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ORIGINAL PAPER

Transgender Women's Experiences Using a Home HIV-Testing Kit for Partner-Testing

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Abstract

HIV partner-testing (PT) may represent a unique and empowering HIV prevention strategy for groups that face structural and institutional barriers to HIV testing and care, including transgender women. We report on in-depth interviews (IDIs) with N = 10 transgender women who used HIV self-test kits for three months to screen potential sexual partners in a randomized controlled trial (iSUM; "I'll Show You Mine") that took place in New York City and San Juan, Puerto Rico. Participants were assigned to intervention (supplied with 10 self-test kits immediately) or control groups (received 6 test kits after 3 months). We conducted IDIs with the first N = 10 transgender women to enroll in the intervention group after three months in the study (after participants used kits with partners) to understand their experiences. Themes discussed in IDIs included: partners' reaction to HIV testing, participants' reactions to partners' test results or refusal to test, partners' own reaction to their test results, and decision-making around test use. Data were independently analyzed by two coders. Overwhelmingly, participants' experiences with PT was positive. Participants reported kits were convenient and acceptable to most partners. Transgender women felt that PT could pose additional risk for them; one woman experienced violence related to kit use. Furthermore, the availability of kits appeared to encourage participants and their partners to think about their HIV status and, in some cases, modify sexual behavior. Work suggests that HIV PT could be a viable risk-reduction strategy for transgender women.

Keywords HIV · HIV/AIDS · HIV self-test · OraQuick · Partner HIV testing · Secondary distribution · Male partners · Transgender women · Trans women · Transwomen · HIV testing

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Introduction

HIV self-testing is a well-accepted [1] approach that continues to gain support among some individuals and groups who may have disparate uptake or access to HIV screening [2]. Interventions to empower self-test users to offer at-home rapid tests (e.g., OraQuick in-home HIV test®) to potential sexual partners may increase testing at the population level and could prevent new HIV exposures [3]. This may be especially important for transgender women [2] (individuals who were assigned male at birth but identify as women), because they are disproportionately affected by HIV [4, 5]. Specifically, global estimates show that the pooled HIV prevalence for transgender women worldwide (estimated using 15 low, middle, and high-income countries) is approximately 19.1%; across these 15 countries, the odds ratio for infection with HIV in transgender women compared to all other adults of reproductive age was 48.8 [95% CI 21.2–76.3] [4]. Additionally, transgender women face unique barriers to accessing health services, including structural (e.g., paucity of healthcare providers who are familiar with transgender health issues) and institutional (e.g., perception of anti-transgender bias of clinic staff members) challenges [6]. These barriers may also affect PrEP uptake in this population, which is low [7, 8]; some studies suggest that fewer than one-quarter of transgender women have ever used PrEP at any point in their lives for any length of time [8]. Thus, empowering transgender women to use partner-testing (PT) could constitute a novel HIV prevention strategy that this group is able to implement without first accessing a healthcare provider. However, we know little about how PT might work in practice for transgender women. This is important, since understanding their experiences with PT could shed light on its feasibility as a potential method of avoiding HIV infection for these women.

Experiences and feasibility of PT have, however, been examined as an HIV prevention strategy in other groups (e.g., men who have sex with men (MSM), women in sub-Saharan Africa). Specifically, individuals who employ this HIV prevention method (e.g., OraQuick in-home HIV test® or another oral HIV rapid test) collect oral fluid to detect the presence of HIV antibodies. Users swab their gums with the testing device and place the saturated tip in a commercially prepared "developer" solution. After 20 min, results can be read. With PT, users test themselves, and may offer a test to a partner. Previous work with other populations shows that PT may happen in a variety of configurations, including, (1) users test themselves alone, in advance, and then offer tests to potential sexual partners; (2) the user and potential sex partner test themselves together; (3) users test themselves alone, prior to meeting a potential sexual partner, but then elect not to offer the test to this person [3, 9]. As PT grows in popularity it is important to understand when, how, why, and with whom transgender women might use this HIV prevention strategy. This will allow researchers to tailor PT interventions to the needs of this population.

The present study reports on the experiences of N = 10 transgender women who were given HIV self-test kits for PT as part of the iSUM ("I'll Show You Mine") study, a randomized control trial to assess if easy access to HIV self-test kits could facilitate a reduction in sexual risk behavior among men and transgender women who have sex with men. To our knowledge, this is the first study to explore this theme among transgender women. Results are intended to help future researchers to develop PT-based interventions tailored to this group.

Methods

The present paper focuses on the first N = 10 transgender women randomized to the intervention group in the iSUM study; we focus on transgender women since this population has HIV prevention needs, experiences, and risk factors that are distinct from those of MSM. We chose a sample size of N = 10 because other work shows that 95% saturation can be reached with this number of participants [10]. To ensure a research focus on individuals at high-risk of HIV infection, iSUM sought to recruit transgender women who were: at least 18 years old, not on PrEP, spoke English or Spanish, reported a history of high-risk sex (e.g., reported three or more occasions of condomless anal intercourse with serodiscordant or unknown status partners and had two or more sexual partners in the previous three months). All work took place in New York City (NYC) and Puerto Rico (PR).

Participants were sampled through venue- (e.g., bars and clubs), online- (e.g., social media and dating sites), and referral-based recruitment between 2014 and 2017 (detailed elsewhere [11]). Recruitment included word-of-mouth through other participants who were given a $30 incentive for referring friends who enrolled in the study, for a maximum of $90.

Potential participants filled out a short pre-screening questionnaire via telephone or in-person. Those who met initial criteria were invited to an in-person screening (Visit 1), during which they completed: (1) a baseline behavioral questionnaire via computer-administered self-interview (CASI), (2) a rapid HIV self-test (OraQuick in-home HIV test®), and (3) a staff-administered confirmatory HIV rapid test (Alere Determine® HIV-1/2 Ag/Ab Combo Test). Eligible individuals were invited to return within seven days for an enrollment visit (Visit 2), at which time they were randomized to the intervention or control group. Blocked

randomization was used to ensure that transgender and MSM participants were randomized to each of these groups in roughly equal numbers. During Visit 2, intervention group participants received ten rapid oral HIV self-test kits to take home, and watched a video (https://www.youtube.com/watch?v=uq6Qb4BJLdM) that introduced key points for participants to consider when using PT. Intervention participants received daily SMS messages, prompting them to report on condomless sexual behavior, knowledge of partners' HIV status, and number of remaining self-test kits (additional details can be found in Brown et. al [12]). Participants in the intervention group were able to request up to 20 additional kits (for a total of 30 PT kits) before the end of the trial period.

Participants returned for a follow-up visit after three months (Visit 3). During this visit they took another HIV test and completed a follow-up CASI. The first N = 10 transgender women enrolled in the intervention group were selected for interviews. These interviews were intended to further explore participants' experiences using test kits with partners and were conducted in-person (NYC participants) or over the phone (PR participants) in English or Spanish. At Visit 3, the control group participants were given six self-tests to take home, were shown the video about PT, and finished study participation. The intervention group participants did not receive additional self-tests and continued follow-up for another three months through reports of their sexual behavior via SMS.

Enrollees received cash as compensation for their study visits and received a modest incentive for responding to the SMS system. In total, it was possible to receive a maximum of $445 over the course of the study. All procedures were reviewed and approved by the Institutional Review Boards at the New York State Psychiatric Institute and the University of Puerto Rico Medical Sciences Campus.

In-Depth Interviews

Data analyzed for the present paper focused on Visit 3 interviews, which occurred when participants had just finished using the test kits. Themes in the Visit 3 interviews included: (1) PT use generally (e.g., "What happened the first time you used it [self-test kit]? Can you walk me through the experience in detail?"); (2) Decision-making around PT use (e.g., "…we see that there were certain partners with whom you used the test and others with whom you did not. Help me understand that. What factors affected your decision to use the self-test with partners?"); (3) Considerations for PT use among transgender women (e.g., What do you think are some considerations that transgender women should keep in mind if they were to use these rapid HIV tests with their sexual partners?).

Analyses

Audiotapes of interviews were transcribed and data were analyzed using NVivo Version 11. Two coders independently identified codes using a multilayered strategy. To begin, a list of a priori codes was developed by the research team [13], based on topics addressed in the interview guide. Then, coders analyzed text to identify in vivo codes (e.g., the language participants used to describe their thoughts/experiences with PT) [14]. Both coders independently developed a list of recurring themes, which included a priori and in vivo codes. Codes were intended to represent the presumed meanings underlying participants' responses [15].

To encourage consensus between coders, comparisons of a priori and in vivo codes were made following the first pass through the data. Discrepancies were discussed until consensus between coders was reached. To ensure that codes represented the data reasonably and realistically, codes were analyzed alongside the text they were intended to represent. A priori codes that were absent from or poorly represented by the text were eliminated. Lastly, coders re-examined the data for an all-inclusive assessment of possible themes. Coders met again to discuss a priori and in vivo codes, verify that examples from the text illustrated the themes they were intended to represent, and ensure consensus.

Results

Among the N = 10 participants who completed in-depth interviews (selected from the larger iSUM transgender women sample of N = 27), the mean age was 28.4 years. All participants had completed high school/GED. None of the participants or their partners tested HIV-positive.

Eight of the 10 participants identified as Latina, and reported a race other than White. All participants reported exchanging sex for money, services, or other goods in the past three months, and did so a mean of 111.9 times (median = 55; range 1–700 times); participants had a mean of 72.5 sexual partners in the last three months (median = 60; range 5–260 partners). Seven participants were from Puerto Rico and three were from New York City. Eight of the participants reported asking at least one potential sexual partner to use the PT kits, and used a mean number of 8.4 kits (median = 7; range 2–20 kits used). Over all participants who reported asking a potential sexual partner to test, a total of 67 PT kits were used.

The following summarizes transgender women's experiences using PT kits in our study. While participants' experiences with PT varied, there were some commonalities. Specifically, this section will recount, (1) participant experiences with PT use generally (e.g., the language used to propose using PT with partners; partners' reactions to being

asked to test; violence associated with PT; logistics of using PT tests with partners; coping with tension or nervousness while waiting for PT results; participants' and their partners' reactions to test results; participants' sexual behavior following PT use), (2) decision-making around PT use (e.g., the types of partners to whom they proposed PT test use; timing of proposing PT to partners; locations where participants did the tests), and (3) considerations for PT use among transgender women.

Participant Experiences with PT Use Generally

Language Used to Propose Using PT to Partners

Most often, participants would use very direct language to introduce the idea of using PT kits to potential partners (N = 10; Quote 1 (Q1)).

> Q1: "…I did this a lot at my partners' houses. Look, I would tell them that I was a part of a study, we'd talk about the study, I'd show them my tests and ask them if there were interested in doing one, and they'd accept and we'd do the test." (Black-identified Latina woman from Puerto Rico, age 26; reported using an unknown number kits over the study period and had an unknown number of partners during this time)

Partners' Reactions to Being Asked to Test for HIV

Participants reported that their partners reacted with surprise when they were asked to do the HIV test (N = 5; Q2). Some even disclosed that their partners seemed happy to complete the test (N = 2; Q3). A minority of participants disclosed that their partners were uncomfortable after being asked to test (N = 3; Q4) or became angry (N = 2; Q5).

> Q2: "… It was like, for partners that I knew well, knew for awhile, or just for that day – all of them. When I would mention the test, they would be like, 'Wow! What do you have there?' It was like kind of a surprise for them." (Multiracial Latina woman from Puerto Rico, age 37; reported using 2 kits over the study period and had 10 partners during this time)
>
> Q3: "…he told me he had no problem. That was the good thing that happened, after the test he continued to call me and everything. He was very happy with me because doing the test built his trust with me…" (Black-identified Latina woman from Puerto Rico, age 21; reported using 20 kits over the study period and had 200 partners during this time)
>
> Q4: "[The test introduced anxiety]…that wasn't the case in other instances that I offered and people agreed, but I think that was one particular instance where, yeah, the test introduced anxiety where it didn't exist before" (White-identified Latina woman from New York City, age 24; reported using 7 kits over the study period and had 16 partners during this time)
>
> Q5: "…I'm not sure if it was the box that startled him, or what. But when I pulled it out, he was looking and he was like… 'Right now? You're going to really pull out this test right now?' Like, he threw a fit. He was mad. He was upset." (Black-identified woman from New York City, age 23; reported using 2 kits over the study period and had 6 partners during this time)

However, although some participants reported that their partners were surprised, uncomfortable, or rarely, angry at being asked to test, all participants (N = 10; Q6) disclosed that ultimately, most partners were open to the idea of using PT kits. Specifically, for the vast majority of participants, they found that potential sexual partners responded positively or neutrally to the idea of using the PT kits.

> Q6: *"I had no qualms about presenting the test to the people I did. Very few were reluctant to try it."* (American Indian-identified Latina woman from Puerto Rico, age 39; reported using 7 kits over the study period and had 60 partners during this time)

Nevertheless, a minority of participants (N = 4; Q7) reported that at least one participant who was asked to test and initially refused, never followed through with testing.

> Q7: "Well look. It didn't go well and it didn't go poorly, either. In reality, at the time when I presented clients with the test and I said, 'Look. I have these HIV tests that you can do and you get the results fast.' They were like, 'Oh no no no no. Don't worry about it. I don't have time.'" (Multiracial-identified Latina woman from Puerto Rico, age 37; reported using 2 kits over the study period and had 10 partners during this time)

Violence Associated with PT

One person (Q8), of the 10 participants, reported a violent event. The remainder of women in our study did not (N = 9; Q9). However, all participants acknowledged that partner-based violence is always a possibility they must be prepared for, whether or not it is prompted by PT (N = 10; Q10).

> Q8: "Yeah, he threw the tests and, like, grabbed me by the arm and yanked me and said, 'no – you think I'm sick, what a load of crap!' He told me that I'm going to die here…He said, 'I paid you to fulfill my fantasy and we're going to have sex without a condom right now!' But I was able to sneak past him and get out of there."

(Black-identified Latina woman from Puerto Rico, age 21; reported using 20 kits over the study period and had 200 partners during this time)
Q9: "…I was lucky enough to not have anybody try to beat me up for doing… for saying it [proposing use of PT kits]. Oh you know, 'Oh you think I have HIV?' or anything…" (Black-identified woman from New York City, age 23; reported using 2 kits over the study period and had 6 partners during this time)
Q10: "Well, the possibility of violence, this is something I can handle. Because if a man is going to get violent with me, I'll get violent with him…We can trade blows until he calms down… In this case I have my knife, if he gets violent with me, I'll stab him… In this life you have to be ready for anything." (Non-Latina woman of unreported race from Puerto Rico, age 23; reported using 13 kits over the study period and had 108 partners during this time)

Logistics of Using PT Tests with Partners

Participants reported that they performed the tests on their partners (N = 6; Q11) and also that partners tested themselves (N = 6; Q12). That is, participants reported both administering the test to partners by passing the test over their gums, and/or that partners would pass the test over their own gums.

Q11: "I did it to them. All the steps they taught me here – I did them. I did the exact same thing. I read the instructions, gave them the paper to read. I did the introduction like they taught me here and they took the test…" (White-identified Latina woman from Puerto Rico, age 35; reported using 10 kits over the study period and had 260 partners during this time)
Q12: "Obviously, they did it with my support with the directions, because they were not familiar with the tests. But I was there at their side, telling them which steps to follow." (American Indian-identified Latina woman from Puerto Rico, age 39 reported using 7 kits over the study period and had 60 partners during this time)

Coping with Tension or Nervousness While Waiting for PT Results

Some participants (N = 5; Q13) reported that they or their partners felt nervous or tense while waiting for the test to realize.

Q13: "He was pretty nervous until he got his results. I knew something, something was happening because he started to sweat and everything. And he just was saying, 'This takes too long – just throw it out.'" (Black-identified Latina woman from Puerto Rico, age 21; reported using 20 kits over the study period and had 200 partners during this time)

To distract themselves from the tension of waiting for the HIV test to resolve, participants reported engaging in activities to distract themselves and their partner. These activities were non-sexual (e.g., watching TV, talking [N = 6]; Q14) or sexual (e.g., foreplay, kissing [N = 2]; Q15) in nature.

Q14: "…It's not that hard to wait. There are a lot of things that you can do in 20 minutes. You can turn on the TV – occupy the time so you're not thinking about it… or to kill time, you could watch a movie. I would put the test on the table and it takes 20 minutes. You could watch the movie. Movies take sometimes an hour and 20 minutes or an hour and a half. Sometimes two hours. And afterwards, you'll know." (Black-identified Latina woman from Puerto Rico, age 32; reported using 6 kits over the study period and had 60 partners during this time)
Q15: "…Mostly what I would do is just say like, 'OK, so now we have to wait. What do you want to do in the meantime?' And then, regardless of how they responded, I usually just started making out with them and then that like – at some point, I would be like, 'Oh, crap. Let me check the time.' And I was always pretty spot on. I have a pretty good internal sense of time, which is nice. Yeah, I just took it on myself to distract them with foreplay while we waited." (White-identified Latina woman from New York City, age 24; reported using 7 kits over the study period and had 60 partners during this time)

Participants and Their Partners' Reactions to Test Results

In our study, none of the transgender women who were interviewed at Visit 3 had a partner with an HIV-positive test result. However, participants (N = 3; Q16) reported that they would not feel differently about a potential partner if they were to test HIV-positive with the PT kits.

Q16: "For me, I would still have had sex with the person. Logically, with more caution. Like from the beginning there is basically the same caution, but it's like, you have it in your mind that 'Ok, I just did this, now I have to do that.'" (Multiracial-identified Latina woman from Puerto Rico, age 37; reported using 2 kits over the study period and had 10 partners during this time)

After a negative test, participants reported that they and their partners felt relief, and more at ease (N = 6; Q17).

Q17: "This particular person was just, in general, very nervous and uptight when they met me. And then after the test was over, I noticed that they really calmed down and were more relaxed in general. And then everything else that we did was less tense or awkward because of that…"." (White-identified Latina woman from New York City, age 24; reported using 7 kits over the study period and had 16 partners during this time)

Participants' Sexual Behavior Following PT Use

Participants were split in the way that using PT affected their sexual behavior after using the test. Specifically, some participants continued to use condoms after receiving negative test results (N = 4; Q18), while other participants (N = 5; Q19) felt that because the PT test was negative, they were at less risk for exposure and were more open to the idea of condomless sex.

Q18: "But I don't really care if they're positive or negative, because I use condoms a lot. A lot. I change the condom when I'm doing the oral. And I change the condom when I'm done doing the oral and we are going to fuck. I change it, like, two times per client." (Non-Latina woman of unreported race from Puerto Rico, age 23; reported using 13 kits over the study period and had 108 partners during this time)
Q19: "… I was, like, since he's negative…I wasn't so eager to use a condom… It was, OK, I know I'm not going to get HIV… I still should have been, like, I need to use a condom, because I don't want to catch any other disease…. Like herpes, or something." (Black-identified woman from New York City, age 23; reported using 2 kits over the study period and had 6 partners during this time)

Decision-Making Around PT Use

Types of Partners to Whom Participants Proposed PT Test Use

Participants used PT test kits with multiple partner types. For example, some participants reported that, barring safety concerns (e.g., they suspected their partner could become aggressive if asked to test), they did not systematically select with whom they would use the PT kits (N = 6; Q20). Other participants (N = 6; Q21) reported that they used PT test kits with regular partners they suspected could have had an HIV exposure, and others still used the kits with sex work clients (N = 7; Q22).

Q20:"I offered to everybody… The people I didn't offer it to were people who I judged to not speak English very well or …how do I describe this? There's a particular type of attitude that certain people who contact me have. It's this very sort of aggressive alpha male type of mentality. And people who had that type of attitude, I didn't offer it to. But the people who weren't… ESL (English as a Second Language) or people who weren't super hotshot, hothead macho. Everyone else who weren't those people, I offered it to." (White-identified Latina woman from New York City, age 24; reported using 7 kits over the study period and had 16 partners during this time)
Q21: "…I told him it was good that he trusted me, but that I couldn't trust him, because I don't know what he's been doing with other women behind my back… I've let myself go more than he has, for the years we've been together. It's just better to be sure of what we are doing." (Multiracial-identified Latina woman from Puerto Rico, age 37; reported using 2 kits over the study period and had 10 partners during this time)
Q22: *"It would be with clients that I would see regularly… I did my boyfriend and then my regulars. And that was really it"* (Multiracial-identified Latina woman from New York City, age 24; reported using 0 kits over the study period and had 5 partners during this time)

Timing of Proposing PT to Partners

For the most part, participants introduced the PT kits to their partners in-person, prior to engaging in the sexual encounter (N = 8; Q23). Still, a minority of participants (N = 3; Q24) brought up the idea of PT prior to meeting up with potential sexual partners.

Q23: "And then I went to his house, and I, like, I kind of sprung it on him. And I took the package out. And I was like, 'Well, I'm not sure what you been doing, like, when the last time you got your dick wet.' That's how I asked him. And he was, like, 'Well, it's been awhile.' 'OK, so let's see.'" (Black-identified woman from New York City, age 23; reported using 2 kits over the study period and had 6 partners during this time)
Q24: "Well, I – the first person that I did it with, aside from my boyfriend, one of my regular clients – I texted him, and I told him, and I'm like, you know, I'm a part of this study and I have these HIV kits, so now, you know" (Multiracial-identified Latina woman from New York City, age 24; reported using 0 kits over the study period and had 5 partners during this time)

Locations Where Participants Used PT Kits with Partners

Participants most often completed HIV tests with partners in their own homes (N = 8; Q25). However, they tested at their

partners' residences (N = 5; Q26) or the locations where they were engaging in sex work (N = 3; Q27), as well.

> Q25: "At my house. I did them all at my house. I had them in my bedroom…Every time when a client would come over, I would tell them, 'go to the bedroom.' I would look for the kits and come out with them and say, 'look my love, I'm going to give you an HIV test. The only thing you have to do is open your mouth and let me pass it over your gums.'" (Non-Latina woman of unreported race from Puerto Rico, age 23; reported using 13 kits over the study period and had 108 partners during this time)
> Q26: *"I decided to take them with me – in my purse. I took two kits and we went to his house. He invited me over to his house."* (Black-identified Latina woman from Puerto Rico, age 21; reported using 20 kits over the study period and had 200 partners during this time)
> Q27: "I would have out calls to hotels, and I would bring it with me in my purse. And it as like, I didn't care. It was like, if I had it, I had it. And if you were going to take it, you took it." (Multiracial-identified Latina woman from New York City, age 24; reported using 0 kits over the study period and had 5 partners during this time)

Considerations for PT Use Among Transgender Women

Some participants (N = 4; Q28) reported the need to remain vigilant about partners with whom they might use the test. Specifically, they felt that they, as transgender women, were at greater risk for judgement or violence for proposing the test or having an HIV-positive result. One incident of violence associated with HIV-testing occurred in transgender women during this study.

> Q28: "…but yes, there is this prejudice. Probably if your result, in my case, were to be reactive at some point in time, I would be judged more harshly because I am a transgender woman." (American Indian-reported Latina woman from Puerto Rico, age 39; reported using 7 kits over the study period and had 60 partners during this time)

Discussion

This work describes transgender women's use patterns, challenges, and experiences with partner HIV testing in New York City and Puerto Rico. Research on the use of home HIV test kits with potential sexual partners frequently focuses on cisgender women in sub-Saharan Africa [9, 16, 17]. Additionally, most studies in sub-Saharan Africa examine PT use through the lens of "secondary distribution of HIV test kits [9, 16, 17]." That is, the aims of these studies may include, increasing overall HIV testing by testing sex partners, accessing hard-to-reach populations for testing (e.g., male clients of female sex workers), and building participants' HIV-related knowledge of their social-sexual network to avoid potential future exposures. In contrast, our study aimed to use PT kits as a harm-reduction strategy at the point of potential sexual contact. Additionally, to our knowledge, our study is among the first to do this among transgender women. Though transgender and cisgender women may have some overlap in the issues they face when proposing the test to partners, the African context is much different than that of the United States. Thus, we use caution when relating our findings to those of the broader literature around HIV PT.

Transgender women in our study were intentional about the partners to whom they proposed PT kit use. This is consistent with the literature on this topic among cisgender women in sub-Saharan Africa. Specifically, similar to the transgender women in our research, African cisgender women did not offer PT kits to partners from whom they feared violence [16] or negative reactions [17]. In another study on this topic in Africa, 75% of cisgender women who perform sex work distributed tests to their clients; 88% of participants with primary partners distributed self-tests to these men [9]. Other work in sub-Saharan Africa shows that male partners are generally open to the idea of PT. Specifically, work among female sex workers in Kenya showed that most clients who were proposed the idea of HIV tests had neutral or positive reactions. Additionally, when these women proposed PT to their primary partners, all of them accepted. This is consistent with our findings. That is, in our study, some partners were initially resistant to the idea of testing, but ultimately decided to do so. Others partners rejected the test outright. With the exception of one person, these partners who completely rejected the idea of testing did not become violent [17]. Taken together, this indicates that the use of HIV PT kits may be feasible and acceptable to a range of male partners and partner types (though violence remains a concern for many transgender women), in a variety of geographies and sex work settings [18]. This has implications for global 90–90–90 initiatives; distribution of HIV PT kits to male partners through transgender women could be a novel and viable way to boost testing among hard to reach men. Yet interventions that aim to use HIV PT kits with any women (cisgender or transgender) should take into account their unique needs.

Our work contributes to this effort and could be used in future studies to, (1) inform the potential dialogue and/or materials used by study participants to introduce the idea of testing with partners, (2) provide guidance in the timing of

introducing this topic, (3) introduce suggestions on where to use the test, (4) provide strategies on what to do to manage tension while waiting for results to realize, and (5) inform efforts to facilitate PT as a harm-reduction strategy among transgender women who can be hard-to-reach and/or often feel that existing HIV-prevention efforts are not developed for them. Additionally, this work provides some insight on condom use after receiving HIV-negative test results and concerns that transgender women have about this testing strategy. This is important, since to our knowledge, this is the first study to gather data on these topics.

First, we found that using direct language (e.g., not obscuring the idea of using kits, once participants had decided to use them) was used by most participants to introduce the topic of the PT kits. Participants did not appear to be self-conscious with potential partners about their desire to use the PT kits, explain what they are used for, or show partners how to use them. Future studies focused on transgender women should consider encouraging participants (who feel comfortable with this approach) to use their own words to devise a concise and direct statement summarizing the purpose of the kits, how they work, and what will be learned by them (e.g., partner's HIV status). In the current study, we did this by, 1) showing participants a video that used the words of participants in earlier iterations of this work [3, 19] to present strategies they found helpful in offering tests to potential partners (this video is now available at: https://www.youtube.com/watch?v=uq6Qb4BJLdM), and 2) distributing papers with this information for participants to provide to their partners. None of this information gave recommendations on "the right way" to present or navigate tests. Future studies might consider doing the same; we reiterate that it is critical for these future to encourage and preserve participant autonomy during the presenting, executing, and reading of participant and partner tests. Furthermore, it is noteworthy to mention that using direct language to introduce the topic of using PT kits may not be an appropriate strategy to use outside of the transgender community. Specifically, this was not a theme observed in work with men who have sex with men [20], and these findings among transgender women may reflect the resilience of the transgender community, rather than a generalized finding.

Participants in our study mostly introduced the idea of PT kit use to potential partners in-person (though some mentioned this prior to meeting). All participants tested themselves in our offices prior to receiving their kit supply, and could have hypothesized that they were HIV-negative at the time they proposed tests to partners. While this study is the first to examine the timing of introducing the idea of PT kits to partners, a study of pregnant women in Uganda found that some women timed their *own* PT kit use. That is, these women felt it preferable to self-test for HIV alone, prior to offering the idea to their male partner. These women feared a negative response from their partner if they were to test HIV-positive. This may mean that for some women, learning their own HIV status could help them to better assess which partners to offer a test and to prepare for the types of conversations they might have around PT, particularly if they learn they are HIV-positive [21]. All participants in the Uganda study reported introducing this topic after they had met their potential partner in person. Future studies focused on transgender women might consider engaging participants who are planning to use PT kits with their partners to consider how they will raise the issue (in-person or prior to meeting), and whether they prefer to test together (or if they prefer to test alone beforehand).

Most participants in our study used the test kits in their own homes, or their partners' homes. Other participants used kits in locations where they were engaging in sex work (e.g., hotels). Future studies should consider that participants use PT kits in a variety of contexts. Though we can only speculate, it could be possible to improve PT kit use in locations other than participants' homes if future participants were counseled on novel ways to transport test kits. Specifically, OraQuick in-home HIV tests® are bulky, measuring ~ 7.5″ × 6.5″ × 2″. This could make kits difficult to transport, since it is impossible to fit them into a pants pocket, and difficult to carry in a purse. Future studies might consider providing tips on how to carry tests more easily (e.g., participants could carry only the test swab and developer solution, rather than the entire OraQuick® box), and printing step-by-step instructions on how to use PT kits on a small card that participants could fit into their pocket or handbag.

In our study, participants and their partners reported feeling tension while they waited the 20 min for test results. A study of secondary test distribution among female sex workers in Kenya found the same [17]. Transgender women explained during our interviews that they attempted to minimize this tension by engaging in non-sexual activities, such as listening to music, watching TV, or talking. Others engaged in sexual activities, such as kissing or foreplay. Future studies might consider working with transgender participants to think through how they will handle the results waiting period and what they could do during this time.

While some participants reported using condoms following PT tests, others did not. While this may appear to increase the risk for HIV exposure, since some partners or participants could be in the "window period" (and thus still have a non-reactive HIV test) prior to when an HIV rapid test is able to detect HIV infection, existing work shows that, overall, it does not. Specifically, there is less risk of contracting HIV from someone in the infection's "window period," than by serosorting partners with whom to have condomless anal intercourse, based on personal beliefs about their HIV status (e.g., heuristics) [22, 23].

Among transgender women interviewed at Visit 3 in our study, no participants had a partner that received an HIV-positive test result. However, in other studies, this did occur. Participants' reactions to their partners testing HIV-positive included ending the relationship [24], having sex with condoms [9], and declining to see sex work clients who tested HIV-positive with PT kits [17]. Our participants anticipated having a different reaction, reporting that they did not expect to feel differently about a partner who had a reactive HIV test. While transgender women felt reluctant to stigmatize others who live with HIV, they felt that they would become targets of stigma and discrimination if they were to test positive. This fear is not unfounded, since transgender women living with HIV are often badly stigmatized [19, 25]. The schism in HIV stigma is not entirely different from that observed in cisgender heterosexual relationships. Like transgender women, these women also experience more HIV-related stigma than men [26]. Thus, future PT-based interventions should acknowledge that female partners (cisgender and transgender) may experience less power than male partners in PT interactions. This could further strengthen the case that both transgender and cisgender women may want to know that they are HIV-negative before testing alongside a male partner.

Limitations

This study took place in New York City and Puerto Rico, and some findings may not be generalizable to other parts of the United States. At least one participant disclosed to their partner that they were using PT kits as part of a research study, which could have had implications for partners' willingness to test. Since we did not compare partners' reactions to PT kits between participants who did and did not disclose that they were a part of iSUM, it is unknown how this could affect partner uptake in the "real world." Additionally, this study included only a small number of interviews, which could further affect generalizability and representation. However, given that other work shows it is possible to reach saturation with N = 10 interviews [10] and that we successfully anticipated that this number of interviews would allow us to interview nearly all transgender participants in the intervention group once we accounted for attrition, we feel these results are still meaningful and important. Still, given these limitations, results should be interpreted with caution.

Conclusions

This study aimed to explore the experiences of transgender women at high risk for HIV (e.g., history of condomless anal sex with multiple serodiscordant or unknown status partners) who used HIV PT kits with potential sexual partners. Findings show that participants were able to select partners with whom they wanted to use tests, propose the use of tests in a clear and concise manner at a time they felt comfortable with, complete tests correctly with partners in multiple locations, navigate partners' reactions to being asked to test and their tension while waiting for results, and manage partners' reactions to receiving HIV test results. Transgender women felt that they could be at great risk for partner aggression or judgement because of their gender; one participant reported violence associated with the use of HIV PT kits. This could mean that for some of these women, it may be useful to learn that they are HIV-negative before proposing PT to partners. The use of PT kits did not prevent condomless anal intercourse. However, prior work shows that using kits to identify potential HIV-negative sexual partners is associated with fewer HIV exposures than using heuristics. Future studies to develop interventions to use HIV PT as a harm reduction strategy, or to increase HIV testing among transgender women can use findings from our work to tailor study messaging, design, and considerations for participants.

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