
‘There’s no place like home’: perceptions of home-based HIV testing in Lesotho

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Abstract

HIV testing has the potential to reduce HIV transmission by identifying and counseling individuals with HIV, reducing risk behaviors, linking persons with HIV to care and earlier treatment, and reducing perinatal transmission. In Lesotho, a high HIV prevalence country in which a large proportion of the population has never tested for HIV, home-based testing (HBT) may be an important strategy to increase HIV testing. We identified factors influencing acceptability of HIV prevention strategies among a convenience sample of 200 pregnant or postpartum Basotho women and 30 Basotho men. We first conducted cross-sectional surveys, followed by key informant interviews with all 30 men and focus group discussions with a sub-set of 62 women. In total, 82% of women reported positive perceptions of HBT; women and men viewed HBT as a potential way to increase testing among men and saw the home as a comfortable, supportive environment for testing and counseling couples and families together. Potential barriers to HBT uptake included concerns about confidentiality, privacy, coercion to test, conflict within the family and fear of HIV/AIDS-associated stigma. Participants emphasized community mobilization and education as important elements of HBT.

Introduction

HIV testing has the potential to reduce HIV transmission by identifying and counseling individuals with HIV, reducing risk behaviors, linking persons with HIV earlier to treatment, and reducing perinatal transmission. Lesotho is a small country land-locked by South Africa with a population of between 1.8–2.2 million [1–2]. It has one of the world’s most severe generalized heterosexual HIV epidemics (23.6% adult prevalence in 2009) [2], and expansion of HIV testing is a national priority. As of 2009, 31% of Lesotho’s total population had never been tested for HIV [3]. According to the 2009 Lesotho Demographic and Health Survey (DHS), 92.6% of women and 80.6% of men (aged 15–49) knew where to get tested for HIV. However, only 59.8% of women and 26.9% of men had ever sought HIV testing, and only 42.0% of women and 24.0% of men tested in 2009 and received their results [2]. Despite high levels of knowledge of where to obtain an HIV test, low testing rates suggest the need to identify barriers to HIV testing and strategies for increasing testing rates. Inadequate levels of HIV testing and personal knowledge of HIV status have been recognized as primary behavioral drivers in the spread of HIV in Lesotho [4]. In addition, numerous structural factors, such as poverty, migration, food insecurity, limited access to healthcare services and a severely overstretched healthcare

system [4, 5], are instrumental drivers of Lesotho's HIV epidemic.

Driven by high rates of poverty and ranking low on human development (158/187 countries and territories) [1], Lesotho is one of the most migration-dependent countries in the world, making HIV testing challenging, particularly among men. With an estimated 60% of its total workforce employed in the South African mining sector in the past decade [6], Lesotho's economy is highly reliant upon the inflow of remittances from migrant workers [7]. High rates of cross-border migration from Lesotho to South Africa increase Basotho people's vulnerability to HIV due to spousal separation and multiple sexual partnerships among men and women [8]. This mobility creates a challenging socio-cultural context for uptake of HIV prevention for migrant workers and their partners that remain in Lesotho, especially with the remoteness of labor-sending communities and lack of targeted HIV prevention services for these populations [9]. HIV/AIDS-related stigma and gender inequality further inhibit uptake of HIV testing and other prevention strategies.

Home-based HIV testing (HBT) is one promising complementary strategy to voluntary and provider-initiated testing and counseling in clinical and community settings [10, 11]. HBT may provide a means to increase testing rates, reduce risk behaviors and link persons with HIV to care and earlier treatment [12]. Despite a growing body of literature on the uptake of this public health intervention, more information is needed to understand the perceived benefits of and potential barriers to HBT. Studies in Kenya, Uganda and South Africa have found HBT to be acceptable and feasible [13–20], able to reach previously untested populations [13, 15] and associated with higher uptake than referral for clinic-based voluntary testing [21]. Feasibility has been demonstrated in other sub-Saharan African countries [22–27], as well as outside Africa [28, 29]. Little is known about the acceptability of HBT in settings such as Lesotho, where populations are highly mobile and health infrastructure and resources are very limited. Moreover, given high rates of migration and gender inequality [6], acceptability of HBT in Lesotho may be considerably lower than in other

sub-Saharan countries such as Kenya [30], Zambia [26], Uganda [18, 31], Malawi [32, 33] and South Africa [27]. To investigate this further, we explored the perceived acceptability of HBT among a sample of men and women in Lesotho.

Methods

Overview

Data were collected as part of the NIH-funded 'Enhanced Prevention in Couples' (EPIC) study in Lesotho. ICAP at Columbia University has worked with HIV-related programs in Lesotho since 2006 in support of TB and HIV care, treatment and prevention. The EPIC study was designed to determine the feasibility and acceptability of optimal HIV combination prevention packages for HIV-serodiscordant couples. To identify discordant couples, EPIC focuses on women who attend antenatal clinics (ANCs) and who receive HIV testing in programs for prevention of mother-to-child transmission (PMTCT).

This study was conducted between April and July 2011 in two administrative districts with high HIV prevalence where ICAP has been working—Mafeteng and Mohale's Hoek—and sought to determine the acceptability of interventions to decrease HIV acquisition in HIV-negative partners within discordant couples. We aimed to understand participants' perceptions of various HIV prevention technologies, testing experiences, sexual behaviors, and HIV prevention and testing strategies, as well as of their partner's knowledge and attitudes regarding HIV testing and prevention using a combination of qualitative and quantitative methods—surveys, focus groups and in-depth key informant interviews. We also were interested in how we could engage male partners of women tested in PMTCT programs. In this article, we focus on the findings related to HBT.

Sampling and recruitment

Using convenience sampling, we recruited 200 women who had been tested for HIV from four ANCs—one within an urban area, two in peri-

urban areas, and one in a rural/mountainous location. Thirty men were also recruited from these communities, without regard to HIV testing experience or status, as key informants who could offer broader understandings of men’s perceptions of HIV. Women participating in the study identified male acquaintances who might be interested in participation. Male study staff then contacted interested men to explain the study, assess their interest in participation and determine eligibility. Sampling and recruitment by district and clinic, and men’s relationship to women in the sample are presented in Table I. Eighty-six percent of the sample was recruited from urban or peri-urban areas.

Eligibility criteria included: (i) being 18 years of age or older, (ii) willingness to undergo informed consent, (iii) women had to be pregnant or within 6 months post-partum and receiving antenatal care at one of the study hospitals and (iv) men had to live or work in one of the study districts. In-depth interview and focus group participants had to consent to audio-recording. Participants received travel reimbursements of 100 Maloti (\$12) at the end of their interview or focus group.

Procedures

Quantitative cross-sectional surveys were conducted in Sesotho (the national language of Lesotho) with all participants by Basotho young adult women and men working for PHELA Health and Development Communications, a research organization in Lesotho. The women’s survey was comprised of

47–62 questions, with additional questions for the 24 women who reported partnership concurrency. The survey assessed demographic and primary relationship characteristics, HIV testing and treatment history, sexual activity and partnerships, opinions regarding HIV testing and HBT and women’s perceptions of their partner’s attitudes about HIV testing incentives and HBT. With regard to HBT, women were asked whether they would feel comfortable if someone came to their house to test them for HIV, whether they thought their partner would feel comfortable with home testing, whether they would feel comfortable asking their partner to test for HIV and whether they would feel comfortable engaging in couples counseling with their partner.

The men’s survey was comprised of 33 questions covering similar domains as those in the women’s survey, but did not include questions about HBT or their partner’s knowledge and attitudes regarding HIV testing and prevention. In our quantitative analysis, we focused on questions from the men’s and women’s survey regarding demographic information, primary relationship characteristics and HIV testing history and additional questions on HBT from the women’s survey.

All women who participated in the survey were invited to participate in a subsequent focus group discussion and 187 of 200 women expressed interest. Eight focus groups consisting of 7–8 women were planned, and 62 women were recruited into these focus groups based on their ability to

Table I. *Sampling and recruitment*

District Clinic	Mohale’s Hoek		Mafetang		Totals
	Rural/mountainous clinic	Peri-urban clinic	Urban clinic	Peri-urban clinic	
Women recruited	25	50	62	63	200
Men recruited	7	8	5	10	30
Men’s relationship to women					
Spouse	0	0	1	1	2
Relative	2	2	4	3	11
Friend	5	3	0	3	11
Neighbor	0	2	0	2	4
Friend of Neighbor	0	1	0	1	2

participate during the designated time slots. Recruitment ceased once the sample for the eight groups was attained, which also resulted in saturation. Focus groups were conducted by two female researchers—one facilitated the discussion and the other observed and took notes. In-depth interviews were conducted with all 30 men who participated in the survey and were conducted by two male researchers.

In-depth key informant interviews and focus group discussions explored identical topics and elicited more detailed information on the issues raised in the survey. Both men and women were asked about HBT: ‘What do you think about home-based HIV testing? By home-based testing, I mean that someone comes to your home and offers to test everyone in the household’. Men were then asked: ‘Do you think that men would participate in home-based testing? Why or why not? What about you—would you be willing to get tested in your home?’ Women were asked: ‘Is this something that you would feel comfortable participating in? Why or why not? How do you think your partners would feel about home-based testing? Do you think they would participate in something like this? Why or why not?’

On average, surveys were completed in 20 min, while in-depth interviews took 1 hour and focus groups, 2 hours. Interviews and focus groups were conducted in Sesotho, audio-recorded, transcribed in Sesotho by the group facilitator or interviewer and translated into English. Recordings and transcriptions were reviewed by a second researcher, with any changes discussed between researchers, and then reviewed by a senior research team member for accuracy.

Ethical considerations

The study protocol, data collection instruments and consent forms were approved by the Institutional Review Board at Columbia University and the Lesotho Ministry of Health. All participants completed written informed consent prior to study participation. All study staff completed training in Good Clinical Practices.

Data analysis

Quantitative survey data were entered into an Access database. Descriptive analyses were conducted using Stata Data Analysis and Statistical Software (Version 9), and included one-way frequency tables for categorical variables and summary statistics for continuous variables. Simple cross-tabulations were calculated for variable comparisons.

Qualitative data management and analysis were conducted with NVivo9. Focus group and interview transcripts were reviewed and read repeatedly by the qualitative team, which included one program manager and two senior researchers. A coding framework was developed by identifying major themes using applied thematic analysis [34, 35]. Transcripts were reviewed and an initial list of themes, structured along the pre-conceived domains of the focus group and in-depth interview guides, was developed. Transcripts were re-read and coded broadly, searching for relevant themes or patterns in the data. Initial codes were collected, analyzed and considered for intersections and relationships. A set of candidate themes was produced, discussed and refined. Transcripts were re-read and re-coded to ensure all relevant text was properly coded and all codes accurately reflected the data. Relevant text was excerpted broadly to retain interview context, and copied into coded sets. From this process, a structured coding framework was developed, wherein each code was identified, defined and illustrated through selected interview excerpts. Codes were summarized, discussed, analyzed and verified for consensus by the entire qualitative team.

Results

Demographic characteristics of participants are presented in Table II. Female survey participants ($n = 200$) ranged in age from 18 to 45 years. Nearly, all (94.5%) had tested for HIV and received the results. Male participants ($n = 30$) ranged in age from 24 to 57 years. In total, 76.7% of male participants had tested for HIV and received the results.

Table II. Participant characteristics

Variable	Female survey participants (<i>n</i> = 200) No. of participants (%)	Female focus group participants ^a (<i>n</i> = 62) No. of participants (%)	Male survey and in-depth interview participants (<i>n</i> = 30) No. of participants (%)
Age	Range: 18–45 Mean: 26.2 SD: 5.9	Range: 18–41 Mean: 25.1 SD: 5.6	Range: 24–57 Mean: 32.6 SD: 8.6
Has tested for HIV and received results	189 (94.5)	62 (100.0)	23 (76.7)
HIV status of those tested who received results			
Positive	79 (41.8)	18 (29.0)	3 (13.0)
Negative	108 (57.1)	44 (70.9)	17 (73.9)
Undisclosed	2 (1.0)	0 (0)	3 (13.0)
Education			
None	2 (1)	0 (0)	2 (6.7)
Primary ^b	54 (27)	12 (19.3)	4 (13.3)
Some secondary ^c	93 (46.5)	33 (53.2)	10 (33.3)
Completed secondary ^d	33 (16.5)	10 (16.1)	9 (30)
More than secondary	18 (9)	7 (11.3)	5 (16.7)
Household socio-demographic indicators			
Electricity	61 (30.5)	23 (37.1)	12 (40.0)
Telephone	155 (77.5)	47 (75.8)	21 (70.0)
Working radio	156 (78.0)	45 (72.5)	25 (83.0)
Married or cohabitating	159 (79.5)	48 (77.4)	21 (70.0)
Where male partner or men are employed			
Same village	46 (23.0)	12 (28.5)	15 (50.0)
Other village	32 (16.0)	10 (23.8)	13 (43.3)
Out of country	57 (28.5)	20 (47.6)	0 (0)

^aSub-set of female survey participants.

^bIndicates partial or completed primary schooling (Standard 1–7).

^cIndicates partial secondary schooling (Forms A–D).

^dIndicates completion of Form E at secondary level.

Female focus group participants (*n* = 62) exhibited similar characteristics to the larger sample from which they were recruited. Female focus group participants ranged in age from 18 to 41 years, and 100% had tested for HIV and received the results. However, they exhibited two distinct differences from the larger sample of female survey participants. First, while 41.8% of female survey participants were HIV-positive, only 29% of female focus group participants were HIV-positive. Second, 28.5% of female survey participants who were married or cohabitating had partners employed outside of Lesotho, while 47.6% of female focus group participants reported the same. We also compared education level and indicators of household assets with Lesotho DHS data and found that the proportions of

women and men in our sample who completed some secondary education and who had electricity, phones and radios were similar to that for DHS households (not shown).

Table III shows findings related to women's perceptions of HBT. Over four-fifths (82%) of women who participated in the survey reported they would be 'comfortable with HBT', and nearly half (48.4%) of women who were married or cohabitating thought their partners would be comfortable with HBT. An overwhelming 93.1% of women participating in the survey who were married or cohabitating felt comfortable with the idea of testing with their partner.

Qualitative data showed generally positive views about HBT among both men and women. Key themes included: (i) positive perceptions of

Table III. *Acceptability of home-based testing*

Variable	Female survey participants (<i>n</i> = 200)	Female focus group participants ^a (<i>n</i> = 62)
	No. of participants (%)	No. of participants (%)
Would you feel comfortable with home testing?		
Yes	164 (82.0)	46 (74.1)
No	27 (13.5)	11 (17.7)
Unsure	8 (4)	5 (8.0)
	Married or cohabitating only (<i>n</i> = 159)	Married or cohabitating only (<i>n</i> = 48)
Has your husband or partner tested for HIV? ^b		
Yes	94 (59.1)	30 (62.5)
No	49 (30.8)	13 (27.1)
Don't know	15 (9.4)	4 (8.3)
Would your partner feel comfortable with home testing? ^b		
Yes	77 (48.4)	24 (50.0)
No	24 (15.0)	9 (18.8)
Unsure	57 (35.8)	15 (31.2)
Would you feel comfortable going to couples HIV testing with spouse/cohabitating partner?		
Yes	148 (93.1)	44 (91.7)
No	6 (3.8)	3 (6.3)
Unsure	4 (2.5)	1 (2.0)
Have attended couples testing	1 (0.5)	0 (0)

^aSub-set of female survey participants.

^bNo data for one participant.

HBT—such as seeing HBT as a potential way to increase testing among men, and viewing the home as a comfortable and supportive environment for testing and counseling couples and families together, (ii) potential barriers to HBT uptake—including concerns about confidentiality, privacy, coercion, conflict within the family and fear of HIV/AIDS-associated stigma, and (iii) important elements of HBT—such as community mobilization and education.

Reaching traditionally ‘difficult-to-access’ populations

HBT was viewed as a way to increase access to households and persons that might otherwise be unable to afford costs associated with clinic visits, including transportation and lost wages:

It is good because some people do not get tested because they cannot afford to go to [the] health center. So it would be easy to

get tested without any expenses. [Male In-Depth Interview (IDI)]

HBT also was perceived by the majority of men as a strategy to bring services closer to men and increase their participation in testing; men felt the comfort of the home setting would encourage men to test:

Men can be stubborn on the streets, but at home, they are different people all together. If you sit down and talk with them, they can easily be convinced and test. (Male IDI)

Men and women frequently mentioned that HBT would reach men who have avoided testing, by making it difficult for them to refuse:

I think that if [a man] is approached in that manner [to test at home], then yes [he] might be compelled to join their families in getting tested. (Male IDI)

[HBT] can be very helpful because even if your husband had all the excuses to [not] visit health centers, if it's done at home, there is no excuse. He will be forced to test. [Female Focus Group Discussion (FGD)]

In addition, one man noted HBT could contribute to the normalization of testing:

... it would be best if HIV testing would be as easy as a pregnancy test since women can go to hospital and buy a pregnancy test to be done at home. (Male IDI)

Confidentiality/privacy and stigma

Several women voiced concerns about whether health workers would maintain confidentiality in HBT, and speculated that their partners would not feel comfortable with HBT because of this:

We don't need [home testing]. [The workers] will gossip about us; everyone in the village will know. (Female FGD)

This mistrust appeared to stem from concern that a worker from within the community would conduct HBT. As a strategy to counter these concerns, women asserted that 'outsiders' with medical knowledge would be trusted and not perceived as threatening:

If it's someone from outside, we are going to understand better and get tested. (Female FGD)

Conversely, a majority of men perceived HBT as a solution to their concerns regarding confidentiality and privacy. HBT was perceived as a way to potentially mitigate rumors that might arise from being seen at a medical clinic, and men generally perceived HBT as a more confidential and less stigmatizing alternative to clinic-based testing:

There is a slight difference [between testing at home versus testing at a clinic] because 'walls at the clinic have ears'. Your issues can be

known by other people without you telling them or else other people can read your facial expression and make their own conclusions. Therefore, home is a better place to have the tests. (Male IDI)

Another prominent privacy concern was the potential for HBT to be disruptive if providers came to homes without advanced notice. Many participants reviewed HBT positively while simultaneously expressing concerns about coercion to test. Because of these concerns, participants noted it would be prudent to give advance notice and scheduling of any HBT, to mitigate potential feelings of surprise and/or coercion in the home:

I would not feel free because they came unannounced, but if they told me they are coming, I would get ready for them. (Male IDI)

Men's resistance to HIV testing

Concerns of surprise and coercion were inextricably linked to notions of autonomy because of the common view that men are the heads of households in Lesotho. The majority of men and women asserted that men are traditionally the primary decision makers within the home:

The husband usually takes a larger role in making the decisions in his family because he is the head of the household. He makes his decision and only consults with his wife, but most of the planning would have been his. Here in Lesotho a family has its head and that title belongs to the man. (Male IDI)

Because men are the primary decision makers in the household, and also are perceived as resistant to HIV testing, several men expressed doubt about men's willingness to test at home:

Men fear to test for HIV and if it happens [HBT is implemented], they will not test but rather leave and tell their wives to carry on with HIV testing. (Male IDI)

Both men and women frequently attributed men's resistance to HIV testing to fear, stemming from a lack of knowledge about HIV:

Not all would agree [with HBT]. They would avoid getting tested. There is still lack of knowledge – most men are not knowledgeable. They don't know that HIV is a disease like any other and they are still afraid of it as though it is a monster. (Male IDI)

Fear of potential negative consequences of testing HIV-positive was frequently mentioned as a barrier to home testing, and, to testing in general. Men and women often noted that the belief that HIV is a death sentence is a major reason why men do not want to test for HIV.

It is well known that when you have HIV, you are 'dead man walking'. (Male IDI)

They say a person who has HIV is already going to die. (Female FGD)

Thus, if HIV is understood to be a 'death sentence', then testing for HIV becomes futile. For some, it may be better to 'not know' than to receive news of an imminent death:

I cannot do it [test for HIV], I want to, but I am afraid. I mean, if this thing is in me, I am going to die. I do not want to know. I am scared. I think I would lose my mind if I were to find out that I have the virus. I think I would just lose it. Being told that I have *kokonyana* [HIV], my head would explode! It would be the end of me. (Male IDI)

For this reason, the counseling and educational aspect of HBT was often mentioned as a possible strategy to address these fears directly in a supportive and confidential environment:

[If a] counselor were to visit our homes and sit the whole family down and explain the advantages of testing, [and] if you find that you have HIV, she would counsel you further and explain what has to be done under such

circumstances, it is the best solution. (Male IDI)

People need to be taught about [HIV] and they must know that to be infected with HIV doesn't mean one will die or it is the end of the world. (Male IDI)

Couple and family dynamics

The home setting and a family-oriented approach to HIV testing were commonly perceived as positive aspects of HBT, especially among men. Testing and counseling couples and families 'together as a unit' was frequently endorsed:

Again, as a woman, you will come to the clinic alone, and if you are told that you are HIV-positive, it won't be easy for you to tell your husband that you are positive. But if you both come, you will be told at the same time. So that you can both be counseled. (Female FGD)

I think it's important for couples to get tested for HIV together so that they can console one another if they find out they are infected. If one member of the relationship tests alone and the other tests sometime later, that would not be wise because if they test alone, they might make the wrong decision about which steps to take. But if they are together they can share ideas. (Male IDI)

In addition, participants speculated that HBT could generate support within families:

That's where the advantage is because you will have the support of your family after you hear about your status. Because there is no one who can give you love more than your family. (Female FGD)

This will help all members of the family to know about each other's [HIV] status and this will reduce the number of people who ... are afraid to tell their results when they get home. ...we will be able to support each other as family. (Male IDI)

Though uncommon, some participants did express concerns about possible family tensions and the potential impact on children:

I don't think it would be a good idea as [it] involves...children...if I get bad results, I might fight my wife in presence of our children or say irritating words and go away. This might have a negative effect on children (Male IDI)

Preparedness, education and counseling

Participants commonly cited the importance of preparing communities for HBT and counseling. Preparation for HBT was perceived as a way to avoid eliciting feelings of disruption or invasion, and to grant community autonomy over their decision to participate. Counseling as a part of HBT was also frequently mentioned as a way to educate men and women about HIV, and to help couples and families understand the importance of HIV testing, the meaning of a positive result and treatment options:

A counselor [should] visit our homes and sit the whole family down and explain the advantages of testing and motivate you until you agree to get tested. Moreover, if you find that you have HIV, s/he would counsel you further and explain what has to be done under such circumstances. It is the best solution and I fully advise it because you would be in the comfort of your own home unlike at the clinic where people would laugh at you if they see that you are depressed after consultation. (Male IDI)

Community sensitization, provision of information and counseling were viewed as important components of HBT and the need to educate people about testing benefits and what to expect were viewed as essential:

If these people are counseled, I don't think there's a problem. Basotho are not hard-headed people as long as they are given the news in the right manner. (Male IDI)

Discussion

This study provides information on the acceptability of HBT in Lesotho, one of the countries most severely affected by the HIV epidemic, and contributes in a unique manner to growing research findings on the high acceptability of HBT in sub-Saharan Africa [19, 20, 27, 31, 32, 36, 37]. Quantitative findings indicated high acceptability of HBT among female participants, with 82% stating they would feel comfortable with HBT and 48% believing their partners would feel comfortable with HBT. Qualitative findings reinforced quantitative findings, while capturing nuanced and descriptive information about HBT acceptability among women and men in Lesotho and pointing to possible region-specific implementation challenges.

Perceived benefits

Lesotho's 2006–2011 National HIV/AIDS Strategic Plan cites HBT as a potential strategy to increase HIV testing rates and expand male involvement and partner communication [38]. Our findings indicate that such an approach could be successful. Strong support for HBT and optimism that HBT could be effective in increasing HIV testing uptake among men and improving partner communication were predominant themes. Both men and women viewed HBT as an effective way to counter men's reluctance to test at clinic-based facilities. HBT may provide a comfortable space for men and their partners to be counseled about HIV, the meaning of a positive test and treatment options.

Participants noted that fundamental barriers to clinic-based HIV testing, such as the inconvenience, cost and concerns regarding confidentiality, may be overcome by bringing testing into the home. Men viewed HBT as more confidential, more supportive and less stigmatizing than clinic-based testing. Stigma has been cited as a barrier to clinic-based testing in other studies, and HBT has been found to reduce concerns related to stigma and confidentiality [39]. Our findings align with prior research. A longitudinal study in rural Malawi found high HBT uptake in an area with low rates of clinic-

based HIV testing due to convenience, confidentiality and the credibility of the rapid blood test [33]. In addition, HBT has been found to have the potential to significantly reduce socioeconomic disparities in HIV testing uptake. Helleringer *et al.* found HBT uptake to be the highest among the most disadvantaged households in six villages in Malawi [32].

Potential barriers

Most potential barriers to HBT uptake mentioned by participants may conceivably be overcome by counseling and education. Participants frequently described fear of HIV and perceiving HIV as a ‘death sentence’ to be significant barriers to HIV testing for men. In addition, some men expressed concern that gender norms in decision making (i.e. men’s roles as heads of household), combined with men’s general resistance to HIV testing, might be barriers to uptake of HBT. These concerns have been identified in other studies in sub-Saharan Africa [19, 37, 40]. HBT can address men’s resistance to HIV testing through counseling and education in the home environment, a benefit frequently mentioned by participants. HBT may provide the appropriate forum to educate men and women about risk-reduction, treatment options and link persons with HIV to care. To address gendered decision-making norms, future programs in Lesotho should consider using male counselors to facilitate productive engagement and HBT uptake among men.

Most men and women in our study viewed testing together at home, in the presence of a counselor, as a way to increase support and decrease conflict within couples and the family. These findings are consistent with a recent study in Tanzania, where strengthening marital relationships was considered a benefit of HBT [37]. Therefore, HBT may provide a unique opportunity to engage women and men in counseling and education in the informal setting of a home—which provides comfort and autonomy to community members, and also allows for more personalized discussion among the family and healthcare provider. However, several study participants mentioned concerns about conflict within the home as a result of HBT, which is consistent with

findings from other studies [37, 40, 41]. A recent study examining testing together at home in KwaZulu-Natal found that while trust was enhanced among HIV-seroconcordant couples, among HIV-serodiscordant couples, various challenges arose after testing, such as loss of sexual intimacy or intimate partner violence [41]. These findings point to a significant programmatic challenge to include support for HIV-serodiscordant couples within HBT interventions.

Together, these potential barriers to HBT demand the prioritization of counseling and education as components of HBT. The fundamental role of counselors in HBT in engaging men and addressing potential family conflict highlights the need for high-quality training and further evaluation of the potential impact of HBT on family dynamics and the incorporation of post-test and partner counseling into the HBT model [42].

While we noted that migration is a significant structural factor in Lesotho, study participants did not cite migration as a potential barrier to HBT. As shown in Table II, quantitative data revealed that 71% of female focus group participants’ partners worked outside their home village (23.8% in another village and 47.6% outside Lesotho), and 43.3% of men interviewed worked outside their home village (none outside of Lesotho). In spite of the absence of qualitative findings connecting HBT and migration, given the centrality of migration in Lesotho, it is important to consider ways to ensure the presence of men for HBT, how to reach men for sensitization and recruitment, and optimal times for HBT. A recent HBT intervention in rural South Africa—a highly migratory setting—found that of household members included in the intervention, 72% were women, while only 28% were men [19]. Researchers noted that because of men’s migration, future strategies to include men, such as offering testing outside of traditional working hours and during holidays, should be considered.

Implementation issues

Study participants emphasized the importance of confidentiality by suggesting the use of health

workers from outside the village, who would not know community members and who would be present in targeted communities for only brief periods of time. Concern that the use of local workers may decrease testing uptake and/or heighten anxiety has been noted in prior studies [37, 39]. The aforementioned Malawi study demonstrated effective use of workers from outside the immediate geographical area of HBT coverage [33]. While this approach could complicate implementation in terms of resource allocation and operational definitions of a non-local worker, the potential benefits may far outweigh its costs.

Implementation issues including whether HBT should be offered to all households versus those with known HIV-positive adults, all household members versus solely adults, utilize individual versus group counseling, administered by healthcare worker versus via self-testing, and where to provide counseling following HBT, require further exploration. Participants suggested community sensitization and mobilization campaigns for HIV counseling and testing in the home via radio/TV programs, local leaders, ‘pitsos’ (village meetings), churches and health facilities, which could demystify and normalize HBT and increase demand for testing services, as well as knowledge of HIV and HIV testing. These strategies have been identified in other studies [19, 27, 31, 37]. High rates of uptake in a home-based HIV counseling and testing intervention in rural South Africa were attributed to extensive mobilization strategies involving local leaders and communities, and highly trained counselors, which ensured community members’ trust in the counselors’ skills and confidentiality [19]. Other studies in sub-Saharan Africa have reported similar success through community mobilization [27, 31].

Linkage to care is a critical component of HBT, especially given that HBT may reach populations that have difficulty accessing health services [39]. Participants highlighted the benefits of HBT as a strategy that may enhance communication between healthcare providers and patients; HBT may also be an efficient strategy for linking HIV-positive persons to care and earlier initiation of antiretroviral treatment [14, 19, 21, 43]. A recent study in

Uganda demonstrated the effectiveness of HBT in linking people with HIV to care earlier in the course of infection [31]. Notably, a study in South Africa demonstrated the ability of HBT to afford high levels of HIV care linkage, antiretroviral treatment, ART initiation and significant decreases in HIV viral loads among HIV-positive individuals identified through HBT [27]. Researchers hypothesized that sustained engagement may have been influenced by continuity of care, as most participants were seen by the same staff member at follow-up visits. Further research on factors that may increase linkage to care is needed to ensure appropriate follow-up and ART initiation.

Study limitations

Several study limitations should be noted. By design, qualitative studies aim to gain in-depth insight and diversity of opinions from small samples, limiting generalizability of findings. This formative research study was intended to gain in-depth insight on various HIV prevention strategies within a setting with high rates of HIV, HIV/AIDS-related stigma and migration. Our sample was not intended to be representative of the general Lesotho population; we sought to recruit participants who would provide rich and informative perspectives on HIV prevention. Focus group dynamics may have led to the overrepresentation of views of certain participants and underrepresentation of others. The proportion of HIV-positive women in the focus groups was lower than that of survey participants, and a higher proportion of women in the focus groups had partners who were employed outside the country.

Our sampling approach may have produced selection bias with regard to HBT acceptability. Because the overarching goal of the EPIC study is to find serodiscordant couples, we intentionally sought women who had previously tested for HIV; all women and most men had tested for HIV in a clinic—which was appropriate for the ultimate goal of EPIC. However, our use of convenience sampling in this analysis of hypothetical HBT acceptability may have resulted in a sample of individuals with potentially more favorable attitudes about HBT than

those in a representative community sample, which would include a higher percentage of untested individuals. But this sample was also attuned to understanding men's motivations for not being tested. Both men and women unilaterally characterized men as resistant to testing, and as noted in Table III, 30.8% of married or cohabitating female survey participants and 27.1% of married or cohabitating female focus group participants reported their partners had never tested for HIV, demonstrating that this sample was sensitized to understanding barriers to testing among untested men.

This study also has several strengths. The study included both men and women; this is one of few studies that examined in-depth men's knowledge and attitudes regarding HIV testing. Participants were asked to consider the perspectives of men in Lesotho, thus providing richer data beyond the scope of individual experience. The study provides a unique perspective on HBT in Lesotho, a setting with high rates of migration outside the country for work, where going to the home during periods when men return from work could be an effective testing strategy. Finally, this study elicited information through both quantitative surveys and qualitative interviews and focus groups. The use of both quantitative and qualitative methods is generally thought to minimize the weaknesses and maximize the strength of each type of methodology [44]. In addition, using mixed methods allows for the triangulation of data, which increases the validity of the findings [45].

Conclusion

Our study findings suggest that HBT is a promising strategy for expanding HIV-testing coverage by increasing access beyond facility-based HIV-testing services. This is especially important in a resource-limited, high HIV-burden country like Lesotho. Although the effectiveness of HBT versus clinic-based HIV testing has not yet been definitively determined [11], current evidence suggests that HBT is a potentially important component of community-wide HIV prevention [19, 20, 27, 31, 32,

46]. HBT may lead to an increase in access to testing by reducing structural barriers related to concerns about stigma, privacy, confidentiality and convenience [47]. This, in turn, may allow for expanded HIV testing coverage to underserved populations, such as men and those without regular access to clinic facilities. It also provides the opportunity for immediate, *in situ* risk-reduction counseling and linkage to HIV care. Ultimately, the effectiveness of HBT as a public health strategy will be grounded in whether individuals identified to be HIV-positive, especially in discordant relationships, seek care and HIV treatment—garnering benefits for themselves while at the same time reducing their risk of transmitting HIV to their partners through use of antiretroviral therapy for prevention and through decreasing risk behaviors. Based on these findings, HBT may be an important additional strategy for confronting the HIV epidemic in Lesotho and similar settings and is an intervention currently being piloted in the EPIC study.

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Conflict of interest statement

None declared.

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