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## Men's Perceptions of Treatment as Prevention in South Africa: Implications for Engagement in HIV Care and Treatment

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**Abstract**

While South Africa provides universal access to treatment, HIV testing and antiretroviral therapy (ART) uptake remains low, particularly among men. Little is known about community awareness of the effects of treatment on preventing transmission, and how this information might impact HIV service utilization. This qualitative study explored understandings of treatment as prevention (TasP) among rural South African men. Narratives emphasized the known value of ART for individual health, but none were aware of its preventive effects. Many expressed that preventing transmission to partners would incentivize testing, earlier treatment, and adherence in the absence of symptoms, and could reduce the weight of a diagnosis. Doubts about TasP impacts on testing and care included enduring risks of stigma and transmission. TasP information should be integrated into clinic-based counseling for those utilizing services, and community-based education for broader reach. Pairing TasP information with alternative testing options may increase engagement among men reluctant to be seen at clinics.

**Keywords**

HIV/AIDS; treatment as prevention; antiretroviral therapy; South Africa

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Early and consistent use of antiretroviral therapy (ART) by people living with HIV substantially minimizes transmission by reducing the viral load in blood and genital secretions (Cohen et al., 2011). Treatment as prevention (TasP) has significant potential to reduce the incidence of HIV in high prevalence countries like South Africa (Cohen et al., 2011; Granich, Gilks, Dye, De Cock, & Williams, 2009; Padian et al., 2011), where observational research has found lower HIV incidence in communities with higher ART coverage (Tanser, Barnighausen, Grapsa, Zaidi, & Newell, 2013). Optimizing the HIV prevention benefits of ART requires a high level of engagement in HIV testing and care (Granich et al., 2009). This has not been achieved in South Africa; less than one third of people living with HIV are receiving treatment (Shisana et al., 2014), despite the country's large ART program. Achieving high HIV service and treatment utilization has been particularly challenging among men, who access HIV testing and ART at a far lower rate than do women, and are less likely to be retained in care and to achieve viral suppression (Cornell, McIntyre, & Myer, 2011; Lippman et al., 2016).

Given that treatment prevents transmission to HIV-negative partners, awareness of TasP may alter the meaning of an HIV diagnosis and influence testing and treatment choices. A recent

randomized controlled trial (RCT) in Malawi involving TasP promotion found a 60% increase in testing in intervention communities (Derksen et al., 2015), suggesting that community education about TasP may have the potential to improve HIV service uptake. In September, 2016, the South African Department of Health introduced universal HIV treatment access, which includes free ART through the public health system regardless of CD4 count. While access to ART is expanding, there are few mechanisms through which information about TasP is being disseminated. Current National HIV counseling and testing policy guidelines (Department of Health, Republic of South Africa, 2015) contain no mention of treatment as prevention, and instruct HIV service providers to counsel patients in “how to reduce the risk of HIV transmission (i.e. abstinence, correct and consistent use of condoms, starting treatment if pregnant, not sharing needles, etc.).”

Community perceptions about TasP and effects on decision-making remain underexplored in South Africa. The literature on barriers to HIV testing and treatment emphasizes the impact of social and structural factors such as HIV-related stigma and fear of disclosure, lack of knowledge about treatment, and male gender norms that discourage men from engaging in care (Govindasamy, Ford, & Kranzer, 2012). The broad use of ART has reduced self-stigmatization through physical recovery and spaces for support which normalize the disease (Russell et al., 2015; Zuch & Lurie, 2012). However, the association drawn between HIV, promiscuity and infidelity, and the anticipation of gossip, rejection, and the loss of dignity if HIV-positive, remain major barriers to HIV service utilization among men in particular (Russell et al., 2015; Treves-Kagan et al., 2016). Whether the ability to protect uninfected partners through ART will alter perceptions and whether understanding TasP might impact ART uptake is unknown.

Research is needed to understand the mechanisms through which TasP information might address some of the barriers to HIV service utilization in order to improve community programming and education. In the context of preparing an intervention trial to mobilize populations around TasP (), we conducted a qualitative study to assess current awareness of TasP among HIV-positive and negative men in a high prevalence setting in rural South Africa. We explored how TasP awareness might affect HIV testing, treatment initiation, and adherence in the context of barriers to uptake.

## Methods

### Study Setting

Data were collected in 2015 from the Agincourt Health and Socio-Demographic Surveillance Site (HDSS) (Kahn et al., 2012). The Agincourt HDSS was established in 1992 and is run by the Medical Research Council/Wits University Rural Public Health and Health Transitions Research Unit. It is located in the Bushbuckridge sub-district of Mpumalanga province, a rural area of North-Eastern South Africa where the majority speak Xitsonga (Shangaan). The HDSS encompasses 31 villages and includes 10 health centers or primary care clinics, all of which provide HIV testing and care services. Villages do not differ substantially on levels of education, socio-economic opportunity, or available services. HIV prevalence in the area is as high as 45% among 35–39 year olds (Gómez-Olivé et al., 2013).

## Sample

Recruitment of the sample was stratified into three groups: HIV-negative men, HIV-positive men in care, and HIV-positive men out of care. Men who identified as HIV-negative were recruited through the social networks of community mobilizers who had implemented a recent community HIV prevention intervention within the HDSS (Pettifor et al., 2015). HIV-positive men engaged in care were identified through two partnering local clinics. Nurses at these clinics contacted men to gauge interest in participating, then provided the study team with contact information for consenting clients. HIV-positive men not engaged in care were recruited by both the community mobilization team who worked in the area and through partnering clinics, including former clients who had not returned for care. Though we aimed to recruit 10 men, ages 18–49, from each stratum, the clinics and community mobilizers were only able to track five clients from the out of care group. Experiences with defaulting were supplemented by the sample of HIV-positive men in care, in whom treatment had not been consistent. In total, 25 men ages 18–49 years were interviewed. Of those who were approached, acceptance to participate in the interview was high: only one HIV-positive man declined to participate, due to lack of time. This represented a 4% refusal rate.

## Data Collection

In-depth interviews were conducted by field workers experienced in qualitative data collection, in the participant's home or another private location of the participant's choosing. Similar interview guides were used for HIV-negative and HIV-positive participants, however the guide for HIV-positive men also included questions related to their engagement in treatment and care. The interviews, which averaged 1.5 hours, focused on barriers to and facilitators of testing and treatment uptake, which allowed us to explore TasP awareness and perceptions in the context of the testing and treatment environment. Barriers and facilitators were elicited by asking participants to discuss their experiences with testing, diagnosis, care, and treatment, and the social influences on their decisions to engage or not engage in these services (eg friends, family, traditional healers, people living with HIV, support groups, clinical environments and privacy concerns, etc.). They were also asked to describe the barriers for men to test and engage in care, and what clinic and community-based changes were needed to improve uptake. Following discussion of testing and treatment behaviors and reasons to / not to test and treat, interviewers read a statement explaining the concept of TasP. They explored whether the participant had heard the information before, their comprehension of and reactions to TasP, and whether and in what ways they believed the information would change the way people made decisions about HIV testing, treatment, and engagement in care, whether positively or negatively.

All interviews were conducted in the local language of Shangaan, audio-recorded, then transcribed and translated into English by the interviewers. The English transcripts were reviewed by one study team leader for clarity. Any issues were discussed with the field worker who conducted the interview and noted in the final transcript.

## Data Analysis

Data analysis was done collaboratively by two members of the study team (A.M. and A.G.). An initial codebook was developed based primarily on interview topics, and emergent codes

were added based on themes identified when reading the data. All transcripts were coded in Atlas.ti and code reports were reviewed for initial themes emerging from the data. Results between HIV positive and negative men and between men in care and out of care were compared in a matrix. Major themes were identified through discussion; the themes were the basis for generating recommendations for TasP information dissemination and programming.

This study was approved by the Institutional Review Boards at the University of North Carolina-Chapel Hill and University of California, San Francisco, the Human Research Ethics Committee (Medical) at the University of the Witwatersrand in South Africa, and the Mpumalanga Department of Health and Social Development Research Committee.

## Results

### Participant Characteristics and Treatment Histories

Participants resided in 14 villages within the Agincourt HDSS; their characteristics are described in Table 1. The HIV-positive men, both in and out of care, were on average older than the HIV-negative men, less educated, and did not have patterns of regular testing prior to diagnosis that was more typical of the younger men. They were also more likely to be currently or previously married. Of those who were positive, most were diagnosed the first time they tested, which was a median of six years prior to interview (IQR = 1.5–10.5) for those in care, and a median of four years prior to interview (IQR=3.75–6.75) for those not in care. Nearly all HIV-positive men described having waited until they were critically ill to test and start treatment.

Of the ten currently engaged in care, all were on ART; two had previously defaulted. Of the five not engaged in care, all had previously been on ART. None mentioned side effects as a reason for defaulting. More commonly, the men described interruptions in treatment resulting from travels for work, school, or family matters. Though efforts were made to have family members pick up and deliver refills, some reported limits the clinics on the number of refills that could be collected without a visit from the client. Though participants were quick to offer logistical barriers, which likely did contribute to poor adherence, further probing sometimes elicited the stigma and fears that underlied or compounded these barriers. For example, though he initially defaulted due to extended travel, one man explained that he was concerned he would be reprimanded by clinic staff if he returned to care after the interruption. In another case, a young participant in his grandmother's care initially reported defaulting while traveling for school. He subsequently divulged that his grandmother mistreated him and "gossiped" about his HIV status, to the extent that his life had become too painful to bear: "To be honest, I stopped taking treatment because of my grandmother; I thought maybe I will die so that she can stop talking about me" (HIV+, out of care, age 18–25).

Below we describe men's awareness of TasP and perceptions of how TasP might affect HIV testing and engagement in care, including the doubts some expressed about the impact of TasP. We then discuss men's suggestions for effective dissemination of TasP information. With some exceptions, across the themes we identified, perceptions did not differ by HIV

status or whether participants were in care. Exceptions are noted where they arose; in all other cases results are presented collectively.

### **Knowledge of ART Effectiveness but No Knowledge of TasP**

Men uniformly ascribed a high level of effectiveness to ART for protecting or regaining one's health, and prolonging survival with HIV. A common thread was the significance of observing ART's effects in oneself or others, which bolstered convictions of the medicine's utility as an HIV treatment. HIV-negative men described neighbors or relatives who had recuperated and continued to survive many years after being diagnosed with HIV and beginning treatment. HIV-positive men recounted how their own health and appearance recovered after they initiated treatment.

So I believe that this treatment is good, because my skin was black, and I also lost weight, but I have recovered. People, they used to ask me what I am eating nowadays, because I look healthy and my body has recovered, compared to last year. So I have started to realize that ART is helpful, and it's true. (HIV+, in care, age 45–50)

...my cousin is now close to 15 years taking treatment. Even now he is still surviving. (HIV-, age 45–50)

I think when I take the medication properly...like now I'm suffering from the legs, when I have taken it [ART] I feel much better, and this crippling is being caused by not taking the medication well. (HIV+, out of care, age 40–45)

Many of the HIV-positive men had sought care from traditional healers. When their health did not improve, they visited clinics for HIV testing. Some planned to return to the traditional healer after ruling out HIV, while others expressed frustration at the money spent on ineffective treatments. Regardless, this process enabled men to compare these two forms of care, which strengthened their convictions in ART as the most effective treatment for HIV. This is not to say that clinical care was necessarily viewed as superior to traditional care, but that it was considered more appropriate for diseases such as HIV, a condition which had emerged more recently.

...nowadays is not the same as in the past, because people were using herbs [traditional medicine] when they were sick. Nowadays there is a different kind of disease [HIV], so we should protect ourselves [with ART] so that we should live longer. (HIV-, age 35–40)

Even within the realm of clinical care, the concept of taking daily medications in the absence of pain was described as relatively new, and partly explained the challenges with ART adherence:

...mostly we knew that you take medication when you are not feeling well, but with this one [ART] we take it without pain. (HIV+, in care, age 35–40)

Participants suggested there is currently a high level of awareness of the effects of ART on CD4 counts and viral load, and of the significance of CD4 and viral load test results as evidence of ART effectiveness. However, when interviewers read participants the paragraph



explaining that ART prevents HIV transmission by reducing the viral load in the infected partner, almost none had heard of the TasP concept.

I didn't know about that [TasP]. What I heard is, when you take ART it boosts your immune system to fight against HIV in your body, and to reduce the viral load. (HIV-, age 18–25)

Participant: I don't know anything [about TasP], I am just hearing from you now that if you take treatment it reduces the chances of transmitting this disease to your uninfected partners. I didn't know.

Interviewer: Do you think other people in your community know this information?

Participant: Ah, I don't think so. There is no one who knows that. (HIV+, in care, age 35–40)

Having heard of TasP for the first time, some men made sense of it by relating it to their pre-existing understanding of the effects of ART on viral load, as evidenced by the quotes above. A few also linked the concept to their knowledge of serodiscordant partnerships in which the positive partner on treatment had not transmitted to the negative partner, offering proof that TasP was plausible.

My friend, his wife doesn't have the virus, and she tests every month but my friend is HIV positive. They don't find anything from his wife because my friend, he is taking treatment properly, so this shows that if they don't find virus in her it means that we can reduce the spread of it when we take it properly. (HIV+, in care, age 35–40)

### **TasP as a Motivator for Engagement in Care**

Men were asked about the impacts TasP information might have on testing and treatment in their communities. The effects of ART on an individual's health and survival remained prominent in responses, and may continue to be the central motivators for treatment. However, about half of men also articulated the additional perceived benefit of preventing transmission to partners. A number of participants described TasP knowledge as potentially providing the impetus some HIV-positive men may need to overcome the hesitancy to initiate treatment.

Yes, it can make them decide to take treatment because what you said is that it is not easy to infect your partner. That is what will make him change and take treatment. (HIV-, age 18–25)

Interviewer: Ok, do you think that finding out this information [about TasP] would change the way people living with HIV in this community make decisions about their HIV treatment?

Participant: It will change because ... if there is an option of taking treatment I will make sure that I take that option, and I will also adhere to it, as I have gotten new information today that taking treatment reduces the chance of transmitting HIV. (HIV-, age 18–25)



Participants also focused on the increased motivation TasP knowledge would provide for adherence.

It can bring the change because every person living with HIV will know that when I don't take the medication properly, I will infect my partner. So when there is information like this one, even people themselves can be encouraged to take their medication properly to avoid infecting other people or spreading the illness. (HIV-, age 18–25)

So I think, if people can know about this information, that taking your prescription reduces the chance that they will transmit HIV to their uninfected partners, it will also encourage us to stay in-care...I think people need to know about this information. It will encourage them to take treatment. Even me, I didn't know about this information. From now on, I will make sure that I take my treatment, and it will help me to live a good life. (HIV+, in care, age 45–50)

One man described the tendency among some men who initiate ART when symptomatic to discontinue treatment after recovering. It was suggested that TasP may prevent this pattern by creating a strong motivation for adhering to treatment that transcends personal symptoms, and that it may add gravity to the choice to not initiate or the failure to adhere.

...some people are discouraged about the issue of ART, but if they can get this information it will encourage them to continue taking their treatment. ...some of them, they engaged in treatment because they were sick and bedridden, so they take treatment because they don't want to be sick, but if they can get this information, they will make sure they stay in care. (HIV+, in care, age 45–50)

In addition, one participant suggested that if partners knew about TasP, they may also play an important role in encouraging adherence to prevent their own infection.

If the ART reduces viral load and it also reduces the chance that they will transmit HIV to their uninfected partners, and it guarantees it for 95%, it can change more people who are HIV-positive. [Others] will also encourage their partners to take treatment, since they know that they will not infect each other. So I think it will be best, especially for the married couples. (HIV-, age 18–25)

Along with motivating treatment initiation and adherence through the ability to protect uninfected partners, men also suggested TasP would alter engagement in care by facilitating the process of HIV status acceptance. HIV-positive men who were currently engaged in care described how achieving status acceptance had allowed them to overcome feelings of shame and fears of disclosure at clinics, which enabled their treatment success. A few HIV-negative men suggested TasP may promote status acceptance by providing hope for a “normal life” for people living with HIV with regards to their sexual relationships, through its ability to prevent transmission to uninfected partners. By mitigating the perceived negative implications of an HIV-positive diagnosis, TasP information may better equip men to accept their status and successfully comply with their treatment.

People can focus on their treatment, if they can know about this information [about TasP], since it will help them not infect their partners. And people will understand

that being HIV positive, it's not the end of the world. You can still live a normal life, even when you are HIV-positive. (HIV-, age 25–30)

Though TasP was most frequently perceived as a motivator for ART initiation and adherence, a few men also suggested that knowing about TasP could incentivize engagement in the full spectrum of HIV services, including testing.

I think it will be helpful if the community can know about this information... it [TasP] will also encourage people to know their HIV status. Even when they test positive, they will take treatment, as prevention... They will accept it once they know about this information, and they will also adhere in treatment, and commit themselves in taking treatment... This information will help the community understand the importance of taking treatment. (HIV+, out of care, age 18–25)

### **Doubts about TasP Impacts**

Five men expressed doubts about the impact TasP information might have on men's willingness to engage in testing and care. These views were primarily expressed by HIV-positive participants in care who believed that the onus of stigma could outweigh the potential protective effects of TasP. Specifically, a few participants noted that men's fear of being seen accessing HIV services at the clinic and the gossip and rejection that they believe would follow, can eclipse even their own health. As suggested below, some asserted that home- or community-based testing alternatives may be needed in order for TasP to have an effect on men who may want to test but fear doing so in clinic settings.

Interviewer: Do you think that finding out this information would change the way people in this community make decisions about getting tested for HIV?

Participant: Ah, I don't think it will change anything... for men, nothing can change. The better thing is to do blood tests in their households, if it's possible, because it's difficult for them to go there [to the clinic] to do a blood test. Most do want to test, but they don't want to go there. ...it is difficult for them and they are ashamed, you see. (HIV+, in care, age 35–40)

This participant went on to explain that while TasP information may not persuade those who fear the unintended disclosure that might come with clinic-based testing, it was easier to envision how TasP might encourage adherence among men whose HIV status is already known.

Two men were also concerned that even with ART adherence, a small risk of transmission would still remain. One HIV-negative man remained uneasy about the idea of marrying an HIV-positive partner because of this remaining risk, though he expressed that the information about TasP combined with counseling could change his mind. Though he did not feel TasP warranted unprotected sex, he suggested that TasP may be most beneficial to protecting those averse to condom use.

Participant: I can't take chances, especially with the person who I know is HIV positive. I am scared. But this information, it's good and people need to know about it, because some other people, they don't want to use protection.[...]

Interviewer: Let's assume you have a girlfriend, she tested positive and you tested negative and you love her, you want her to be your future wife, what can you do?

Participant: At first it will be hard for me, I will have to go through counseling because it's hard, especially with the person whom you know is HIV positive. But since I got new information [about TasP] maybe that information can help...So maybe if I can get counseling I will cope with the situation, but it's hard. [...] They said 95% [reduced risk of transmission], what about the other 5%? So protection, it's still needed. (HIV-, age 18–25)

Lastly, a few men articulated a perception that some people living with HIV wish to transmit to others, so they are not alone in their disease. This intention would be incompatible with transmission prevention as a motivator for treatment initiation or adherence.

Interviewer: Do you think that finding out this information [about TasP] would change the way people in this community make decisions about getting tested for HIV?

Participant: I will reply both yes and no. I will start with no, some people are cruel. Men and women, once they find out that they are HIV positive, they infect others, and they don't want to die alone. They make sure that they infect others. (HIV-, age 18–25)

There are many people doing that, saying, "I want to sleep with them so s/he can be [HIV positive] like me," you see. (HIV+, age 35–40)

### **TasP Information Dissemination and Social Influences**

Men's primary HIV and ART information sources were specific to their HIV status, with HIV-positive men receiving information from clinics and HIV-negative men from community-based programs like workshops and door-to-door testing initiatives. Participants thus emphasized that in addition to including TasP information in clinic-based counseling, community-based education will be critical to reach those who are not currently accessing services, which represented a large portion of male community members. Men suggested this take the form of outreach led by clinic- or community-based health workers.

In addition to formal avenues of information dissemination, social influences were mentioned by nearly all men as playing a significant role in their decisions to engage in HIV testing, care, and treatment. The importance of these relationships should therefore be considered in the context of TasP information dissemination and scale-up.

Most HIV-positive men described how their testing was prompted by mothers or other relatives, friends, wives, and job supervisors, typically when they were experiencing symptoms. A few mentioned that as they gathered the courage to test, they took comfort in knowing others who had tested or were in care at a particular clinic and could accompany them to their visit: "I found myself feeling safe because he was there to assist and to direct me where to go to do the test" (HIV-positive, age 35–40).

Testing among HIV-negative men also typically followed encouragement from others, including mothers, teachers, community mobilizers, friends, and clinic staff, and the comfort found in testing with friends was mentioned by this group as well:

...we were together with my friends, talking about different diseases, and then encouraged one another that we have to know our status because we might get sick one day not knowing our status...we went with the group of four boys and went to get tested. (HIV-negative, age 18–25)

After initiating treatment and regaining their health, HIV-positive men were motivated to urge friends or relatives to test. Many advised others to test earlier than they had, before symptoms emerged. Recognizing symptoms in others also prompted them to share experiences with illness, testing, and the positive effects of treatment, and offer support or clinic accompaniment.

I explained to [my uncle] that I tested and things go this and that way, and I am now taking treatment. I told him that he should do the same and if he tested positive, he should accept. If at the clinic they say they need someone to support him, he should call me, I will accompany him. So he went to the clinic. (HIV-positive, in care, age 40–45)

Participants highlighted that men often experience fear or denial after testing positive, which prevents them from accessing care or leads them to wait until they are too ill to begin treatment. The immediate support and encouragement participants received after a positive diagnosis facilitated their status acceptance and linkage to care. This encouragement came from a range of people, from family and friends to HIV-positive lay healthworkers.

About half of the HIV-positive participants had created informal support groups, which were critical to their adherence. Often participants described how when one person discloses, it opens the door for his friends or relatives to disclose as well. Relationships were strengthened over this shared experience, and men would help each other by providing reminders to take medications, going together to clinic appointments, offering to pick up medications, and sharing words of encouragement.

The one [friend] whom I told, he said, “Even us, we tested and found ourselves like that [HIV-positive].” He also encourages me to take treatment properly and that we must eat well...They come with the food that they knew is required for this kind of illness because they once got ill like me. They encourage me that I will be fine and I don’t have to be scared.” (HIV-positive, in care, age 35–40)

In contrast, most of the men out of care did not mention social support, and this may have played a role in their defaulting.

Those who have achieved status acceptance may be key players to relay TasP information to those who are still in denial. Men emphasized that including HIV-positive community members in educational efforts would be vital to successful TasP uptake, and these men seemed motivated to promote HIV service engagement and support other men undergoing shared struggles with initiating and adhering to ART.

## Discussion

We found that both HIV-negative and HIV-positive men alike shared an understanding that HIV treatment is effective, but neither positive nor negative men in this rural community were aware that treatment translates into prevention of forward transmission. Instead, convictions about ART effectiveness, gained through seeing its tangible effects, were appreciated as individual gains in health and not perceived as bringing prevention to couples and to the community at large. That said, when explained, the opportunity to prevent transmission to partners and stem onward transmission seemed a substantial motivator to initiate and adhere to treatment, and may promote status acceptance by reducing the weight of a diagnosis. Doubts about the potential for TasP to motivate engagement in care were rare, and were limited to HIV-positive participants, likely due to their familiarity with adherence challenges. Their experiences with defaulting were telling, however. The logistical barriers to care continuity, compounded by stigmatizing behaviors in families and clinics, are challenges that must be addressed for the preventive benefits of treatment to be fully realized.

To our knowledge, two other studies situated in Southern Africa have examined perceptions related to TasP. The first, a Malawi-based cluster randomized trial, conducted community-based informational meetings on TasP (Derksen et al., 2015). The intervention had a significant impact on HIV testing, and respondents in intervention villages were more likely to report accepting attitudes towards sexual partners on ART. These findings align with the views expressed by the men in our study, though some variation and nuances emerged in our qualitative data. For example, one HIV-negative participant was more open to a serodiscordant partnership after receiving TasP information, but felt hesitant about entering a marriage. Others also suggested that while TasP will likely motivate testing, some men may continue to avoid testing out of fear of inadvertent disclosure at clinics and resulting stigma. Derksen et al.'s work indicates that perhaps these men are the exception, or that as accepting attitudes towards partners on ART spread, fears of testing and disclosure decline.

Most recently, qualitative research on TasP acceptability in urban communities in South Africa and Zambia has documented themes largely reflected in our rural sample (Bond et al., 2016). Findings suggested similarly poor awareness of TasP in urban communities despite widespread knowledge of how ART affects viral loads. Some participants saw TasP acceptability as diminished by potential risk compensation. Additionally, views of treatment as “taking care of yourself,” were also prominent, emphasizing a need for TasP messaging in rural and urban areas to either align with existing individual responsibility framing, or to promote the idea of shared social responsibility to prevent new infections.

The absence of information about TasP, including among men in our study living with HIV and currently in care, limits informed decision-making about health and prevention options. In alignment with the global UNAIDS goal for 90% of PLWH to know their status, 90% of those diagnosed to receive sustained ART, and 90% of those on ART to achieve viral suppression, South Africa began offering ART to all people living with HIV in September of 2016. A circular was distributed the month of launch by the National Department of Health outlining ART eligibility criteria under the policy (Department of Health, Republic of South

Africa, 2016), and further guidance for clinic staff on counseling patients regarding the preventive benefits of ART adherence may follow. That said, there may be barriers such as clinician beliefs about risk compensation with regard to condom use that could prevent widespread dissemination of TasP during clinical counseling. As a component of the community-based TasP program informed by this study, communities are receiving information about TasP and the 90-90-90 goal; setting their own goals for testing, treatment, and viral suppression; and receiving periodic feedback from clinic data on progress towards achieving them.

### Implications for HIV Programming

Reducing viral load to improve health is a prominent motivator for taking ART that has helped to shift perceptions of treatment. This information should be given in combination with TasP information, especially since it facilitates comprehension of the mechanism through which ART prevents transmission. Relatedly, for participants in our study, observed/tangible effects of ART were critical to convictions in its effectiveness, and could present a challenge to promoting the less tangible benefits of TasP. This concept of “seeing is believing” could be harnessed through avenues such as regular testing of the negative partner to observe sustained negative status, meeting serodiscordant couples who remained so through ART adherence by the positive partner, and sharing stories and testimonials through mass media.

Some men had concerns that anticipated stigma in clinics would remain a barrier, particularly for testing. It is encouraging that an RCT in Malawi involving TasP promotion found a 60% increase in testing in intervention communities (Derksen et al., 2015), however in the rural South African setting it may be that information about TasP would be most beneficial if paired with interventions to address men’s fears of being seen at clinics because of the stigma of HIV. These may include testing venue alternatives (e.g. home or self-testing), work to improve confidentiality practices and integrated service structure at clinics, and promoting an understanding that men can engage in healthcare and visit clinics for reasons other than HIV (Treves-Kagan et al., 2016).

The concept that ART allows people living with HIV to live a “normal life” was a key component in the process of accepting one’s status and being successful on treatment. Though primary prevention efforts such as condom use should continue to be encouraged, information about TasP could benefit people moving through this process, based on the idea that people on treatment can continue “normal” sexual relationships and further reduce the risk of transmission to their partners. As men articulated, engaging people living openly with HIV, and armed with information about TasP, will be critical to supporting those who are struggling to accept a new diagnosis and begin treatment. TasP information would need multiple dissemination approaches: most HIV-positive men in our study received information about HIV and ART from clinics, while HIV-negative men obtained it from community-based programs and services.

## Limitations

Though some men expressed doubts about the potential impacts of TasP in the face of persistent HIV stigma, the majority of perceptions were positive. It is possible that social desirability to affirm support of a medical treatment may play a role in the reported positive perception. While focusing on men was necessary to limit the study scope, women's perspectives may shed light on unanswered questions of whether partnering with people living with HIV will be more socially acceptable in the context of TasP, and how TasP might modify the landscape of stigma. The limited number of men in our sample who were not currently engaged in care (n=5) may have prevented us from identifying distinctions between HIV-positive men who were engaged and not engaged in care. Finally, while generalizability is not a goal of qualitative investigation, a community-based survey could add important insights into whether the views expressed in this study are exceptions, or indicative of perceptions held by the broader community.

## Conclusion

Both HIV-positive and HIV-negative men in this rural area were uninformed about the preventive effects of HIV treatment, information which they indicated could incentivize treatment uptake and adherence. In order to inform decision-making about health and HIV prevention options, TasP information should be integrated into clinic-based counseling for individuals already engaged in HIV services as well as in community-based education campaigns. TasP has the potential to reduce transmission, simultaneously aiding in destigmatizing those living with HIV. Given the potential impacts of understanding TasP, the lack of discussion around it to date in South Africa is slowing progress towards stemming the HIV epidemic. While it remains to be seen whether broader dissemination will impact rates of testing, engagement in care, viral suppression, and HIV incidence, there is an urgent need to inform ART clients, community members, and the cadre of health workers who may not understand the implications themselves about the preventive effects of consistent treatment.

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**Table 1.**

Participant Characteristics (n = 25)

	<b>HIV+ in care (n = 10)</b>	<b>HIV+ not in care (n = 5)</b>	<b>HIV- (n = 10)</b>
<b>Demographics</b>	<b>Mean (range) or n (%)</b>		
Age	38.9 (18–49)	38.0 (19–45)	28.8 (18–48)
Marital status			
Never married	4 (40.0%)	1 (20.0%)	8 (80.0%)
Married	4 (40.0%)	2 (40.0%)	2 (20.0%)
Widowed	1 (10.0%)	2 (40.0%)	0
Divorced or separated	1 (10.0%)	0	0
Education			
Completed high school	1 (10.0%)	0 (0.0%)	8 (80.0%)
Some high school	6 (60.0%)	3 (60.0%)	2 (20.0%)
Completed primary	2 (20.0%)	1 (20.0%)	0
Less than primary completion	1 (10.0%)	1 (20.0%)	0
Lives in village full time	10 (100.0%)	5 (100.0%)	9 (90.0%)
<b>HIV testing and treatment history</b>	<b>Median (IQR) or n (%)</b>		
Number of lifetime HIV tests	1 (1–1)	1 (1–1)	3 (2–4)
Years since testing HIV-positive	6 (1.5–10.5)	4 (3.75–6.75)	-
On ART (not pre-ART)	10 (100.0%)	-	-
Defaulted prior	2 (20.0%)	-	-