


“He Told Me to Check My Health”: A Qualitative Exploration of Social Network Influence on Men’s HIV Testing Behavior and HIV Self-Testing Willingness in Tanzania

American Journal of Men’s Health
2018, Vol. 12(5) 1185–1196
© The Author(s) 2018
Article reuse guidelines:
sagepub.com/journals-permissions
DOI: 10.1177/1557988318777674
journals.sagepub.com/home/jmh


Donaldson F. Conserve¹, Dawit Alemu¹, Thespina Yamanis²,
Suzanne Maman³, and Lusajo Kajula⁴

Abstract

Men continue to test for HIV at a low rate in sub-Saharan Africa. Recent quantitative evidence from sub-Saharan Africa indicates that encouragement to test for HIV from men’s network members is associated with higher previous HIV testing and HIV self-testing (HIVST) willingness. Leveraging this positive network influence to promote HIVST among men is a promising strategy that could increase HIV testing. This study investigated the reasons and strategies men used to encourage their peers to test for HIV and the outcomes in order to inform the development of a social network-based HIVST intervention for men called STEP (Self-Testing Education and Promotion). Twenty-three men from networks locally referred to as “camps” were interviewed to explore reasons for encouraging HIV testing, strategies to encourage HIV testing, and outcomes of HIV testing encouragement. Reasons men reported for encouraging their peers to test for HIV included awareness of their peers’ risky sexual behavior, knowing an HIV-positive peer, and having HIV testing experience. Strategies for encouraging testing included engaging in formal and informal conversations and accompanying friends to the clinic. Encouragement outcomes included HIV testing for some men while others remained untested due to lack of privacy in the clinic and fear of HIV stigma. Willingness to self-test for HIV and an interest to educate peers about HIVST were other outcomes of HIV testing encouragement. These findings underscore the potential of leveraging men’s existing HIV testing encouragement strategies to promote HIVST among their peers.

Keywords

men, social network, HIV testing, HIV self-testing, intervention: Dar es Salaam

Received February 22, 2018; revised April 23, 2018; accepted April 25, 2018

Though HIV testing has served as a cornerstone in the fight against the HIV epidemic, testing uptake has consistently remained lower among men than women in several parts of the world, including sub-Saharan Africa (Abongomera et al., 2015; Asaolu et al., 2016; Brima et al., 2015; Carrasco, Fleming, Wagman, & Wong, 2018; Conserve et al., 2013; Conserve et al., 2017; Johnson, Rehle, Jooste, & Bekker, 2015; Takarinda et al., 2016). In Tanzania, for example, only 47% of men compared to 62% of women have ever been tested for HIV (TACAIDS & NBS OCGS, 2013). Women test at a higher rate than men in part due to HIV testing being offered at antenatal services (De Paoli, Manongi, & Klepp, 2004; Gunn et al., 2016) and to men seeking health care less often than women (WHO, 2013a). Other reasons that prevent men from testing include

¹Arnold School of Public Health, Department of Health Promotion, Education, and Behavior, University of South Carolina, Columbia, SC, USA

²School of International Service, American University, Washington, DC, USA

³Gillings School of Global Public Health, Department of Health Behavior, University of North Carolina at Chapel Hill, Chapel Hill, NC, USA

⁴Department of Psychiatry and Mental Health, Muhimbili University of Health and Allied Sciences, Dar es Salaam, Tanzania

Corresponding Author:

Donaldson F. Conserve, Arnold School of Public Health, Department of Health Promotion, Education, Behavior, University of South Carolina, 915 Greene street, Columbia, SC 29201, USA.

Email: conserve@mailbox.sc.edu



financial costs, distance from testing sites, low HIV risk perception, HIV-related stigma, fear of a positive test result, and the lack of male HIV counselors (Izugbara, Undie, Mudege, & Ezeh, 2009; Leblanc & Andes, 2015; Murray, Toledo, Brown, & Sutton, 2017). Men have also cited concerns about losing the respect of peers if seen at an HIV testing site as a barrier to HIV testing (Izugbara et al., 2009).

From a public health perspective, the low rate of HIV testing among men in, for example, sub-Saharan Africa, and their entrenched reluctance to test for HIV could contribute to HIV transmission to sexual partners by HIV-positive men unaware of their status (Staveteig, Wang, Head, Bradley, & Nybro, 2013). In addition, it has been reported that testing delays have deterred HIV-positive men from accessing lifesaving treatment and have resulted in men having a more advanced stage of the disease (Braitstein et al., 2008; Druyts et al., 2013; Kanters et al., 2013; Mills, Beyrer, Birungi, & Dybul, 2012). Increasing HIV testing among men could help prevent new HIV transmission and reduce delays in treatment initiation, lowering HIV-related mortality among men, and leading to achievement of global HIV public health initiatives such as the 90-90-90 UNAIDS objectives (UNAIDS, 2014).

Oral fluid HIV self-testing (HIVST) is an innovative alternative testing approach recommended by the World Health Organization that can overcome some of the HIV testing barriers faced by men in sub-Saharan Africa (Hensen, Taoka, Lewis, Weiss, & Hargreaves, 2014). In contrast to facility-based or mobile clinic testing, HIVST allows testers to perform the test alone in a preferred location of their choice with the option to receive assistance from a trained provider or a peer before or during HIVST (WHO, 2013a). Studies conducted in sub-Saharan Africa indicated that the privacy afforded by HIVST has led to high rates of acceptability among men (Conserve, Kajula, Yamanis, & Maman, 2016a; Pérez et al., 2016). Sixty-six percent of men in Tanzania reported an interest in self-testing (Conserve et al., 2016a), and 90% of men in Malawi aged 16–19 years old self-tested in 14 neighborhoods where trained resident volunteer-counselors offered oral HIVST (Choko et al., 2015). While HIVST has shown great potential to increase HIV testing rates, several critical concerns must be addressed and more research is needed to identify the most effective strategies to administer and promote HIVST among men.

Men's social networks could be used to promote HIVST (Conserve, Kajula, Yamanis, & Maman, 2016a; Valente, 2012). Social networks have been reported to provide naturally occurring platforms that allow network leaders and members to share information about innovative products (e.g., HIVST; Rogers, 2010; Valente, 2012;

Valente & Pumpuang, 2007) and HIV testing specifically (Barrington et al., 2017; Siu, Wight, & Seeley, 2014; Yamanis, Dervisevic, et al., 2017). Evidence from sub-Saharan Africa has demonstrated how social norms (descriptive and injunctive) within men's social networks influence their perceived HIV-related norms for stigma, condom use, concurrency, and HIV testing (Maina et al., 2018; Mulawa et al., 2016; Nelson et al., 2015; Ragnarsson, Townsend, Thorson, Chopra, & Ekström, 2009; Yamanis, Dervisevic, et al., 2017; Yamanis, Fisher, Moody, & Kajula, 2016). Descriptive HIV norms refer to HIV-related behaviors network members perceive to be *prevalent*, and injunctive norms refer to behaviors network members consider *appropriate* (Cialdini, Reno, & Kallgren, 1990). Descriptive norms influence people to behave similarly to how they perceive others are behaving, while injunctive norms prompt individuals to behave in ways others approve (Cialdini et al., 1990). For example, descriptive norms were associated with HIV testing among men in Tanzania, with those who perceived that at least one of their network friends had been tested being more likely to have tested than those who did not perceive their friends had tested (Yamanis, Dervisevic, et al., 2017). Similarly, injunctive norms were associated with HIVST willingness, with men who had been encouraged to test for HIV by a close male network member more likely to be willing to self-test for HIV in the future than those who had not been encouraged (Conserve et al., 2016a).

For men, these perceived HIV-related norms are interconnected with masculinity norms and ideals, which also influence their HIV-related behaviors and HIV services uptake (Fleming, Colvin, Peacock, & Dworkin, 2016; Fleming, DiClemente, & Barrington, 2016; Fleming & Dworkin, 2016; Mburu et al., 2014; Ragnarsson et al., 2009). In particular, two forms of masculinity (respectability and reputational) have been proposed to influence men's HIV testing and treatment seeking behaviors in sub-Saharan Africa, with some similarities between both (Siu, Seeley, & Wight, 2013; Wilson, 1969). Respectable masculinity ideals include marriage, fathering, children, and providing for them, sexual fidelity, respect for self and hard work, with some men attempting to establish their respectable masculinity with other men (Siu et al., 2014). Reputational masculinity ideals encompass sexual prowess, fathering many children, physical strength, and work ethic (Ganle, 2016; Siu et al., 2014; Skovdal et al., 2011). In Uganda, the intersection of masculinity norms and HIV stigma, which threatens masculinity notions of respectability, independence, and emotional control, prevented some men from accepting a sick role and seeking HIV services (Mburu et al., 2014). In contrast, peer encouragement to test for HIV and factors related to both respectable and reputational masculinity (e.g., symptoms that threatened work, family responsibility, income-generating activities)

were related to uptake of HIV testing and HIV treatment among men (Yamanis, Dervisevic, et al., 2017; Siu et al., 2014). In Tanzania, 48% of 923 men had been encouraged to test for HIV (injunctive norm) by at least one close friend in their network (Yamanis, Dervisevic, et al., 2017), which suggests the potential for men to encourage their network members to self-test for HIV. The encouragement to self-test from a network member combined with the privacy associated with self-testing can reduce men's concerns about HIV stigma, respectable masculinity threats, and allow them to remain in control, both of which can increase men's interest in self-testing (Conserve et al., 2016a; Pérez et al., 2016).

These studies show promise of HIV testing encouragement from a male network member to augment other men's willingness to self-test for HIV. Leveraging these positive network influences and the strategies men employ to establish injunctive norms that support HIV testing is a promising approach to promote HIVST among men. Therefore, to inform the development of a future HIVST intervention for men the research team sought to better understand (a) the process by which networks of men establish injunctive norms that encourage HIV testing and (b) how these norms are influenced by stigma toward HIV and men's respectable and reputational masculinity ideals. In particular, the objective of the study was to examine the (a) reasons men encouraged other men in their network to test for HIV; (b) the approaches used for HIV testing encouragement; and (c) the outcomes of HIV testing encouragement, including willingness to self-test for HIV.

Methods

Design and Setting

The research team conducted a follow-up qualitative study about the social network influence of men on their peers' HIV testing history and willingness to self-test for HIV (Conserve et al., 2016a; Yamanis, Dervisevic, et al., 2017). The participants ($n = 23$) for the qualitative study were from a sub-sample of men who participated in the quantitative surveys conducted as part of baseline and 12-month midpoint follow-up data collection between October 2013–March 2014 and March–December 2015 for a cluster randomized controlled trial (RCT) in four wards (Manzese, Mabibo, Tandale, Mwananyamala) within Kinondoni District of Dar es Salaam (Kajula et al., 2016). For the quantitative surveys, participants were asked about previous HIV testing, encouragement to test for HIV from one of two close friends in the camp, and willingness to self-test for HIV. As part of the RCT, participants had agreed to be contacted about future studies and were invited to participate in this qualitative study

through follow-up phone calls using the phone numbers collected during the baseline and midpoint assessments. Prior to the RCT, the Priorities for Local AIDS Control Efforts (PLACE; Weir et al., 2005) method was used to identify venues where networks of mostly men socialize and meet new sexual female partners—locally referred to as “camps”. Camps appeared to exist mainly in Dar es Salaam, Tanzania, and the research team was the first to publish about the camps based on observations and key informant interviews (Yamanis, Maman, Mbwambo, Earp, & Kajula, 2010).

Descriptions of the camps. The camps in Dar es Salaam had been in existence for an average of 8.5 years when the research team learned about their existence and locations in 2007 and more details about the camps and their members have been provided elsewhere (Yamanis et al., 2010). Each camp had a geographical space, a sitting area, and a camp sign indicating the name of the camp. Boundaries of the camps varied, with some located next to a wall or building while others were in an unfinished or abandoned house (Yamanis et al., 2010). Camps were created for different reasons but mostly to provide a space where young people could socialize and support each other with life issues such as relationships and jobs, and with organizing sporting and music events (Yamanis et al., 2010). Camps elected leadership, and some camps require members to pay dues to support members' marriage, funeral, and other expenses (Yamanis, Dervisevic, et al., 2017). Camps also served as a place where men could form strong social bonds, norms, and network ties that influenced members' attitudes and behavior toward HIV stigma, HIV testing, condom use, and multiple sexual partnerships (Mulawa et al., 2016; Yamanis, Dervisevic, et al., 2017; Yamanis, Fisher, et al., 2016).

Data Collection

Participants for this follow-up qualitative study were purposefully recruited based on their responses to the quantitative baseline behavioral assessment and 12-month midpoint follow-up survey for the RCT (Conserve et al., 2016a; Yamanis, Dervisevic, et al., 2017). Specifically, the sample for the qualitative study consisted of a purposive sub-sample of men who reported in the survey that they (a) had or had not been tested for HIV; (b) were encouraged to test for HIV by at least one of two close male friends; and (c) were willing or not willing to self-test for HIV. A total of 23 participants were interviewed for the qualitative study during November and December 2015 by two Tanzanian, male, trained qualitative interviewers who had conducted prior interviews with camp members and were aware where camps were located. The interviewers received training on HIVST by the first author (DC). The

qualitative research questions developed based on the quantitative findings were: (a) *What are the reasons men encourage each other to test for HIV?* (b) *How do men encourage each other to test for HIV?* (c) *What are the outcomes of HIV testing encouragement on men's HIV testing attitudes and behaviors?* (d) *What are the reasons men who are encouraged to test for HIV do not test for HIV?* and (e) *How can HIVST help address barriers among men who are encouraged to test but do not test for HIV?* The quantitative and qualitative phases were connected by purposefully selecting men for in-depth interviews based on their responses to the baseline and 12-month midpoint quantitative surveys. To ensure they were knowledgeable of HIVST, participants were shown an HIVST video before starting the HIVST section of the qualitative interview. Each interview was conducted in Kiswahili and lasted for 30–60 min. Participants received 10,000 Tanzanian shillings, approximately \$4.50 as compensation for their study participation.

Ethical approval. The study was approved by the University of North Carolina at Chapel Hill Institutional Review Board and the Muhimbili University of Health and Allied Sciences Senate Research and Publications Committee. Written informed consent was obtained from all participants prior to data collection.

Data analysis. Interviews were audio recorded, transcribed, and then translated into English for analysis. The analysis used a priori codes based on the quantitative findings (Conserve et al., 2016a; Yamanis, Dervisevic, et al., 2017): their reasons for encouraging each other to be tested, strategies employed to encourage testing, perceived consequences of encouragement, rationales for not being tested (after being encouraged to do so), and how self-testing addresses barriers to testing. Prior to the analysis, experienced qualitative research team members provided training in qualitative data analysis to less experienced members. A directed qualitative analysis approach was used by applying deductive codes as well as identifying emerging codes in the second phase of analysis. Initially, three sub-teams of two coders reviewed the data and applied these structural (deductive) codes based on the interview questions and probes. Qualitative analysis software, ATLAS.ti, was used for coding and generating code reports. To ensure reliability and validity, each interview was coded independently by at least two research team members (Rolfe, 2006); each sub-team coded a subset of data and held a consensus-coding meeting to compare their respective application of codes and to resolve any discrepancies. A code summary (with quotations) was created for each code and used in the second phase of the analysis, where the senior coders, the

primary author (DC) and second author (DA), coded data to generate more specific subtopics addressing the deductive codes. These codes were based on identifying patterns of responses across data and addressing the dimensions of the broader deductive codes. The research team developed and refined a formal codebook, which contained a description and example of each code (MacQueen, McLellan, Kay, & Milstein, 1998). Analytic rigor was ensured through researcher triangulation. The first two authors met regularly to establish agreement regarding code definitions, code application, and selection of quotations for illustrative purposes.

Results

Participants Characteristics, Camp Norms, and HIV-Related Behaviors

As shown in Table 1, the mean age was 27.3 years (+ 6.5) and half ($n = 12$, 52%) of the participants had a primary school education: 39% ($n = 9$). A similar number of men were married or cohabiting ($n = 11$, 48%) and single ($n = 11$, 48%). Nearly half of the participants ($n = 12$; 52) had obtained an HIV test at least once in their life. Most men ($n = 18$; 78%) had no prior knowledge of HIVST. Willingness to HIV self-test in the future was relatively high ($n = 15$; 65%).

Prior research with camp members revealed a clustering of normative HIV beliefs and behaviors around gender norms, concurrency, intimate partner violence, and peer encouragement to test for HIV and engage in safe sex (Mulawa et al., 2016). These beliefs and behaviors suggested that camp memberships facilitated both reputational and respectable masculinity norms among their members. Reputational beliefs and behaviors included inequitable gender norm beliefs, for example, that men need more sex than women and men need other women (Mulawa et al., 2016). On a positive note, camp members also provided employment opportunities to their peers, which helped men to meet the respectable masculinity norm of being a hard worker and provider (Yamanis et al., 2010). In this study, men reported having male role models in the camps who practiced respectable masculinity:

We youths have got one of us who is our elder and our chairman and he is the one who makes decisions, he has a family and children, he usually gives advises so he can advise someone on certain things, some of the people accept his advises and others do not.

You can tell them that you can just test for HIV because after you test you will be sure of how you are yourself, so if you had many partners you can stop it and calm down and be a normal person and stop following those people with bad behavior.

Table 1. Demographic Characteristics.

Mean age in years (+SD)	27.3 (+ 6.5)
Minimum, maximum age in years of sample	20, 51
Education	
No formal education	1 (4%)
Primary	12 (52%)
Secondary	9 (39%)
Higher than secondary	1 (4%)
Marital status	
Single	5
Married/Cohabiting	11 (48%)
Girlfriend/boyfriend	1 (4%)
HIV Testing and Willingness to Self-Test	
HIV tested in lifetime	
Yes	12 (52%)
No	10 (48%)
Ever heard of oral HIV self-test	
Yes	5 (22%)
No	18 (78%)
Willingness to HIV self-test in the future	
Yes	15 (65%)
No	8 (35%)

These responses also illustrate that while the camps might facilitate the beliefs and behaviors related to reputational masculinity cited above, there were also opportunities for camp members to have a positive influence on their peers by encouraging them to reduce their sexual partners and test for HIV (injunctive norms). The following sections describe how reputational and respectable masculinities and HIV stigma interact with the norms male camp members establish toward HIV testing to better understand the reasons they encouraged HIV testing to fellow camp members, the strategies employed to encourage HIV testing, and the outcomes of HIV testing encouragement.

Reasons for Encouraging Peers to Test

Participants reported three primary motivators for encouraging each other to test for HIV: *awareness of peers' risky sexual behavior*, *knowing an HIV-positive peer*, and *having HIV testing experience*. Few studies have explored with whom men discuss HIV testing and why, with one notable exception being Sui and colleagues' report that masculinity norms played a role in men's decisions about who to discuss HIV testing with (Siu et al., 2014). Furthermore, men valued and trusted their male peers more than their female partners as far as discussions about HIV testing and HIV-related services since the men already discussed their sexual behaviors with each other (Siu et al., 2014). Similarly, this study found that what men knew about each other's reputational masculinity

behavior—in this case, having multiple sexual partners—made them encourage their peers to test for HIV. The following two quotes illustrate these motivations.

The life we live in this town there are many girls, perhaps someone can have his partner, another one may have four or five other partners, that's how it is as a person can have even ten partners in this town, he may have three at Mbagala, three at Mwananyamala.

In talks you may hear someone saying that he can't have only one partner and you can tell him that, my friend, take care of your health, if you have got many partners be careful as you may get HIV and fail to know which woman has transmitted it to you.

Addressing a similar concern, two participants who had been encouraged to test for HIV mentioned how their friends recommended HIV testing because of the uncertainties about their sexual partners' HIV status:

He told me to check my health and to be careful because even these women we are making love with, you can't know about their health, so you must check your health.

What convinced me was that he [a friend] was also telling me that my partner is not faithful but when that issue happened he followed me again when we were together there in the camp and he initiated that issue.

It is possible that the concern camp members have about the potential for some of their peers to acquire HIV is based on the fact they know others who have fallen sick. One participant stated the following:

Our brothers that we live within our streets, just our neighbors, about four of them are infected and they are using medications. In the beginning they were not aware of their status... Severely sick, almost lost lives and then one decided to test and that was when the status was known but if they had done it earlier, things would have been different.

The participant continued to describe how having friends who are living with HIV was another reason camp members established injunctive norms supportive of HIV testing: *"Mostly because of the illness itself since we have friends that are suffering from the same illness and we have seen how they struggle. So when we talk as youth we refer to those ill as examples and encourage ourselves that checking our health is mandatory."*

One other motivator for encouraging HIV testing is having experience with the HIV testing process, which men have described as a social process influenced by the social context and relationships men engage in rather than as behavior by an individual (Siu et al., 2014). Men who had been tested for HIV encouraged their peers to

test because they had information about the process and motivation. One participant stated, "*They were telling us that, our friends, you just go and test for HIV to know your health condition. They had the motivation to influence us because they had tested and were found safe.*" In some cases, the prior HIV testing experience was a requirement for establishing an injunctive norm supportive of HIV testing, as one participant illustrated, "*When we sit in our groups or camps and talk about these topics one may start to say, when you tell me to go to test for HIV, have you tested yourself? So, I can just test to show them that it is just a simple thing.*"

HIV Testing Encouragement Strategies

When participants were questioned about the strategies they or their friends employed to establish injunctive norms supportive of HIV testing, they reported engaging in *formal* and *informal conversations* that occasionally incorporated respectable masculinity ideals. In addition to having conversations, men also actually *accompanied* their friends to the clinic.

Formal conversations. One participant who attended a formal group conversation led by the chairman of the camp described the following:

He (Camp Chairman) started it [the conversation] by saying, "My peers you have to keep in mind that times have changed and things are not as they used to be anymore. Everyone is grownup so to all those that understand themselves the only choice is to take a [HIV] test. So that you know your health status you never know you may believe that you are ok but you cannot see through your inner self with your naked eyes therefore you need to take a test."

The strong appeal of the Camp Chairman's "only choice" reasoning suggests a firm establishment of HIV testing as the norm for "grownup" behavior, which can be synonymous with being a responsible and respectable man. Another participant provided an example how he incorporated respectable masculinity ideals related to sexual fidelity and family planning in another conversation encouraging testing:

Yes, we start from condom talks, for example, someone may say that, my friend, I cannot use condom, and we reply him that can't you use condom? So you go to find your partner and go to test and stay together with her and not use condoms but condoms can also help you in family planning and other issues. Therefore, our talks must end up in testing.

Informal conversations. In contrast to relying on formal conversations, participants reported they or their friends used humor during informal conversations as a strategy

to encourage HIV testing. This was described by one participant: "Yes, they advised each other [to HIV test] because as you know at the camp there is that time when you joke (with) each other and you make that joke as a true thing." Another participant mentioned that despite the humor he and his friends use to discuss HIV testing, they are nonetheless serious: "I am so close with them, we talk about these things [HIV testing] like a joke but at the same time we are serious about it."

Camp members also used a mix of both informal and formal conversations in order to have a greater impact on a member's HIV testing behavior. One participant who eventually went to test explained how one of his friends initially used humor to encourage him to test but when the group insisted in a more serious manner by invoking the sexual infidelity of his sexual partners, he went to test with his friends:

That's when he told me in jokes that I should go to test for HIV but when we met with several people they also told me that stop jokes and go to check your health, don't you know that your partner is not faithful. I said it's alright it's not a problem we shall arrange and go, truly we arranged and went to test.

Accompanying friends to the clinic. Beyond engaging in conversations, some participants also mentioned accompanying each other to the clinic to test for HIV, which served as necessary social support for participants who were encouraged to test but needed an extra push to follow through with their decision to test. One participant who was accompanied to the clinic by his peers stated the following:

I thank God I was with two fellow guys who also made me to go there because they were also giving me encouraging words. I believe if I would be alone I would decide not to go to test but I was with them and found that I better go because you can't know what is going to happen there.

Accompanying one another to the clinic was sometimes the only assurance that some members would actually follow the HIV testing recommendations. One participant described his lack of success with getting his friends to test unless he accompanied them: "I have not succeeded to convince someone until he/she agrees to go together they always say they will go alone, since I went to test alone."

HIV Testing Encouragement Outcomes

While testing for HIV was the ultimate desired outcome of the encouragement peers received, men also described secondary outcomes related to testing awareness and norms. Outcomes mentioned by participants were an

increased awareness of HIV testing, peer HIV status disclosure, not testing for HIV, and willingness to self-test for HIV. The reasons for not testing for HIV despite the encouragement of HIV testing included men's fears about their reputational masculinity behavior related to engaging in risky sexual behavior that place them at risk for HIV (Siu et al., 2014), HIV stigma, which threatens men's respectable masculinity (Mburu et al., 2014), and the lack of confidentiality and privacy at the clinics.

Increased awareness about HIV testing. Camp members reported that their or their friends' attitudes toward HIV testing changed after learning more about HIV testing from the HIV testing encouragement conversations. In some cases, peer encouragement and camp conversations only increased a peer's awareness about HIV testing without leading to testing right away. However, this increased awareness about HIV testing can be the first step that eventually leads a peer to test for HIV as demonstrated in the following quotes from two participants:

I used to think testing is really hard but after days went by and after hearing all of the advices I realized that it is not really a problem...Their contribution is massive, and because I have understood about the importance of being healthy when you get someone to enlighten you with knowledge, it makes you become more aware.

Before I checked, I was given advice and I sat down and considered it and found it was an important issue... I told them that don't worry I will just go, truly one day I decided to go alone.

Peer HIV status disclosure. Another outcome for HIV testing encouragement is that the peers eventually shared their HIV status with the camp members who encouraged them. One participant stated, "Yes, I tell them to go to check their health and some of them must go and one tells you that I have gone and checked and found that I am fresh (HIV negative)."

Another participant reported that one camp member who was encouraged to test for HIV tested positive and shared his status with the group. He responded: "Yes, well we sit and discuss and we give each other one or two advice and I personally encourage him enough he was willing to go for a test and he is open. He came straight to us and he said I have tested and I am infected."

Remain untested for HIV. Despite the encouragement to test for HIV, there are several challenges confronting HIV testing encouragement that prevent participants from testing. These barriers including fear of a positive diagnosis, stigma, and lack of confidentiality and privacy at the clinic. Some participants had engaged in risky sexual behaviors so they feared being diagnosed with HIV: they

preferred not to know their status in order to prevent the ensuing worry and HIV stigma that would result from a possible diagnosis. One participant confessed:

You have been so hyper (engaging in risky sexual behavior) and you are told to go for a test and check your health status, what am I going to do there? You want me to die of high blood pressure? If I go there I come back super slim. That is what I think about, I will go test then what follows is gossiping massively and death.

Participants also mentioned that the concomitant lack of confidentiality and privacy at a local clinic can lead to stigmatization if one is diagnosed with HIV. He stated, "The main thing is that you can go to test at the health centre but we live with the same health providers in the streets so you can test but after two minutes you start getting fingers pointing at you on the ways and the issues of stigmatization."

HIVST willingness and education. Although some men who were encouraged to test remained untested, they and their peers reported that they would eventually be willing to self-test for HIV because of the privacy associated with HIV self-testing:

It will give people privacy as you can take it and go test anywhere in privacy as most of the time people fear going to health clinics as they may meet someone they know or they know a worker there who after testing might go spread the results.

In addition to the privacy HIVST can provide, the encouragement to test for HIV may also influence men to self-test since the quantitative data suggest that men who had been encouraged to test for HIV were more likely to be willing to self-test than those who had not been encouraged. When participants were further asked about their HIVST willingness and how to promote HIVST among their peers, some responded that their peers had already discussed HIVST, so they would be ready to self-test since they have already influenced each other each other to test and protect themselves:

I have not bought this [HIV self-testing kit] before but I have heard stories about new test kits from our groups in different regions and from our conversations with friends.

Because in the beginning we influenced them on health education and we taught them about STIs, and diseases caused by sharp things and they understood us. So I believe that they will also be ready for this instrument [HIV self-testing kit].

In addition to the general encouragement to test for HIV, camp members reported they would be willing to

educate their peers about HIVST and the necessary steps to follow after self-testing:

We must first start educating each other there that, my friend, this and this and this is needed, be ready to receive the results and what and what after that a person goes to continue the activities at home.

I will advise him by telling him that it's alright you have tested yourself alone but you cannot stay alone you must go to the doctors to be counseled.

These quotes demonstrated that some camp members were willing to encourage their peers to self-test and seek follow-up services. The experiences camp members had with encouraging their peers to test for HIV at the clinic and sharing their HIV status with each other after testing could provide a platform for men to continue engaging in conversations that promote an alternative HIV testing strategy for men who do not want to test at the clinic.

Discussion

The purpose of this study was to assess how men who socialize in networks called camps establish injunctive norms toward HIV testing by examining how they encourage their peers to test for HIV, the approaches used for HIV testing encouragement, and the outcomes of HIV testing encouragement, including the willingness to self-test for HIV. The findings indicate that men encouraged their peers to test for HIV for a number of reasons, including the awareness of their peers' reputational masculinity behavior linked to having multiple sexual partners of unknown HIV status. Men also incorporated respectable masculinity ideals related to family planning and safe sex as part of their strategies to encourage their peers to test for HIV. These findings corroborate the motivations related to both respectable and reputational masculinities that motivated men in Uganda to test and recommend HIV testing to their peers (Siu et al., 2014).

The tendency for men in sub-Saharan Africa to delay HIV testing and initiating treatment until their health deteriorates has been well described (Mburu et al., 2014; Nyamhanga, Muhondwa, & Shayo, 2013; Skovdal et al., 2011). The delay in testing and eventual HIV status disclosure is due to HIV stigma and the fear of a potential HIV diagnosis, which can negatively affect masculine pride and reputation (Iwelunmor, Sofolahan-Oladeinde, & Airhihenbuwa, 2015; Mburu et al., 2014; Orr et al., 2017; Siu et al., 2013; Skovdal et al., 2011). However, the finding that men are learning from the experiences of their HIV-positive friends who tested late to encourage their peers to test for HIV and access treatment is less discussed in the literature and warrants further research.

Men also reported that their peers encouraged them to test for HIV because they themselves had been tested, thus providing them with the motivation and information to influence others. In some instances, prior HIV testing experience was indeed necessary to influence a peer's HIV testing decision and eventual uptake. These men with previous HIV testing experiences served as role models for their peers and could help them navigate the HIV testing process at the clinic. In the United States, Black men also encouraged their peers to test for HIV after having been tested themselves and also suggested peer-led strategies be incorporated into HIV testing interventions for Black men (Murray et al., 2017). In Uganda, it was reported that men sought advice from peers who had experience with seeking HIV services and reported that knowing a friend who had tested encouraged them to test for HIV (Siu et al., 2014). Furthermore, the bond and respect men have for each other led them to be more willing to test if a peer with testing experience volunteered to accompany them to the clinic. This finding parallels studies reporting that men in Uganda and male youths in Zambia who were encouraged by their peers would not go to the clinic unless their friends accompanied them (Denison, McCauley, Dunnett-Dagg, Lungu, & Sweat, 2008; Siu et al., 2014). The desire for this peer support has been reported to be strengthened by the fact that it is less stigmatizing and threatening to men's respectable masculinity to test with a friend who has practiced similar reputational masculinity behaviors related to having multiple sexual partners than testing with someone who has not (Siu et al., 2014).

This study also identified that while HIV testing encouragement influenced some men to test for HIV, others either did not test initially or did not plan to test at all. For those who did not test initially, they reported learning more about the HIV testing process and becoming less afraid to test in the future. Men who were still not willing to test in the future reported that their risky sexual behaviors created a fear for them to test and increased their concerns about a potential positive diagnosis and the ensuing stigma and discrimination. In addition, men reported that the lack of privacy and confidentiality at the clinics can cause a breach in confidentiality of their HIV status and increase the chance that they will be gossiped about and experience community stigma and discrimination due to the possibility of meeting a counselor who resides in their neighborhood. On the other hand, the group conversations included discussions about an alternative HIV testing strategy—HIVST—that most men believed their friends who had resisted testing would be willing to try. This finding supports the quantitative results suggesting that 66% of men who had not been tested were willing to self-test for HIV (Conserve et al., 2016a). Similar to other studies, the privacy and confidentiality of HIVST were

the primary reasons men reported their peers would be willing to self-test (Pérez et al., 2016). Avoiding a visit to the health clinic, with its attendant stigma, allows men to act autonomously and remain in control as much as possible as they initiate the testing process, which could undermine their masculinity (Pérez et al., 2016; Sikweyiya, Jewkes, & Dunkle, 2014).

Men were also inquired for their recommendations for a future HIVST intervention and responded that they would be willing to educate their peers about HIVST and the necessary follow-up services. Given the existing injunctive norms supportive of HIV testing and that men are willing to share their HIV-positive status with peers who encourage them, it is not surprising that some of the men felt confident they could encourage their peers to self-test and seek future treatment. Therefore, a man-to-man approach of promoting and distributing HIVST may be acceptable. Building on the existing HIV testing injunctive norms in the camps, the challenges preventing men to test despite encouragement, and the initial HIVST conversations in the camps, an evaluation of a male peer-based HIVST intervention with camp members will be conducted in the next phase of this project.

Based on the participants' suggestion to first educate camp members about HIVST before promoting and distributing the kits, the study team has developed an English name that captures their recommendations for the intervention. The name for the intervention will be the Self-Testing Education and Promotion (STEP) Project. The word "HIV" is removed from HIVST in STEP in order to remove the stigma associated with HIV. Male camp members will be recruited and trained to become self-test educators and promoters (STEPs) of self-testing before HIVST kits are distributed by a counselor. The social network influences men already have on their peers' HIV testing behaviors will be leveraged by incorporating the reasons men establish injunctive norms supportive of HIV testing into the STEP training. Once STEPs are trained and have self-tested, they too will leverage reputational and respectable masculinities, prior self-testing experience, and the importance of HIV testing to encourage their peers to self-test for HIV. Similar to a previous peer-led HIV prevention trial in the camps (Kajula et al., 2016), STEPs will also be instructed to visibly endorse self-testing and educate their peers about self-testing.

Based on the different strategies men used in this study to encourage HIV testing, STEPs will be trained to use formal and informal conversations to engage their peers about the benefits of self-testing and provide instructions on how self-test. Since some participants reported needing to be accompanied by a peer to obtain *clinic testing* and even to share their HIV status with their peers, it is

possible that men who *self-test* may also desire the support of their peers to (a) ensure they are following the self-testing instructions properly, (b) receive encouragement to seek a confirmatory HIV testing and access treatment if needed. As a result, peer educators will be available to their peers who may desire this additional support when they decide to self-test. The ultimate goal of the STEP Project is to train men to distribute HIVST kits to their peers who they have encouraged to test but refuse to test at the clinic.

Limitations

Several limitations of this study merit consideration. First, selection bias in the sample exists due to the recruitment of men who are camp members. The research team was unable to recruit men who were not members of formal groups, such as camps to learn if similar network influences occurred outside of camps. Second, the interviews were conducted in Kiswahili and translated into English. Since the translated data were coded, nuances in the original language might have been missed. Third, although identifiable patterns were found across the interviews, it is possible that other topics would emerge with further data collection. For example, observational data, in addition to self-reports, could have uncovered additional nuances in how men in the camps give and receive encouragement regarding HIV testing.

Conclusion

Networks of men provided detailed explanations about how two forms of masculinities, respectable and reputational, combined with other factors motivated them to encourage their peers to seek HIV testing, discussed different strategies for engaging peers in HIV testing, mentioned the benefits of HIV testing encouragement, and described the potential of HIVST to increase HIV testing among their peers. The existing networks among men in camps in Dar es Salaam, Tanzania, and the ongoing HIV prevention activities among these networks offer opportunities to engage men as STEPs in future HIVST interventions to promote this novel HIV testing strategy.

Acknowledgments

We would like to thank Dr. Kepha Mwiti from Immunolabs Medical Supplies Limited for providing the demonstration Calypte Aware HIVST kits. We also appreciate the assistance of undergraduate research assistants (Hiwot Ekuban, Johnathan Boucher, Rhea Jain, Emma Kerr, Shanaya Fozdar, Terri Long, Allison Gray, Adesh Ranganna, Sohil Shah and Marissa Elardo). We are also grateful for the valuable contributions of Richard S. Youngblood from NC TraCS/CTSA supported by grant # 1UL1TR001111-05, anonymous reviewers, and Editor.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author(s) disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: This study was supported by the University of North Carolina at Chapel Hill Center for AIDS Research (P30AI50410), National Institute of Mental Health (NIMH) Grant #R01MH098690: PI, Suzanne Maman, NIMH Grant #K99MH110343: PI, Donaldson F. Conserve, and a training grant from the National Institute of Allergy and Infectious Diseases #T32 AI007001. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

References

- Abongomera, G., Kiwuwa-Muyingo, S., Revill, P., Chiwaula, L., Mabugu, T., Phillips, A., ... Chan, A. (2015). Population level usage of health services, and HIV testing and care, prior to decentralization of antiretroviral therapy in Agago District in rural Northern Uganda. *BMC Health Services Research, 15*(1), 1–11. Retrieved from <https://doi.org/10.1186/s12913-015-1194-4>
- Asaolu, I. O., Gunn, J. K., Center, K. E., Koss, M. P., Iwelunmor, J. I., & Ehiri, J. E. (2016). Predictors of HIV testing among youth in Sub-Saharan Africa: A cross-sectional study. *PLoS one, 11*(10), e0164052. Retrieved from <https://doi.org/10.1371/journal.pone.0164052>
- Barrington, C., Gandhi, A., Gill, A., Villa Torres, L., Brietzke, M. P., & Hightow-Weidman, L. (2017). Social networks, migration, and HIV testing among Latinos in a new immigrant destination: Insights from a qualitative study. *Global Public Health, 1*–13. Retrieved from <https://doi.org/10.1080/17441692.2017.1409783>
- Braitstein, P., Boule, A., Nash, D., Brinkhof, M. W., Dabis, F., Laurent, C., ... Miotti, P. (2008). Gender and the use of antiretroviral treatment in resource-constrained settings: Findings from a multicenter collaboration. *Journal of Women's Health, 17*(1), 47–55. Retrieved from <https://doi.org/10.1089/jwh.2007.0353>
- Brima, N., Burns, F., Fakoya, I., Kargbo, B., Conteh, S., & Copas, A. (2015). Factors associated with HIV prevalence and HIV testing in Sierra Leone: Findings from the 2008 demographic health survey. *PLoS one, 10*(10), e0137055. Retrieved from <https://doi.org/10.1136/sextrans-2013-051184.0790>
- Carrasco, M. A., Fleming, P., Wagman, J., & Wong, V. (2018). Toward 90-90-90: identifying those who have never been tested for HIV and differences by sex in Lesotho. *AIDS care, 30*(3), 284–288.
- Choko, A. T., MacPherson, P., Webb, E. L., Willey, B. A., Feasy, H., Sambakunsi, R., ... Hayes, R. (2015). Uptake, accuracy, safety, and linkage into care over two years of promoting annual self-testing for HIV in Blantyre, Malawi: A community-based prospective study. *PLoS medicine, 12*(9), e1001873. Retrieved from <https://doi.org/10.7448/ias.20.1.21610>
- Cialdini, R. B., Reno, R. R., & Kallgren, C. A. (1990). A focus theory of normative conduct: Recycling the concept of norms to reduce littering in public places. *Journal of Personality and Social Psychology, 58*(6), 1015–1026. Retrieved from <https://doi.org/10.1037//0022-3514.58.6.1015>
- Conserve, D., Kajula, L., Yamanis, T., & Maman, S. (2016a). *Formative research to develop Human Immunodeficiency Virus (HIV) self-testing intervention among networks of men in Dar es Salaam, Tanzania: A mixed methods approach*. Paper presented at the Open Forum Infectious Diseases, Durban, South Africa. Retrieved from <https://doi.org/10.1093/ofid/ofw172.381>
- Conserve, D., Sevilla, L., Mbwambo, J., & King, G. (2013). Determinants of previous HIV testing and knowledge of partner's HIV status among men attending a voluntary counseling and testing clinic in Dar es Salaam, Tanzania. *American Journal of Men's Health, 7*(6), 450–460. doi:10.1177/1557988312468146
- Conserve, D. F., Iwelunmor, J., Whembolua, G.-L., Sofolahan-Oladeinde, Y., Teti, M., & Surkan, P. J. (2017). Factors associated With HIV testing among men in Haiti: Results from the 2012 demographic and health survey. *American Journal of Men's Health, 11*(5), 1322–1330.
- De Paoli, M. M., Manongi, R., & Klepp, K.-I. (2004). Factors influencing acceptability of voluntary counselling and HIV-testing among pregnant women in Northern Tanzania. *AIDS care, 16*(4), 411–425. Retrieved from <https://doi.org/10.1080/09540120410001683358>
- Denison, J. A., McCauley, A., Dunnett-Dagg, W., Lungu, N., & Sweat, M. (2008). The HIV testing experiences of adolescents in Ndola, Zambia: Do families and friends matter? *AIDS Care, 20*(1), 101–105. Retrieved from <https://doi.org/10.1080/09540120701427498>
- Druyts, E., Dybul, M., Kanters, S., Nachega, J., Birungi, J., Ford, N., ... Yaya, S. (2013). Male sex and the risk of mortality among individuals enrolled in antiretroviral therapy programs in Africa: A systematic review and meta-analysis. *AIDS, 27*(3), 417–425. Retrieved from <https://doi.org/10.1097/qad.0b013e328359b89b>
- Fleming, P. J., Colvin, C., Peacock, D., & Dworkin, S. L. (2016). What role can gender-transformative programming for men play in increasing men's HIV testing and engagement in HIV care and treatment in South Africa? *Culture, Health & Sexuality, 18*(11), 1251–1264. Retrieved from <https://doi.org/10.1080/13691058.2016.1183045>
- Fleming, P. J., DiClemente, R. J., & Barrington, C. (2016). Masculinity and HIV: Dimensions of masculine norms that contribute to men's HIV-related sexual behaviors. *AIDS and Behavior, 20*(4), 788–798. Retrieved from <https://doi.org/10.1007/s10461-015-1264-y>
- Fleming, P. J., & Dworkin, S. L. (2016). The importance of masculinity and gender norms for understanding institutional responses to HIV testing and treatment strategies. *AIDS (London, England), 30*(1), 157–158. Retrieved from <https://doi.org/10.1097/qad.0000000000000899>

- Ganle, J. K. (2016). Hegemonic masculinity, HIV/AIDS risk perception, and sexual behavior change among young people in Ghana. *Qualitative Health Research*, 26(6), 763–781. Retrieved from <https://doi.org/10.1177/1049732315573204>
- Gunn, J. K., Asaolu, I. O., Center, K. E., Gibson, S. J., Wightman, P., Ezeanolue, E. E., & Ehiri, J. E. (2016). Antenatal care and uptake of HIV testing among pregnant women in sub-Saharan Africa: A cross-sectional study. *Journal of the International AIDS Society*, 19(1). Retrieved from <https://doi.org/10.7448/ias.19.1.20605>
- Hensen, B., Taoka, S., Lewis, J. J., Weiss, H. A., & Hargreaves, J. (2014). Systematic review of strategies to increase men's HIV-testing in sub-Saharan Africa. *AIDS (London, England)*, 28(14), 2133–2145. Retrieved from <https://doi.org/10.1097/qad.0000000000000395>
- UNAIDS. (2014). *90-90-90: An ambitious treatment target to help end the AIDS epidemic*. Geneva: UNAIDS.
- Iwelunmor, J., Sofolahan-Oladeinde, Y., & Airhihenbuwa, C. O. (2015). Sociocultural factors influencing HIV disclosure among men in South Africa. *American Journal of Men's Health*, 9(3), 193–200. Retrieved from <https://doi.org/10.1177/1557988314535235>
- Izugbara, C. O., Undie, C.-C., Mudege, N. N., & Ezeh, A. C. (2009). Male youth and voluntary counseling and HIV-testing: The case of Malawi and Uganda. *Sex Education*, 9(3), 243–259. Retrieved from <https://doi.org/10.1080/14681810903059078>
- Johnson, L. F., Rehle, T. M., Jooste, S., & Bekker, L.-G. (2015). Rates of HIV testing and diagnosis in South Africa: Successes and challenges. *AIDS*, 29(11), 1401–1409.
- Kajula, L., Balvanz, P., Kilonzo, M. N., Mwikoko, G., Yamanis, T., Mulawa, M., ... Reyes, H. L. M. (2016). Vijana Vijiweni II: A cluster-randomized trial to evaluate the efficacy of a microfinance and peer health leadership intervention for HIV and intimate partner violence prevention among social networks of young men in Dar es Salaam. *BMC Public Health*, 16(1), 113. Retrieved from <https://doi.org/10.1186/s12889-016-2774-x>
- Kanters, S., Nansubuga, M., Mwehire, D., Odiit, M., Kasirye, M., Musoke, W., ... Ford, N. (2013). Increased mortality among HIV-positive men on antiretroviral therapy: Survival differences between sexes explained by late initiation in Uganda. *HIV/AIDS (Auckland, NZ)*, 5, 111. Retrieved from <https://doi.org/10.2147/hiv.s42521>
- Leblanc, N. M., & Andes, K. L. (2015). An exploration of men's knowledge, attitudes, and perceptions of HIV, HIV risk, and willingness to test for HIV in Yendi District, Northern Ghana. *Journal of the Association of Nurses in AIDS Care*, 26(3), 281–295. Retrieved from <https://doi.org/10.1016/j.jana.2014.09.006>
- MacQueen, K. M., McLellan, E., Kay, K., & Milstein, B. (1998). Codebook development for team-based qualitative analysis. *CAM Journal*, 10(2), 31–36. Retrieved from <https://doi.org/10.1177/1525822x980100020301>
- Maina, G., Strudwick, G., Lalani, Y., Boakye, F., Wilton, L., & Nelson, L. E. (2018). Characterizing the structure and functions of social networks of men who have sex with men in Ghana, West Africa: Implications for peer-based HIV prevention. *Journal of the Association of Nurses in AIDS Care*, 29(1), 70–82.
- Mburu, G., Ram, M., Siu, G., Bitira, D., Skovdal, M., & Holland, P. (2014). Intersectionality of HIV stigma and masculinity in eastern Uganda: Implications for involving men in HIV programmes. *BMC Public Health*, 14(1), 1061. Retrieved from <https://doi.org/10.1186/1471-2458-14-1061>
- Mills, E. J., Beyrer, C., Birungi, J., & Dybul, M. R. (2012). Engaging men in prevention and care for HIV/AIDS in Africa. *PLoS Medicine*, 9(2), e1001167. Retrieved from <https://doi.org/10.1371/journal.pmed.1001167>
- Mulawa, M., Yamanis, T. J., Hill, L. M., Balvanz, P., Kajula, L. J., & Maman, S. (2016). Evidence of social network influence on multiple HIV risk behaviors and normative beliefs among young Tanzanian men. *Social Science & Medicine*, 153, 35–43. Retrieved from <https://doi.org/10.1016/j.socscimed.2016.02.002>
- Murray, A., Toledo, L., Brown, E. E., & Sutton, M. Y. (2017). “We as Black Men Have to Encourage Each other:” Facilitators and barriers associated with HIV testing among Black/African American men in rural Florida. *Journal of Health Care for the Poor and Underserved*, 28(1), 487–498. Retrieved from <https://doi.org/10.1353/hpu.2017.0035>
- Nelson, L. E., Wilton, L., Agyarko-Poku, T., Zhang, N., Zou, Y., Aluoch, M., ... Adu-Sarkodie, Y. (2015). Predictors of condom use among peer social networks of men who have sex with men in Ghana, West Africa. *PLoS one*, 10(1), e0115504.
- Nyamhanga, T. M., Muhondwa, E. P., & Shayo, R. (2013). Masculine attitudes of superiority deter men from accessing antiretroviral therapy in Dar es Salaam, Tanzania. *Global Health Action*, 6(1), 21812. Retrieved from <https://doi.org/10.3402/gha.v6i0.21812>
- Orr, N., Hajjiannis, H., Myers, L., Makhubele, M. B., Matekane, T., Delate, R., ... Goldblatt, B. (2017). Development of a national campaign addressing South African men's fears about HIV counseling and testing and antiretroviral treatment. *Journal of Acquired Immune Deficiency Syndromes (1999)*, 74(Suppl 1), S69–S73. Retrieved from <https://doi.org/10.1097/qai.0000000000001204>
- Pérez, G. M., Cox, V., Ellman, T., Moore, A., Patten, G., Shroufi, A., ... Ibeto, M. (2016). ‘I know that I do have HIV but nobody saw me’: Oral HIV self-testing in an informal settlement in South Africa. *PLoS one*, 11(4), e0152653. Retrieved from <https://doi.org/10.1371/journal.pone.0152653>
- Ragnarsson, A., Townsend, L., Thorson, A., Chopra, M., & Ekström, A. M. (2009). Social networks and concurrent sexual relationships: A qualitative study among men in an urban South African community. *AIDS Care*, 21(10), 1253–1258. Retrieved from <https://doi.org/10.1080/09540120902814361>
- Rogers, E. M. (2010). *Diffusion of innovations*. New York, NY: Simon and Schuster.
- Rolfe, G. (2006). Validity, trustworthiness and rigour: Quality and the idea of qualitative research. *Journal of Advanced Nursing*, 53(3), 304–310. Retrieved from <https://doi.org/10.1111/j.1365-2648.2006.03727.x>
- Sikweyiya, Y. M., Jewkes, R., & Dunkle, K. (2014). Impact of HIV on and the constructions of masculinities among HIV-positive men in South Africa: Implications for secondary prevention programs. *Global Health Action*, 7(1), 24631. Retrieved from <https://doi.org/10.3402/gha.v7.24631>

- Siu, G. E., Seeley, J., & Wight, D. (2013). Dividuality, masculine respectability and reputation: How masculinity affects men's uptake of HIV treatment in rural eastern Uganda. *Social Science & Medicine*, *89*, 45–52. Retrieved from <https://doi.org/10.1016/j.socscimed.2013.04.025>
- Siu, G. E., Wight, D., & Seeley, J. A. (2014). Masculinity, social context and HIV testing: An ethnographic study of men in Busia district, rural eastern Uganda. *BMC Public Health*, *14*(1), 33. Retrieved from <https://doi.org/10.1186/1471-2458-14-33>
- Skovdal, M., Campbell, C., Madanhire, C., Mupambireyi, Z., Nyamukapa, C., & Gregson, S. (2011). Masculinity as a barrier to men's use of HIV services in Zimbabwe. *Globalization and Health*, *7*(1), 13. Retrieved from <https://doi.org/10.1186/1744-8603-7-13>
- Staveteig, S., Wang, S., Head, S. K., Bradley, S. E., & Nybro, E. (2013). *Demographic patterns of HIV testing uptake in sub-Saharan Africa*. Calverton, MD: ICF International.
- TACAIDS, Z., & NBS OCGS, I. (2013). Tanzania HIV/AIDS and Malaria Indicator Survey 2011–12. *Dar es Salaam, Tanzania. Dar es Salaam, Tanzania: Tanzania Commission for AIDS (TACAIDS), Zanzibar AIDS Commission (ZAC), National Bureau of Statistics (NBS), Office of the Chief Government Statistician (OCGS), and ICF International*.
- Takarinda, K. C., Madyira, L. K., Mhangara, M., Makaza, V., Maphosa-Mutsaka, M., Rusakaniko, S., ... Harries, A. D. (2016). Factors associated with ever being HIV-tested in Zimbabwe: An extended analysis of the Zimbabwe demographic and health survey (2010–2011). *PloS one*, *11*(1), e0147828. Retrieved from <https://doi.org/10.1371/journal.pone.0147828>
- Valente, T. W. (2012). Network interventions. *Science*, *337*(6090), 49–53.
- Valente, T. W., & Pumpuang, P. (2007). Identifying opinion leaders to promote behavior change. *Health Education & Behavior*, *34*(6), 881–896. Retrieved from <https://doi.org/10.1177/1090198106297855>
- Weir, S., Tate, J., Hileman, S. B., Khan, M., Jackson, E., & Johnston, A. (2005). *Priorities for local AIDS control efforts: A manual for implementing the PLACE method*. Chapel Hill, NC: Carolina Population Center.
- WHO. (2013a). *Review of social determinants and the health divide in the WHO European Region*. Copenhagen: WHO Regional Office for Europe.
- WHO. (2013b, April 8–9). *Report on the first international symposium on self-testing for HIV: The legal, ethical, gender, human rights and public health implications of HIV self-testing scale-up*. Brocher Foundation, Geneva, Switzerland.
- Wilson, P. J. (1969). Reputation and respectability: A suggestion for Caribbean ethnology. *Man*, *4*(1), 70–84. Retrieved from <https://doi.org/10.2307/2799265>
- Yamanis, T. J., Dervisevic, E., Mulawa, M., Conserve, D. F., Barrington, C., Kajula, L. J., & Maman, S. (2017). Social network influence on HIV testing among urban men in Tanzania. *AIDS and Behavior*, *21*(4), 1171–1182.
- Yamanis, T. J., Fisher, J. C., Moody, J. W., & Kajula, L. J. (2016). Young men's social network characteristics and associations with sexual partnership concurrency in Tanzania. *AIDS and Behavior*, *20*(6), 1244–1255. Retrieved from <https://doi.org/10.1007/s10461-015-1152-5>
- Yamanis, T. J., Maman, S., Mbwapo, J. K., Earp, J. A. E., & Kajula, L. J. (2010). Social venues that protect against and promote HIV risk for young men in Dar es Salaam, Tanzania. *Social Science & Medicine*, *71*(9), 1601–1609. Retrieved from <https://doi.org/10.1016/j.socscimed.2010.07.039>