled with high ANC attendance (93% in Uganda) result in most women attending clinics for HIV testing in their lifetime.⁹ Distributing HIVST kits to pregnant women may leverage social support from men's primary partners to encourage testing and linkage.¹⁰ Secondary distribution can increase men's HIV testing and linkage to care¹⁰⁻¹⁵ and promote couples testing and disclosure, which may increase women's retention in antiretroviral therapy (ART) and prevention of mother-to-child transmission programmes.¹⁶ The WHO has recommended scale-up of HIVST secondary distribution, and several countries in SSA have started national rollout.¹⁷

Designing safe and effective strategies to optimise uptake of secondary distribution requires an understanding of couples' dynamics influencing HIVST kit delivery and use. Successful HIVST secondary distribution requires pregnant women to feel comfortable distributing HIVST kits to their male partners and male partners feeling comfortable in using HIVST kits. Prior studies have found that secondary distribution can result in male partner testing, couples testing and mutual disclosure of HIV status.^{11,12,18-20} However, there are several implementation and social challenges impacting couples that can limit scale-up.^{5,21-25} Research has identified couples-related barriers to HIVST kit distribution, including trust, disclosure, gender roles and relationship dynamics.^{12,26-29} There are limited qualitative data on women's and men's perspectives on HIVST secondary distribution, particularly couples' dynamics impacting distribution and uptake. Further, there are little data on perspectives of pregnant women with HIV, who face distinct barriers to HIVST kit distribution including fear of disclosing their HIV status to their partners.¹³ We evaluated pregnant women's and male partners' perceptions of HIVST secondary distribution in Uganda, leveraging the interdependence model of communal coping and health behaviour change³⁰ to understand couples' perspectives. Prior studies in South Africa,³¹ Kenya,³² Uganda and Zambia³³ have used this model to investigate HIV testing and treatment from a couples context, but this effort is a novel utilisation of the model. Our findings can inform policies to strengthen clinical guidelines for HIVST kit distribution.

METHODS

Study design and recruitment

Nested within a randomized clinical trial in Uganda (Obumu, NCT03484533), we conducted a study of gender-stratified focus group discussions (FGDs) and in-depth interviews (IDIs) with pregnant women and male partners of pregnant women between April 2019 and February 2020. We recruited women attending two public ANC clinics in Kampala, Uganda. We asked a subgroup of women (not necessarily those invited to participate in FGDs/IDIs) for the phone number of their male partners. A male qualitative interviewer telephoned partners and invited them to participate in FGDs/IDIs. Women were eligible if they were ≥ 18 years of age, pregnant, unaware of their partner's HIV status, not attending ANC with their partner and at low risk of intimate partner violence (IPV) as determined by a previously validated screening tool. Men were eligible if they were ≥ 18 years of age, in a partnership with a pregnant woman attending ANC and had a working phone for contact purposes.

We purposively sampled FGDs to have 8-12 participants per group. Our sample size was selected to enable saturation of themes including couples' dynamics impacting HIVST kit use. Among pregnant women, all FGDs aside from one were stratified by HIV status. We recruited three FGDs of only women with HIV to enable open conversation and assess how their perspectives differed from HIV-negative women. We conducted IDIs with individuals not participating in FGDs to further explore narratives regarding relationship dynamics.

Data collection and analysis

We created semistructured interview guides leveraging the literature and our experiences with HIVST kit distribution.^{34,35} Topics included HIV risk perception; masculinity; barriers and facilitators of HIVST kit use; acceptability of HIVST kit use and distribution; couples testing and disclosure; and couples factors related to HIVST kit distribution and use. We first asked participants about their awareness of HIVST and then provided an explanation of HIVST before discussing remaining topics. IDIs and FGDs were conducted by a trained male Ugandan qualitative researcher (JM) and held in discreet locations.

Audio-recordings were transcribed and translated to English from Luganda by JM and coded by MAB, BN and MS in NVivo V.12 software (QSR International, Burlington, Massachusetts, USA). We double-coded 20% of transcripts to evaluate intercoder reliability; disagreements were resolved through discussion. We adapted the interdependence model of communal coping and health behaviour change (figure 1) to organise findings from the couples' perspective and applied model constructs to themes related to HIVST. This integrative four-part model considers dyadic processes as determinants of couple behaviour.³⁰ The model suggests that predisposing factors of couples influence motivations to interpret health events as meaningful to the relationship,

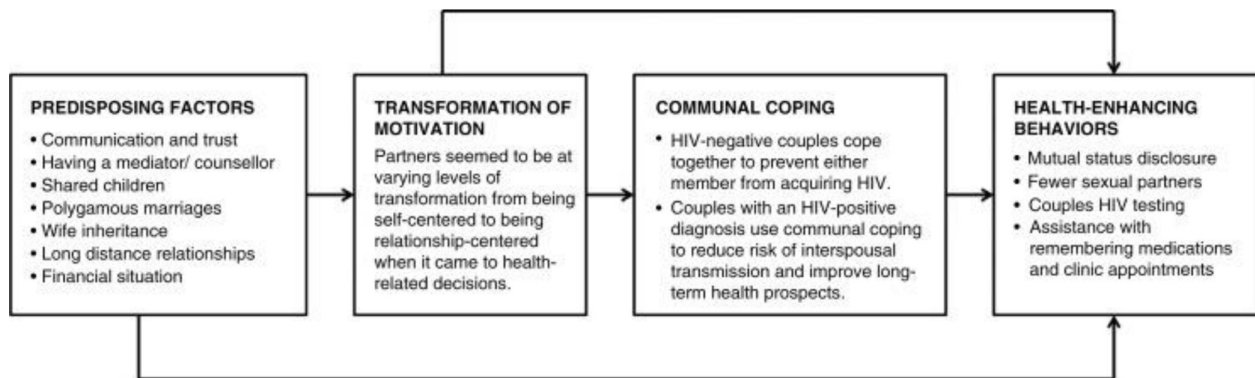


Figure 1 The interdependence model of communal coping and health behaviour change, adapted from Lewis *et al.*^{30 32}

which in turn posits that relationship-centred motivation activates communal coping and ultimately the likelihood of adopting and maintaining health-enhancing behaviours.³²

Patient and public involvement

Patients were not involved in designing the study, but patients are central to the ultimate dissemination of the research, and to informing the policy recommendations based on study findings.

RESULTS

We conducted FGDs with four different subgroups, including men (N=9), pregnant women with HIV (N=3), HIV-negative pregnant women (N=1) and pregnant women of mixed HIV status (N=1) (14 FGDs total). We conducted five IDIs with men and five with women who did not participate in FGDs (N=10 IDIs total) (table 1). On average, men were older than women (30 years (IQR 22–54) vs 27 years (IQR 19–41), respectively). Most

participants were cohabiting with their partner (86.9%) and an additional 11.5% reported being married. Women has fewer children than men (1 (IQR 0–2) vs 2 (IQR 1–4), respectively). Approximately 53% of women and 6.3% of men self-reported having HIV.

Findings are organised using the interdependence model of communal coping and health behaviour change for secondary distribution of HIVST kits, adapted to align to the context of HIVST kit distribution with an added construct of ‘role of HIV status as facilitator/barrier to action’ to address the different pathways for couples depending on HIV status (figure 2).

Predisposing factors

Trust, open communication and a strong relationship foundation

Participants felt that relationships with facilitating predisposing factors such as trust and open communication would have a higher likelihood of women delivering HIVST kits to their partners and subsequently exhibiting communal coping behaviours such as couples HIVST and status disclosure. Trust, in particular, appeared to play an important role both for pregnant women and male partners, which can be enhanced with counselling messages during HIVST kit delivery.

You start to feel how to approach him, he may ask you, why did you bring me this kit? Don't you trust me, it needs brave to take him the kit but with God's grace, he may accept it and don't ask you so many questions. The woman also needs to be counseled on how to handle the man so that he is likely to accept it. (pregnant woman with HIV, IDI)

A ‘mutual understanding’ from a strong foundation in the relationship was frequently mentioned by pregnant women and male partners as an influential predisposing factor to the distribution and use of HIVST kits.

It depends on the mutual understanding between you and your partner because not every person with a wife at home are in good terms, you can be with a partner at home but when you are not friends so she finds it very hard to persuade you to use the kit but if you are in good terms, it is more easier for her

Table 1 Characteristics of participants

	Men (N=64)	Women (N=58)	Overall (N=122)
	<i>n (%) or median (IQR)</i>		
Self-reported HIV status			
HIV positive	4 (6.3)	31 (53.5)	35 (28.7)
HIV negative	57 (89.0)	26 (44.8)	83 (68.0)
Don't know	3 (4.7)	1 (1.7)	4 (3.3)
Marital status			
Married	12 (18.7)	2 (3.5)	14 (11.5)
Cohabiting	52 (81.3)	54 (93.1)	106 (86.9)
Not living together	0 (0.00)	2 (3.5)	2 (1.6)
Median age (years)	30 (27–35)	27 (24–30)	28 (25–32)
Median number of children	2 (1–4)	1 (0–2)	2 (1–3)
Median level of education	Year 6 (6–10)	Year 12 (9–12)	Year 10 (7–12)

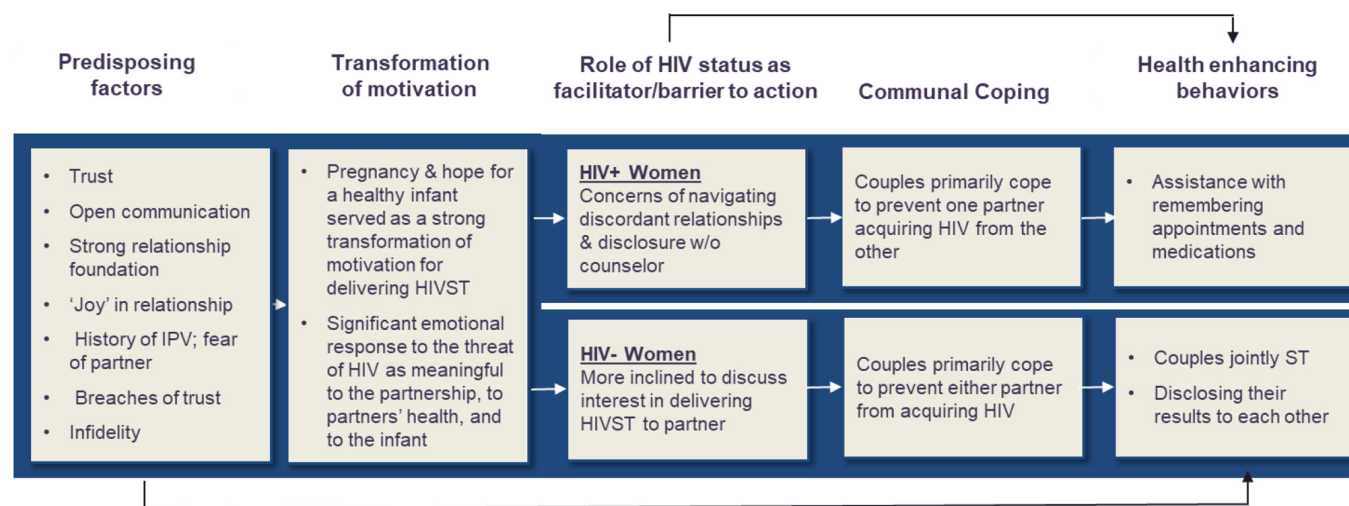


Figure 2 Adapted interdependence model of communal coping and health behaviour change for HIVST secondary distribution. HIVST, HIV self-test; IPV, intimate partner violence.

because she will just explain it to you and you get to understand it. (male partner, FGD)

That kit would be given to a woman to bring it to a man because if you have mutual understandings with your wife, it can help both of you to stay healthy. (male partner, FGD)

'Joy' in relationship

Participants frequently mentioned the importance of joy and pride in a relationship, which serves a foundational role to HIVST kit distribution and utilisation. Individuals in relationships characterised as having 'joy' were likely to discuss accepting and using HIVST kits, and they mentioned a keen interest in knowing their partner's status, as it 'pleases me a lot to get it and take it to my partner'. In contrast, participants mentioned that those in relationships characterised by strife or discord would be less likely to distribute or use HIVST kits due to insecurity in the stability of the relationship.

Women have to deliver this kit to us when there is joy or happiness in a home but not in the situations when you are not talking to each other, definitely a man will just look at it and leave it there. But if there is joy, mutual relationship, I think it can work well. (male partner, FGD)

Negative predisposing factors: IPV, breaches of trust, infidelity and fear of partner

Participants mentioned that those in relationships with breaches of trust, infidelity or IPV would be less likely to distribute/use HIVST kits. In these situations, participants felt that HIVST kit distribution or HIV status disclosure could lead to negative consequences including arguments, IPV or relationship dissolution. Both men and women described how men in such relationships may be suspicious of being given an HIVST kit. Negative consequences were felt to be particularly acute in relationships described as 'on the verge' of breaking up. Again, the

role of the healthcare worker in providing support and counselling was mentioned as an important component of HIVST kit distribution.

If a woman brings me the HIV self-test kit, I will not use it unless she comes with a health worker who has given it to her because if she compels me to use it, we may fight and if she brings it to me, it shows that she doesn't trust me. (male partner, FGD)

Potential for IPV associated with HIVST kit distribution was frequently mentioned by both men and women, potentially resulting from men's negative reaction to being given an HIVST kit by their partners. Women described that distributing HIVST kits would be difficult if they 'feared their husbands'. A salient concern was the lack of support from a counsellor when a pregnant woman distributed the HIVST kit, which participants felt could increase risk of IPV. Participants mentioned the benefits of having a counsellor available at various times including explaining the use of HIVST kits to male partners, providing counselling during delivery of results and encouraging linkage to care in the event of a positive result. Counselling was especially valued in the event of discovering serodifference, in order to prevent relationship dissolution. Women who feared their partners described feeling more comfortable in a clinic setting with counsellors to support the HIV testing process and mitigate their risk of IPV.

That kit is not good because no one can counsel the other but if you go together to the hospital, they can counsel both of you and explain to you that you can continue staying together as a couple when one is HIV negative and the other is HIV positive but if you self-test at home, it can result into domestic violence because if you self-test positive and he is negative, you just move out of the house. (pregnant woman with HIV, FGD)

If you find a man who is big headed, he can beat you, he can ask you, who are you to give it to me and where did you get it from and what does it treat, how do you explain it to him. (pregnant woman with HIV, FGD)

Transformation of motivation

Pregnancy as a motivator

Pregnancy was described as a strong motivator for HIVST kit distribution and testing uptake. Both women and men frequently expressed interest in using HIVST both to protect the baby from HIV, and maintain their own health to care for their growing family, particularly by taking ART if they test HIV positive. Respondents who exhibited both predisposing and negative relationships mentioned that pregnancy plays an influential role in HIVST uptake.

It is going to save the unborn baby because the baby can be delivered when she is HIV negative but if the mother is not tested, the baby can get infected through breast feeding but if both of you are tested, the baby can survive. (male partner, FGD)

Meaningfulness of the threat of HIV

Regardless of the strength of the relationship, respondents often noted the role of HIVST kit distribution in being able to 'save the life' of their partner. In relationships with mutual understanding, participants saw HIVST as providing an opportunity to keep partners healthy for the good of the relationship as opposed to solely for an individual's benefit. Some women stated that even if they experienced negative consequences from HIVST kit distribution, it was the right thing to do, since knowing one's status can facilitate linking to ART.

That kit would be given to a woman to bring it to a man because if you have mutual understandings with your wife, it can help both of you to stay healthy. (male partner, FGD)

That HIVST kit will save someone who appropriately takes his or her HIV drugs. (pregnant woman with HIV, FGD)

Role of HIV status as a facilitator/barrier to action

The HIV status of the woman played an important role in determining actions for communal coping and health-enhancing behaviours. Generally, HIV-negative women expressed greater interest in bringing HIVST kits to their partners, while women with HIV expressed more hesitation.

Pregnant women with HIV

Women with HIV reported concerns about HIVST kit distribution, particularly regarding HIV status disclosure, discovery of serodifference, and fear of accusations of infidelity and blame for bringing HIV to the relationship. Participants mentioned that HIVST kit distribution could lead to arguments, violence and even relationship dissolution, which could lead to loss of financial support for women and their children.

If a woman tested HIV positive but hasn't disclosed her status to her male partner, she will not be in position to deliver the kit to her partner because inside me, I am aware that if he comes to know my status, it is going to bring misunderstandings like loss of marriage... he will chase me out. (pregnant woman with HIV, IDI)

Several men mentioned that they would leave their partners if they discovered she was living with HIV and he was negative.

The fact is, if she is HIV positive, I have nothing to do apart from disowning her. (male partner, FGD)

However, some men expressed the desire to stay with their partner despite discovery of serodifference.

If am HIV negative and my wife is positive, I cannot abandon her because we have been together for awhile but I can ask the health worker what preventive measures can I use so that we remain staying together but not at risk. (male partner, FGD)

In strong relationships with 'mutual understanding', women with HIV felt more comfortable bringing an HIVST kit to their partners and expressed confidence that their connection with their partner could serve as an influencing factor for HIVST utilisation.

It depends on the mutual understandings amongst you at home... you have to handle him properly and plead to him or else you can take two kits and ask him to test together such that we come to know our status so that we are able to bring up our children well. (woman living with HIV, FGD)

However, the risk of IPV remained a recurring theme among respondents, with many women noting that regardless of relationship strength, there was a risk of IPV associated with delivering HIVST kits. Women described 'fearing' their partner's response to their own HIV-positive status, and instead often preferred to 'persuade him to go to the hospital [rather] than self-testing'.

I was saying if both of you self-test at home and results show that the man is negative and the woman is positive, do you see the woman's dead body being moved out of the house, for me, I cannot take it. (pregnant woman with HIV, FGD)

HIV-negative women

HIV-negative women expressed greater interest in delivering HIVST kits to their partners. Awareness of their own negative status empowered them to request their partner to use the kit, which subsequently framed their future actions, such as encouraging their partner to link to confirmatory testing and ART if positive, pre-exposure prophylaxis if serodifference is discovered or to jointly test together in the future if they are both HIV negative. Men also agreed that they expected their female partners

to be more comfortable delivering HIVST kits if they are HIV negative.

...If she knows that she is HIV negative, she will hurry to give it to you so that she come to know your status but if she knows that she is HIV positive, she will not hurry to give it to you because she will be fearing the man to know her status ... (male partner, FGD)

Communal coping

The interdependence model posits that communal coping is a process in which couples 'share an understanding about the health threat that they are facing and the courses of action required to manage the threat, and recognise the utility of a joint response'.^{30 32} Men and women who characterised their relationships as having predisposing facilitators such as trust and open communication were more likely to express desire for engaging in communal coping, including identifying ways to prevent transmission in serodifferent partnerships, or continuing to engage in preventative behaviours if both found negative. Communal coping processes, such as working together to keep one partner healthy regardless of HIV status and mutual 'pride' in determining each other's health status, were associated with desire to use HIVST kits.

For women with HIV, 'mutual understanding' continued to be a foundational component of communal coping, leading to minimising blame and instead focusing on a future together. Strong relationships can prioritise taking HIV medications and caring for the family as a joint goal. In the event that both partners test HIV positive, participants stated that they could cope together and remind each other to take ART to remain strong for their family.

There, the relationship can be sustained because each one will be comforting the other or reminding each other to take the medicine. (male partner, FGD)

Many participants described that the largest threat to a relationship's interdependence was the discovery of serodifference, which may change the 'love' in the relationship even if the couple remains together. Some participants stated they would stay with their partner but live 'as brother and sister' to avoid spreading HIV. Participants stressed the importance of counselling in situations of serodifference.

It is all about the man's heart to get to know that his wife is HIV positive and if they are counseled in the hospital and advised on some of the preventive measures, a man can be patient and continue staying together, but I think, they can stay for a long time, when they are together, it is very difficult to stay as a discordant couple unless when he loves his wife so much but still the love will not be the same as it was before. (pregnant woman with HIV, IDI)

If both partners test HIV positive, in most cases, it reduces mutual understanding between the two so

it is upon the health workers counseling, otherwise couples normally separate due to blaming each other for bringing the virus so emphasis should be put in counseling before even disclosing to you the truth. (male partner, FGD)

HIV-negative women described coping as a couple by working together to prevent HIV acquisition in the partnership (if the male partner tests HIV negative) or preventing transmission (if the male partner tests HIV positive).

If I take it to him...I have to convince him to use it in my presence because I have to know his status. But if results come out and he is positive, remember I am carrying a child, I can't run away from him but instead put him on great counseling and he starts taking drugs such that we can give birth to a healthy baby and life moves on because he is not the first to be positive and not the last. (HIV-negative pregnant woman, FGD)

Health-enhancing behaviours

Finally, according to Rogers *et al's* model, the ability to rely on each other for support 'impacts the likelihood of adopting and maintaining health-enhancing behaviours, thus influencing health outcomes'.³² Women with and without HIV described different health-enhancing behaviours.

Women with HIV

When one or both of the partners are diagnosed with HIV, health-enhancing behaviours included reminding each other of doctor appointments and medication schedules. This interdependent component was described as dually reinforcing each other's health as a means to 'boost the relationship' and allow couples to 'be more open with each other'.

If both of you come to know that you are HIV positive, it is better to be on medication and remind one another to swallow medicine and you can give birth to negative children as long as you adhere to the health care workers advice, counseling should be got from the hospital, love one another while at home, don't exchange bitter words, respect one another and the HIV drug doesn't kill but it is going to help you stay longer. (male partner, IDI)

HIV-negative women

Women who were HIV negative also described positive health-enhancing behaviours including using HIVST kits as an opportunity to self-test together, disclose results and encourage linkage to care if male partners tested positive to maintain his health and prevent transmission to female partners.

That HIVST kit, it is good and it is going to help in reducing on new infections because you can self-test

each other and prevent from getting infected. (male partner, FGD)

You can bring him to the facility and they counsel him on how to live without getting infected and avail him with the drugs which can help him stay negative. (HIV-positive pregnant woman, FGD)

DISCUSSION

We assessed couples-level factors that may influence HIVST kit distribution and uptake among pregnant women and male partners in Uganda. Overall, participants reported that HIV-negative women were more likely to give HIVST kits to their partners than women with HIV, who would have concerns, particularly regarding navigating serodifferent relationships and disclosure without a counsellor. Participants felt that relationships with predisposing factors, such as trust and open communication, would have a higher likelihood of women delivering HIVST kits to their partners, and subsequently exhibited communal coping behaviours such as couples self-testing and disclosure. Conversely, participants mentioned that those in relationships with breaches of trust, infidelity or IPV were more likely to experience negative consequences of disclosure, such as violence and/or relationship dissolution, and would be hesitant to distribute/use HIVST kits. Pregnancy was described as a critical motivator for self-testing, while gender dynamics limited HIVST acceptability, such as fear of IPV and relationship dissolution. Our finding that interdependent relationship factors can influence and motivate distribution and uptake of HIVST and subsequent health-enhancing behaviours can inform recommendations as HIVST continues to be scaled up.

Our findings underscore the importance of relationship factors on HIVST kit distribution and uptake. Although women with HIV express more concerns related to HIVST kit distribution, negative impacts can be buffered by strong relationships with trust and mutual understanding. Participants expressed strong interest in leveraging HIVST kits to protect the health of their partners and infants, and to maintain their ability to care for their family. These findings provide opportunities to improve HIVST kit delivery, including provision of targeted counselling for women with HIV and those in unstable partnerships. Counselling messages that emphasise HIV testing to protect their partners' health and enable couples to care for their family can be effective in motivating HIVST kit distribution and use. Participants also expressed a desire for counselling availability to help provide strategies to approach partners with an HIVST kit, use and interpret HIVST kits and encourage linkage to care if men test positive.

The risk of IPV to women because of HIVST kit distribution was commonly mentioned by participants. In some partnerships, particularly those with IPV risk, HIVST kit distribution may not be appropriate. Providers should consider screening for IPV prior to distributing

kits to pregnant women for secondary distribution. Providing men other avenues for accessing HIVST kits, such as voluntary medical male circumcision services or sexually transmitted infections clinics, can avoid the situation of placing the burden on pregnant women to conduct HIVST kit distribution. Research evaluating attitudes toward IPV has shown evidence of IPV as a potential barrier to HIVST kit usage,³⁶ although other research has shown low prevalence of IPV related to HIVST.^{25 37 38} Pregnancy is a particularly high-risk time for women in SSA since relationship dissolution could lead to economic vulnerability and inability to care for themselves and their children. Participants in our study emphasised the need for available counsellors at the clinic to directly engage with male partners and provide counselling and testing.

Our findings are consistent with previous studies showing that secondary distribution is generally acceptable among both pregnant women and their male partners,^{13 28 35 39} and is influenced by couples-related factors including trust, gender roles and relationship dynamics.^{12 26–29} However, studies also demonstrate some discomfort with distributing HIVST kits,⁴⁰ and concerns of abuse and economic hardship.²⁵ A study in Uganda showed a dramatic increase in partner and couple HIV testing with HIVST kit availability, but the role of a couple's relationship in facilitating HIV testing was not explored.⁴¹ An additional study on secondary distribution in Uganda found that women initially expressed anxiety about their male partners' reactions to being given an HIVST kit, but that the majority ultimately delivered the kits to their male partners.²⁸ However, the study identified a gap in understanding *how* and *which* men were convinced to test for HIV and whether characteristics of their female partners or their relationships played a role.²⁸ Overall, insights into the relationship factors that impact which couples test together and disclose their status are nascent,^{12 15} and the relationship dynamics that impact acceptance and non-acceptance remain a critical knowledge gap¹³ that our study aimed to address.

We adapted Lewis *et al's* model of interdependence and communal coping as a means to understanding health behaviour change³⁰ to assess our research question. In Lewis *et al's* original model, transformation of motivation led directly to couples engaging in communal coping, which involves the couple working together to address a health threat as advantageous to the relationship. In our study, we found that couples engage in communal coping and health-enhancing behaviours in different ways based on the woman's HIV status. Women with and without HIV embraced HIVST kits as an opportunity to support their partner's health, but women with HIV expressed far more hesitancy to distribute the kits unless they felt they had a strong relationship that could withstand serodifference and disclosure, without relationship dissolution or violence. Therefore, we find that interpersonal characteristics of couples may influence the causal pathways between an intervention and the adoption of health-enhancing behaviours. These results differ from previous



research using Lewis *et al's* theory to assess communal coping among HIV-positive or serodifferent couples,^{33 42} which did not identify different pathways based on HIV status, but are in alignment with a qualitative analysis in Kenya that found pregnant women and their partners experienced differing interdependence pathways depending on HIV status.³²

Our study has several limitations. HIV status was self-reported, which may result in some misreporting. Men were not necessarily the partners of the participating pregnant women, which may have provided stronger evidence of the male and female perspectives of a couple. However, men in our sample were in partnership with pregnant women in ANC, so we feel confident that the couples' lens remains appropriate. We also only enrolled participants who agreed to participate in IDIs and FGDs, and may be missing the perspectives of those who did not participate. Acceptability and use of HIVST kits were discussed hypothetically, and actual HIVST utilisation may differ. Future research such as a feasibility study to assess the willingness of women to deliver HIVST kits and uptake among male partners⁴³ can provide real-world evidence on HIVST coverage and also assess potential for IPV and other adverse events.

Strengths of our study include recruiting men not accompanying their partners to ANC who are likely harder to reach with facility-based HIV testing and more likely to benefit from HIVST. Additionally, we oversampled pregnant women with HIV to understand their perspectives that differ from HIV-negative women. Overall, we find that relationship factors play an important role in secondary HIVST kit distribution and uptake, and pathways to communal coping and health-enhancing behaviours differ by HIV status of pregnant women. Our findings can help inform targeted counselling strategies to optimise HIVST uptake among couples.

Contributors MS designed the research study and was the guarantor of the study. MS, JM, MAB and BN performed the research. BN, MAB and MS analysed the data. BN and MS wrote the paper. All authors (BN, MAB, JM, AM, JB, CC, BW, MS) contributed to the design of the research, planning, interpretation of data, and reviewing and editing the manuscript.

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Patient and public involvement Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

Patient consent for publication Not required.

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Data availability statement Data are available upon reasonable request. All data relevant to the study are included in the article or uploaded as supplemental information.

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