

**STRATEGIC ASSESSMENT TO DEFINE A
COMPREHENSIVE RESPONSE TO
HIV IN IRINGA, TANZANIA**

RESEARCH BRIEF

VOLUNTARY MEDICAL MALE CIRCUMCISION



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INTRODUCTION

The Iringa region of Tanzania has among the highest rates of HIV in the country at 9.1% prevalence in the general population (Tanzania Commission for AIDS [TACAIDS], 2013). The reasons behind this elevated HIV prevalence are not fully understood, and the response to HIV in Iringa has thus far been insufficient to match the need. The Iringa strategic assessment was designed to inform the development of comprehensive HIV prevention interventions that respond to key factors linked to HIV-related risk in Iringa, Tanzania. The strategic assessment synthesized existing data; conducted additional analyses of representative population-based data from the Tanzania HIV/AIDS and Malaria Indicator Survey; and conducted a large number of qualitative interviews and focus groups with key informants, service delivery providers and clients, and people at heightened risk of HIV in Iringa. Together, these findings provide a better understanding of the reasons behind the high HIV prevalence in the region and help to identify and tailor an appropriate set of interventions to address it. In this brief, we present findings related to voluntary medical male circumcision (VMMC).

Iringa, Tanzania has a relatively low prevalence of male circumcision at 60%, compared to the overall national prevalence of 72% (TACAIDS, 2013). Recent evidence from randomized controlled trials has shown that circumcision reduces the risk of female-to-male transmission of HIV by sixty percent (Auvert et al., 2005; Bailey et al., 2007; Gray et al., 2007). The risk of female-to-male transmission of other sexually transmitted infections (STIs) such as genital ulcer disease, herpes simplex virus type 2, trichomonas vaginalis, and high-risk human papillomavirus has also been shown to be reduced in circumcised men (Larke, 2010). In light of this evidence, the World Health Organization (WHO) and UNAIDS named 13 high-priority countries for VMMC roll-out in 2007, one of which was Tanzania. Starting in 2009, the Maternal and Child Health Integrated Program (MCHIP), together with regional, district, and local authorities, has conducted a massive campaign to circumcise as many men as possible towards the ultimate goal of 80% coverage for the Iringa region of Tanzania (Mahler et al., 2011). The program has successfully reached a high proportion of boys and younger men, but uptake has been significantly lower among married men.

In 2011, MCHIP conducted a qualitative study using focus groups to understand how some Iringa residents view VMMC and, specifically, what can be done to reach older clients (i.e., those over 20 years of age) (Plotkin et al., 2011; Plotkin et al., 2013). Results suggested that many people linked circumcision to Islam, that many women appeared to prefer circumcised men, that older men felt ashamed when asked to stand in line with younger men, that many people had a false impression that circumcision protects against syphilis and gonorrhea, and that many uncircumcised men were starting to feel ashamed of their uncircumcised status. Further, they found that older men would like to support their sons in being circumcised and would be better able to do so if they themselves were circumcised, and that circumcision status of a man could become public information (Plotkin et al., 2013).

Another recent study assessed women's knowledge and attitudes towards male circumcision in Iringa (Layer et al., 2012a, 2013a-b). Layer and colleagues conducted in-depth interviews and focus group

discussions with dozens of women in the Iringa region in 2012. The purpose of the study was to understand women's views, impressions, and opinions of circumcision. Consistent with findings from the Plotkin study, women appeared to prefer circumcised men. Some, though, were under the false impression that they were also directly protected from HIV transmission when their partner was circumcised. Some women were convinced that circumcision was protective against STIs such as syphilis and gonorrhea, and a majority of women felt that circumcision would reduce their own susceptibility to HIV infection. Many women considered themselves safe unless there were sores or abrasions on the genitals, as this was seen as a necessary precursor to HIV transmission and acquisition.

Though these studies provide a valuable basis for understanding perceptions of male circumcision in Iringa, there is a need for further research. While providing important findings, the Plotkin study had limitations, as it relied only on focus group discussions, had fewer male participants than female, and had limited discussion of the fact the circumcision only partially reduces HIV risk and only in female-to-male transmission. Layer and colleague provided recent data that reveals important themes and considerations in women's perspectives, but they did not directly explore the opinions of men. Our study aims to fill gaps in the established literature by emphasizing men in the sampling, employing both in-depth interviews and focus group discussions in the methods, and asking questions specifically about the extent to which circumcision protected against disease.

In an effort to complement and expand on these previous findings, the present analysis seeks to deepen understanding of perceptions of and experiences with VMMC services in Iringa in order to identify specific areas for effective interventions.

METHODS

Between January and May, 2012, the Iringa strategic assessment conducted 123 in-depth interviews to gain a variety of perspectives on potential components of a combination HIV prevention strategy for the region. Interviews were conducted with a wide variety of community members, service delivery recipients, and key informants. This included 34 key informants (7 health care workers, 6 religious leaders, 9 non-governmental organization [NGO] workers, 6 government administrators, 2 village leaders, and 4 other individuals), 30 clients of HIV-related services (6 each from HIV testing and counseling, HIV treatment, VMMC, prevention of mother-to-child transmission [PMTCT], and gender-based violence services), and 59 members of populations at heightened risk for HIV (10 sex workers, 10 truckers, 10 drug users, 9 men who have sex with men, and 20 plantation workers). In addition to these 123 interviews, 2 additional interviews with VMMC clients were conducted and analyzed specifically for this brief, but were not translated from the original Kiswahili or included in the data set for the larger strategic assessment.

Analyses for this brief utilized the strategic assessment interviews in which participants discussed VMMC. These amounted to about half (62) of the 123 total interviews. Along with the 8 VMMC clients, other participants who discussed VMMC included:

- 16 people identified as members of most-at-risk populations (8 truck drivers or trucker assistants, 4 plantation workers, 3 drug users, and 1 migrant worker);
- 11 people who were clients of different health services (5 HIV testing clients, 3 PMTCT clients, 2 gender-based violence program clients, and 1 care and treatment client);
- 6 government leaders (2 district AIDS commissioners, 3 district council HIV/AIDS representatives, and 1 ward executive officer);
- 21 people from other sectors (6 health care workers, 6 NGO employees, 5 religious leaders, 1 traditional healer, 1 women's co-op leader, 1 truck company owner, and 1 community leader).

Of these 62 participants who discussed VMMC, 45 were male and 17 were female; 45 were married and 17 were single; 15 had post-secondary education, 13 had secondary education, 30 had primary education, and 3 reported no education.

All participants were recruited with help of village/neighborhood leaders, and all 8 VMMC clients had been circumcised in MCHIP's campaigns. The 8 VMMC clients were recruited separately from the circumcision campaign activities a few months after they had been circumcised. Since circumcision campaigns in Iringa have struggled to enroll married men, it was of particular interest to have the opinions of married men who chose to be circumcised represented in the sample of VMMC clients. Thus, purposive sampling was used to recruit men of various marital statuses. Of the total 8 VMMC client participants, 4 were married with children, 1 man with a child was separated from his wife, and the remaining 3 participants were single.

To reduce the likelihood of social desirability influencing participant answers, researchers made clear that they were from a research institution—Muhimbili University of Health and Allied Sciences (not

MCHIP, Jhpiego, or the government of Tanzania)—which was not involved in the provision of VMMC services in the region. Participants were assured that their identities would be kept strictly confidential and were encouraged to share all of their experiences, both positive and negative. The fact that all of the participants shared both positive and negative experiences and impressions suggests that this was achieved.

Other than the VMMC clients, male participants were not specifically asked about their circumcision status and female participants were not asked about the circumcision status of their partners. Therefore, we are unable to consider this information in analysis. No data were collected specifically about VMMC in the private sector.

An interview guide was developed to direct questioning around certain topic areas, but interviewers were encouraged to probe on responses to explore related topics and experiences. All interviews were conducted in Kiswahili or English, transcribed, and translated into English if necessary.

Qualitative data analysis followed Crabtree and Miller’s five steps in the “interpretive process”: (1) Describing, (2) Organizing, (3) Connecting, (4) Corroborating, and (5) Representing (Crabtree & Miller, 1999). Throughout the data collection, regular debriefing sessions with interviewers and study staff were held in order to identify preliminary findings for rapid use and to facilitate an iterative process of data collection and analysis. After data collection was complete, full transcripts were analyzed in a two-step process. First, because of the large amount of data, a simple initial set of codes was developed to identify text relevant to the five key intervention components: cash transfers, HIV testing, HIV treatment, VMMC, and interventions with sex workers. These codes were applied using the computer software package Atlas.ti (version 5.2, Scientific Software Development GmbH, Eden Prairie, MN).

Following this initial coding, the resultant text coded under the VMMC topic was reviewed and a more detailed codebook was developed specifically for the circumcision topic based on preliminary identification of themes. Using this codebook, codes were applied using Atlas.ti. Once this second round of coding was complete, queries were conducted using Atlas.ti’s families function and matrices were constructed to consider whether responses for each theme differed by type of participant. Summary memos were created for each major theme. Corroboration was conducted by going back to the original text as needed. Data from summary memos and representative quotes were developed into the results presented in this brief.

Ethical approval for this study was received from institutional review boards at Muhimbili University of Health and Allied Sciences, Johns Hopkins Bloomberg School of Public Health, and the Tanzania National Institute for Medical Research.

RESULTS

Results are presented in the following categories: facilitators for VMMC, misconceptions about VMMC, barriers to VMMC, and finally, specific recommendations on how to potentially improve uptake, provision, and acceptance of VMMC services in Iringa.

Facilitators of circumcision

Risk reduction

There was almost universal acceptance of the idea that circumcision reduced HIV transmission. Only one participant expressed doubt about its efficacy, but only regarding impact at the community level given that the VMMC campaign had been implemented in Iringa for only approximately two years.

MCHIP was very specific about the 60% reduction in risk of HIV transmission in their last few campaigns, and about a third of participants freely recalled this percentage when asked what they had heard about male circumcision. All eight of the VMMC clients who were asked to describe what had prompted them to get circumcised mentioned this number, suggesting that MCHIP counseling and media campaigns were successful in emphasizing the effect of circumcision on community-level reductions in HIV transmission. One client, for example, told an interviewer, “This service has really helped us because during the seminar they told us that male circumcision reduces the chances of getting infected with HIV by 60%.”

Distance

Travel distance to get to the clinics that provided circumcision services was mentioned as both a facilitator and barrier to circumcision. One client, for example, said that having to travel a long distance for the service was actually a good thing. It meant that he was completely anonymous at the service delivery site—no one in his local community could identify him and shame him.

Counseling and surgery

Positive experiences, both pre- and post-surgery, were also highlighted by some participants. One client said that a positive thing about the services was “the politeness of the counselor in welcoming me and testing me for HIV, and the way they were giving me advice.” Speaking about the pre-circumcision counseling, another client said, “I think even having all of those desires, after being given that seminar, I’m different than I was in the past. I don’t have that sharp desire like I did back then [...] Now it’s like you don’t think about it constantly—that question of sex; after having that education, [...] it builds you up psychologically.”

Four clients praised the surgery and the healing period specifically. They said the surgery was performed well and one even reported that the doctor visited him at home to follow up on his progress a few days afterwards. Most were so impressed with the services that they had been trying to convince others to take advantage of the campaigns almost constantly. One said,

[...] after I came out of the hospital I went home and advised my friends to go for that service. Even my friends I advised them and more than seven went! I advised them

nicely and even showed them my wound. I told them clearly that they should not be ashamed, because even me, I wasn't ashamed. I decided to go and I'm ok. I'm ok with my wife. So they went.

Hygiene and cleanliness

Another advantage to circumcision among our participants was general hygiene and cleanliness. One VMMC client explained it this way, "Let's be frank here. This [not being circumcised] is what causes filthiness. Extreme filthiness, because let's say you're peeing and then you look for some water to clean yourself. But we men, you know how we are, there are still some drops of urine that drop out [...] This makes it a good environment inside for germs." Another joked, "Circumcision cuts off that foreskin, because if that thing is not cut off it looks like an army car." The interviewer was perplexed, so the truck driver continued, "It's dangerous because it is so, so dirty!"

Self-esteem

Some men reported that being circumcised made them feel like they were finally real men. "It builds health and also confidence—when you take off your clothes in front of people you look like a man." Another reported that when he saw his friends naked he felt sorry for them because they had not become men yet. Related to this was the reduced shame that circumcision brought. A VMMC client reported, "In town, my friends kept going to the river with girls and I saw that I was being insulted because I didn't bathe with them. They were saying that I don't bathe with them because I have a 'sweater sleeve' and I am still a bush person." This sense of reduced shame for circumcised men was especially common among our less-educated respondents. It was mentioned as the major cause of finally deciding to get circumcised by almost all of our VMMC clients.

Women's preference for circumcised men

Another positive view of circumcision related to sex and marriage. There was a widespread opinion among our participants that women now prefer to have sex with circumcised men and that circumcision is becoming almost a requirement for marriage. A VMMC client emphasized, "Even women, you won't be able to marry a woman anymore if you aren't circumcised. You can't—completely. Women these days have become very intelligent—they refuse." Along with making it more difficult to get married, even having casual sex with a girl became more complicated when one was not circumcised. The same VMMC client continued with the story,

There was a day when I went to a woman—she was very beautiful and she loved me. I asked her, "Why are you teasing me every day. It's not good." On that day she told me, "Let me see your penis if you are circumcised." I said, "I have been circumcised." I lied. She said, "Let me see." She even had a torch! She said, "Take out your penis so I can see it." I refused.

Messaging

Many participants had positive things to say about the current circumcision messaging. They were especially congratulatory on the effect the "sweater sleeve" campaign had on motivating youth to get circumcised. It was seen as an extremely clever way to use Swahili slang to make it cool to be

circumcised. “It awakens most of us youths in Mufindi district, because most of us were still asleep in these things, but now we are in the ‘drop the sweater sleeve’ program. And especially in the villages, this program has motivated most youths to get circumcised.” Indeed, it was seen as quite remarkable how effective this campaign was to completely change circumcision from a rare event to something that almost every young man wanted. This campaign also seemed to have made circumcision a desirable thing for older men as well—to the point that it became extremely shameful for a man to let it be known that he was not circumcised. Ads on the radio, in print, and at village sports days/meetings were perceived to have helped bring about a significant cultural shift in the region.

Misconceptions about circumcision

Full protection against HIV

Seven of the participants reported that some people believed that circumcision offered full or almost full protection from HIV. As one older man said, “[...] they [older men] think that by doing that [being circumcised] they are losing part of their body. But in reality, it is cleanliness—after being educated that it reduces transmission by 99%, that’s when they went to be circumcised.” And a government HIV coordinator said, “[...] when they were educated about it [circumcision] and told of its importance, their awareness was raised and many responded. Only a few are still ignorant. Some think that if they are circumcised they will never have HIV.” It will remain a challenge to educate people that circumcision offers only partial protection for the male and only indirect protection for the female.

Overestimating of protection

As explained above, many of our less-educated participants had the idea that circumcision worked to reduce HIV transmission because it eliminated the place where the viruses like to hide—inside the foreskin. As one woman said, “Well, you know, they say that there are small organisms that make it so if an uncircumcised man sleeps with someone who has the disease he can get the infection, because the bacteria will hide inside there.”

These men and women drew the logical conclusion that if circumcision protected against HIV transmission, it must also reduce other STIs like gonorrhoea and syphilis, and even diseases such as bilharzia. One VMMC client explained,

It [circumcision] prevents sexually transmitted diseases by a certain percentage; it helps to make it not easy to get infected if you sleep with someone with an STI. Because if you have a sweater sleeve [foreskin] and you sleep with a woman who has a sexually transmitted disease you will get it. You see, you push and push and as you continue, it swells up and sucks in the dirtiness from her. But if you are making love and you don’t have, you know [a foreskin], the chance you will be infected is extremely small.

An older woman said, “It [VMMC] helps in the sense that it protects—if you are circumcised it will protect you from sexually transmitted diseases.” Here the interviewer specifically asked, “Is it [all] sexually transmitted diseases or [only] HIV/AIDS?” She responded “Yes, it is not so easy for someone to

get the sexually transmitted diseases if he is circumcised—like gonorrhea or syphilis, unlike someone who is not circumcised.”

These misconceptions of 100% reduction in HIV transmission and that this protection must also extend to gonorrhea and syphilis came almost entirely from less-educated participants. This suggests that participants with higher levels of education were more aware that circumcision is only partially protective against HIV transmission and not against diseases like syphilis, gonorrhea, and bilharzia.

Male-to-female HIV transmission

One VMMC client was under the impression that circumcision can also help reduce male-to-female transmission of HIV. “Maybe the woman you have married at home could be lied to—you know, it is very easy for a woman to be tricked. Maybe this other man isn’t circumcised and he sleeps with your wife. He may have a sweater sleeve [foreskin] and the skin may be dirty. The skin keeps the dirt inside, and therefore when he sleeps with your wife it’s a must that he infects her.” This idea represents another challenge for VMMC interventions in Iringa—educating that partial direct protection from circumcision occurs only for female-to-male transmission.

Condoms

Some of the circumcised participants mentioned the increased ease of condom use as another advantage to circumcision. There is a perception among some men in the Iringa region that an uncircumcised man cannot wear a condom—that it is difficult or impossible to put on. As one man said,

If you are not used to it [putting on a condom], it is difficult. We really appreciate the “drop the sweater sleeve” [circumcision] campaign, because most youths were not circumcised. Because someone who is not circumcised knows that he cannot put on a condom—but for someone who is circumcised he can easily put on a condom very well.

This poses another challenge for VMMC interventions—encouraging circumcision while making sure that counselors do not spread the idea that an uncircumcised man cannot wear a condom.

Genital bruising/abrasions

Several participants reported that HIV can only be acquired if there are bruises, abrasions, or sores on the genitals. Circumcision was thought to make the head of the penis tougher, and thus more resistant to bruising and less likely to bruise the vagina. A young VMMC client explained, “I can say that maybe sexual intercourse is different when you have a foreskin. The foreskin hides dirt and it also is smooth and easily bruised. When it is bruised, it bleeds—with that blood it is easy to be infected.” Another VMMC client said, “If you haven’t been circumcised, any sex you have you might find that you are chafed and bruised in your genitals. And this can infect you—you can find that you aren’t healthy, you’re in pain and you suffer from sexually transmitted diseases.” Others were under the impression that if there are no bruises, sores, or chafing, there is no possibility of HIV transmission.

In summary, positive views of circumcision include some myths, some proven benefits, and some social benefits unique to Iringa. The myths include full protection against HIV transmission, protection against transmission of syphilis and gonorrhea, ease of condom use, and a reduction in abrasions. Proven

benefits mentioned include a 60% reduction in female-to-male transmission of HIV and general hygiene. Social benefits unique to Iringa included less shame, more self-esteem, more marriage options, and more sex. It will be a challenge dispelling the myths while emphasizing the proven medical and social benefits.

Barriers to circumcision

Most participants were asked why some men in Iringa do not get circumcised. The responses showed that many negative views and attitudes exist toward circumcision in Iringa. The responses were varied, but fell into the main categories of tradition, religion, fear of violence, specific fears associated with circumcision (e.g., pain, impotence, relationship disturbance), rumors of improper disposal of the foreskin, issues specific to older men, issues specific to plantation workers, campaign messaging, and issues with the current provision of services (e.g., distance, long waiting times, testing, counseling and surgery experience, post-surgery experience).

Tradition

Many participants mentioned that circumcision had never been a part of traditional practice in the Iringa area (outside of the Muslim minority). They emphasized, however, that even though it had not been a part of their cultural practice, most youth were not opposed to circumcision on cultural grounds. According to them, one of the reasons the recent circumcision campaigns have been so successful is because there is no specific cultural proscription against circumcision; it had never been a part of life. One health care worker explained,

It [tradition] is not something that prevented them from being circumcised. It is simply that it wasn't a tradition from their grandfathers and fathers. The older generations were not circumcised, so they didn't circumcise their children.

However, some men in our study felt that older men, especially those from remote villages, may not be as comfortable with circumcision. A man who was circumcised said, "In the villages, as I told you, they have the belief, 'Why should I get circumcised? My father died without being circumcised, and my grandfather, too.'" This view of the importance of cultural continuity was seen as being especially strong in the older generation—those who have already borne children. A health care worker spoke about the older generation believing "[...] that you cannot bury a human being two times. They bury the foreskin and then when you die they bury you as well." Our participants expressed the idea that youth were open to change and to new ideas, but that once people had borne children, the window was closed and they were better off holding on to the old ways.

Continuity of tradition as a barrier to circumcision was a view expressed most often by those over 35 years old and those with secondary and post-secondary education. This could signify a pro-modern education and anti-tradition bias among the older and more-educated; they may have seen refusal to be circumcised as conflict between education and tradition, while younger, less-educated participants saw other reasons behind the reluctance of many to be circumcised.

Religion

When asked about barriers to circumcision in Iringa, several participants brought up God and the belief that human beings were created with a foreskin, so to cut it off does not make sense. “There are others who are saying, oh, I don’t know, they are persuaded to say, ‘God gave birth to me; God created me with this body so why should I change things?’” However, the religious leaders interviewed, both Christian and Muslim, did not bring this up when asked about barriers to circumcision, as might have been expected. This may suggest that religious leaders are not opposed to circumcision on these grounds.

Ten participants reported that, to many people, circumcision was closely linked with Islamic identity. This had been one of the ways of distinguishing between Muslim and non-Muslim men in the community. To many, especially those over 35, being circumcised was tantamount to converting to Islam. One circumcised male had a personal experience with this:

Let’s take, for instance, our parents who were born long ago. They have the belief that people who get circumcised are Muslims. This happened to me when I told my mother, because my mother and I are very close and love each other. I told my mother, “Mother, I am going to get circumcised.” She grunted, “Ahhh, have you become a Muslim that you want to do that?” I told her this is not only for Muslims, it is for everyone; no one is excluded. She was a little upset with me, but she came to understand later on.

This idea that circumcision was only for Muslims has been counteracted by Christians with the reminder that Jesus himself was circumcised. A traditional healer argued, “They think it’s not a Christian thing to be circumcised, but they think that without knowing that even Jesus accepted circumcision. Yes, that Jesus personally was a Christian but went to be circumcised. He accepted circumcision for the sake of cleanliness.”

Others reported hearing that VMMC was a secret, subtle way of convincing people to convert to Islam. One religious leader spoke about people in more remote villages and explained,

They will ask you, “What is circumcision?” They have never heard of it even from their grandfathers, but they know it is for Muslims—they talk about it in the mosques. They say they have no religion, so what is circumcision for? They don’t have HIV, so this is all just a way of trying to convince them to follow Islamic ways.

These ideas, however, were generally seen as waning and out-of-date. A different religious leader mentioned circumcision and Islam, but quickly added, “But after people get educated they see it [circumcision] as something that everyone must get.” While acknowledging it as a continuing problem, they saw education and modern ideas as pushing out these old ideas linking circumcision so closely with Islam.

Association of circumcision with Islam was another barrier more likely to be mentioned by older, more educated participants. Also, almost a third of female participants mentioned this barrier, whereas fewer

than 10% of male participants mentioned it. This could signify that women may link circumcision more strongly with Islam than men do.

Fear of violence

Some men reported being afraid of violence from their uncircumcised peers. A few VMMC clients said that they had been constantly trying to convince their friends and family members to be circumcised but were afraid of being beaten up by men who felt stigmatized and became violent when confronted with their non-circumcised status. One VMMC client explained,

When you tell someone [a youth] about these issues they want to fight you. They feel you are destroying their pride. For example, I tried to persuade two people to get circumcised, but they wanted to fight me. He feels like you are embarrassing him and says, “No, you can’t tell me that—I have done it [been circumcised].” But I know for sure he hasn’t, because the way we youth are, I knew my friends hadn’t done it. When you tell him he becomes very furious and agitated. It comes to a point where he wants to fight me.

He continued,

I told them that now circumcision is there for adults of your age. Now you can do it—it’s not like back in the days when it was just for children. Now I have been through it and I’m doing ok, so I beg you to go do it. It reached a point when they got angry and called me a faggot and then they punched me. But I told them I’m doing this for your own good.

This violence seemed to mostly take place in public places where men were trying to convince peers to get circumcised. If there were women present, it seemed to make things even worse. They reported, though, that one-on-one conversations were not damaging to pride and resulted in more of their friends deciding to go and get circumcised, too.

This violence was reported in our study only by men aged 20-34 who were recruited because they had been VMMC clients themselves. They described how young, uncircumcised men were very concerned about their pride and not being devalued and stigmatized in public—to the point of violence.

Specific fears associated with circumcision

Many men mentioned fear as contributing to men not wanting to get circumcised: fear of pain or even death from the surgery, of effects on sexual performance, and of potential relationship disturbance. These men were speaking of others when they mentioned this fear—they made sure to emphasize that they, themselves, were not afraid.

Pain

The first fear mentioned was the fear of the pain involved in the operation and the healing period. Participants claimed that many people avoided circumcision because they feared that the pain would be unbearable. A VMMC client said, “Young men, to tell you the truth, are afraid, they’re afraid. [Why?]”

They dwell on the fear that the pain will be unbearably strong. The first thing you hear from them is about the possible pain involved—that’s what gives them the most problems.” Another client mentioned the fear of needles. “For many people [...] once the person hears that they will be injected with a syringe, they get a certain shock of fear because he’s afraid of how much it might hurt.” Both fear of pain and fear of needles were emphasized as only being problems for children and teenagers. Older men are supposed to not worry about these “childish” fears. One VMMC client mentioned that some people are afraid they will die from the surgery.

Impotence

Another fear mentioned several times was the fear of impotence or reduced sexual performance as a result of circumcision. Some reported hearing rumors that a circumcised man could not satisfy his wife. One participant heard people saying that there was a large chance that the wound would not heal properly. Another NGO worker heard rumors that circumcision could lead to marital dissolution. He said, “They are told that it reduces a man’s ability to satisfy his wife, so one thinks like he cannot afford to lose his wife because of adult circumcision. But all that is just because he is in the dark—there are others who have accepted it well. I think those who lie to their friends about circumcision should be educated.” However, most participants were dismissive of these rumors. They felt that further educational efforts together with personal testimonials from men who had been circumcised would serve to easily dispel these fears of reduced sexual performance.

Relationship disturbance

Fear of relationship disturbance was also raised as a reason for not getting circumcised. Couples in Iringa did not ordinarily discuss sexual matters openly, so it was difficult for both the husband and the wife to bring up circumcision. An NGO worker described this issue:

Another thing is that they are not used to discussing sexual matters and their relationships with their wives. How can he explain to her why he wants to get circumcised? How can he tell her, “Yes, I just came from getting circumcised?” He sees this as causing a disturbance and at the end of the day you’re already married, so what’s the use of getting circumcised?

Participants reported that some men were also concerned that their wives would assume that another woman asked him to get circumcised, because the wife did not ask for it. If he went to get circumcised it would be as though he was admitting that he was cheating on his wife. If the wife asked the husband to get circumcised, she was either admitting to cheating herself, or accusing her husband of cheating. This underscores how complicated it was for a couple to discuss circumcision and why, many times, the man would either decide not to be circumcised or would do it without informing his wife.

Rumors of improper disposal

One religious leader, when asked what people are saying about circumcision, said that some people were worried about what happens to the blood and the foreskin from the surgery. “It’s true that some people say they don’t understand where the skin that is cut goes. And they think, ‘Where does the blood go?’ They talk a lot about that.” The interviewer did not follow up on this idea, but it is possible that this

could be related to ideas about witchcraft in Iringa and Tanzania in general. In order to have power over someone, it was thought, a witch needed something from that person's body. It could be a fingernail clipping, a strand of hair, or something even more powerful—that person's foreskin or blood.

Issues specific to older men

One interview question specifically asked about barriers to circumcision uptake in Iringa among older men. Interviewers asked: "We have heard that only a small percentage of older men are coming to take advantage of circumcision services. Why is this?"

One participant mentioned that pain from circumcision was worse for older men than younger ones. More common was the idea that older men's bodies would have a harder time healing from the operation.

A large percentage of participants said that older men did not get circumcised because they saw no need to do so. Almost all of these participants were over 35 years of age, indicating they were likely speaking from either their own experience or the experiences of their peers. Circumcision was seen as a waste of time and of no real benefit because older, married men were not having as much sex as the younger men. A district AIDS coordinator said,

Because the majority of old men have gone beyond their sexually active stage. The majority [of old men] think that most of the men being circumcised now are doing it because they are still in the age where they are having more sex than him [...] I remember one older man asked me, "My son, why should I be circumcised today?" You see, because he thinks that circumcision is only necessary when someone is most sexually active.

One older woman explains, "Eh, it reaches a time where they really don't want to do anything related to sex, so they just cook, eat, and converse, but sex seems like more of a nuisance." Along with older men being seen as much less sexual, there was an idea that older men were more faithful to their partners and did were less likely to seek sexual partners outside of their stable relationships. An older married man stated,

[...] an old man can tell you, "I have no plans to cheat." [...] If he has stopped doing those things, that means that circumcision will not change a thing [...] He will tell you, "I have no plans to date other women so what is circumcision for?" What will you tell him?

Interestingly, female participants were much more likely than male participants to mention that older men saw no real need to be circumcised, perhaps reflecting that females in Iringa are more likely to consider older men as less sexually active and less likely to have multiple partners.

The most frequently mentioned barrier to circumcision among older men was shame. This shame came from three different sources—providers, family members, and the general community. The first source of shame for older men was from circumcision service providers. The providers were seen as almost all relatively young and female. For these older men to expose themselves to a female of a younger

generation was seen as a huge source of shame for these older men—especially if the younger women were members of their community. As one man said,

[...] but also those who circumcise should also be elders. You know if you bring a grown-up man to a young man like you, and you start touching him and circumcise him, he won't agree [...] but if we use the elders and take them and educate them and tell them that it is now their duty to educate their fellow elders who are not circumcised, they will do the work and they will be circumcised.

Another source of shame for older men was members of their own family—specifically male members of younger generations. There was a fear that if younger members of the family found out that their father/grandfather was not circumcised it would bring unbearable shame.

I think the biggest issue here is that they are ashamed. For example, an adult male is at home and you may find that his children too have not been circumcised or have already been circumcised since these days when a child goes to university and finds that his friends have been circumcised, they make fun of him so he goes personally and gets circumcised. So the elderly man thinks to himself that if he goes to get circumcised and then returns home and starts to wear a bed sheet [during healing], won't everyone at home know that he just got circumcised? [...] [T]here is still that shame, "What will people's perception of me be when they find out that even as old as I am I was not circumcised?"

A third source of shame for older men involved mixing with younger generations while waiting in line to access VMMC services.

When you call people and you mix them, there are children together with older people like me. It's possible that I need the service, but when I go there and I find my children and my grandchildren there. Don't you see that I would embarrass myself? You see, they might say, "That means even grandfather, even father [...] [hasn't been circumcised]."

The final source of shame, mentioned by more than half of participants, came from the community. It is important to note that by "older men," the participants were talking about married men with children. Conceptually, there were four categories of men in Iringa—children (*watoto*) (age 0-15), unmarried youth (*vijana*) (age 16-34), married adults (*watu wazima*) who had young children (age 25-50), and elders who had grown children and grandchildren (over age 50). These categories overlapped depending on what age the individual man got married and had children. There were, however, clear lines of physical demarcation between these three groups—mixing was not allowed. Adults and elders were afraid that if they went to get circumcised they would be mocked by the community. "[...] Only young people go because adults think that if they go they may be mocked that an old man has not yet been circumcised." Others were afraid that people would spread their secrets around the neighborhood. "Another thing is you will find an adult stigmatizing himself, thinking, 'At this age should I really go?'"

They think that if they get the service, others will hear their secret in the streets.” Older men were very concerned about their pride; being seen going to access circumcision services was seen as shameful because it told everyone that he had not yet been circumcised.

Issues specific to plantation workers

The sole plantation worker interviewed recommended that circumcision campaigns on tea, timber, and tobacco plantations should be timed to occur during the non-harvest season to give workers a chance to heal before work starts again. He suggested that such campaigns should be carefully coordinated with the government, health care workers, and plantation management to have the greatest impact.

Messaging

Though many participants considered the extensive media messaging launched by MCHIP as effective, others mentioned areas in which this messaging was falling short. First, one man mentioned that people were worried about confidentiality and nothing in the messages they received addresses these concerns. Another issue was the perception that the messages mainly came from outsiders. Instead, participants said they would like a stronger emphasis on local involvement in developing convincing messages and recruiting clients to services.

The main concern regarding messaging, though, was the perceived lack of education on the risks and benefits of VMMC. People would like to be engaged and educated. As one Christian leader put it, “They should have educated the people first on what it is all about. Maybe drums and even illustrative videos for people to watch. They shouldn’t just go through the streets shouting, ‘Everyone, go to the dispensary for circumcision!’ People are puzzled and ask themselves, ‘What is that?’”

As for older men, they would like to be educated by their peers. As one man said,

Are there no elders who are circumcised? If they are there, they are the ones who should be used to motivate their fellows. They should tell him how they feel now that they have been circumcised and what kind of life they are living—meaning how they feel now having been circumcised.

Another said, “We must get their fellow elders to come talk to them. There is no other way. If you get experts who are their fellow elders to convince them they will do it. As they say, *dawa ya moto ni moto* [fight fire with fire.]” One more said,

[...] but I think if you were to put up posters saying that those who are involved in providing circumcision are fellow elders [it would help]. And if they were told that it has no ill effects and they were counseled personally to do it, they might agree. But if young men are to circumcise the older men, then they feel violated. According to *Hehe* customs, this is defiance—they are not ready to be circumcised by young people.

Most suggested that the messaging be moved away from a reduction in HIV transmission and more towards hygiene and preventing cervical cancer. MCHIP is already moving in this direction with their current campaign messages, which are about modernity and cleanliness.

Issues with services

Distance

A few participants mentioned that many people had to travel very far to access circumcision services and that this prevented many from deciding to be circumcised. Either they could not afford the transportation costs or they were afraid that the anesthesia would wear off before they could get home.

Perceived corruption

Four VMMC clients mentioned that they witnessed favoritism and bribes when accessing circumcision services. One said,

I didn't spend any money [for the services], but I think others did. Do you know why I am saying this? At that time when the doctors and nurses were providing services, others were given priority all because they had money. I have witnessed these things. Maybe it's time for someone to get service, but the workers are given bribes, put them in their pockets, then they take that person to get service. Another thing is people knowing each other so there is favoritism—no fairness. It was supposed to be clear that the line should be followed and the services given one-by-one, but they are looking at your family background when they serve you, you see! Others came from Itumbo—there is no service center there, they depend on Mafinga, but the workers are not fair. I witnessed like five people who came late, but got served first and went back home.

It is possible that this man did not witness favoritism in the line-jumping, as MCHIP is currently encouraging older men to be circumcised by letting them jump to the front of the line. However, the perception of corruption is still a problem. Another client reported that he was asked to pay a 500 shilling registration fee at a campaign service. Favoritism and bribe-seeking by service providers could cause people to lose faith in MCHIP and their ability to provide fair services to all.

Long waiting times

Another common complaint was the long lines and waiting times at campaign services. People reported giving up in despair when faced with queues of hundreds of people. Related to these lines, by far the most common complaint of pre-surgery services was reports of generational mixing in line. Many older men said they wanted to be circumcised, but it was impossible to expect them to wait in line with men the age of their sons and grandsons. As a VMMC client explained,

You know we are adults, there were elders there also. Now it is not good for all to be in the same line waiting for service. There were children all waiting in the same line; this is not a good thing [...] In my case I was brave, but someone else could have felt ashamed. I think they should have separate places for elders, adults, and children. This would give motivation for people to go. Others, when they saw that line, they decided to leave.

Testing, counseling, and surgery experience

Participants raised some issues related to the HIV testing offered before the surgery as part of the VMMC package. One man said that he was told HIV testing was done so that he would not be able to

accuse the doctors of infecting him with HIV during the surgery. Another said that he was tested but not told the results.

A couple of men said that MCHIP should shorten the distance men must walk naked. As one stated, “You know there is an open space [...] that is, the girls who are standing outside can see you while you are going for the operation, because in our hospital in Mafinga they used to do the procedure in the theater room [...] so we had to walk about three meters to reach that place.” This same man, though, went on to assure the interviewer that it was not that big of a deal—that he was so happy to get circumcised, it didn’t matter very much.

The final issues with the surgery had to do with the perceived inexperience, indiscretion, and age of some of the service providers. During the educational seminar before surgery, one client said that he was told, “[...] during circumcision they remove the foreskin to leave an opening for the penis. Otherwise, if you are not circumcised and you have sex with a young woman you may end up hurting her because when the foreskin retracts inside the vagina it causes so much pain.” One man reported that his friends were circumcised by a provider that was cutting too much skin off the penis, which caused serious healing problems. Another reported that he heard some of the nurses whispering, “Ahhh, this man still hasn’t done it?” as he was being circumcised. One final client said that the service providers were much too young. Older men felt ashamed to be exposed in front of such young people.

Post-surgery experience

Following surgery, the major complaints were about the levels of anesthesia, the healing time, and confusing instructions regarding healing post-surgery. Three clients said that the anesthesia given was not enough. For one, it wore off almost immediately and he found he could not walk home. The second client reported that the surgery was very painful because he was not given enough anesthesia, and the third also said it was impossible for him to walk home because the anesthesia wore off after only 20 minutes. As for healing time, one client reported needing one month and another reported needing six months to fully heal. Finally, clients reported receiving some strange instructions from service providers after their surgery. One client was told that when he gets an erection at night he should drink lots of water to make it go away. Another was told he was not supposed to walk anywhere “because the bruises will get warm and your body is supposed to be in a cold place—that’s when the wound heals fast.” Related to this cold/warm idea another reported, “Initially they said that we should not go into the kitchen—meaning we should not enter into any hot places; we should only stay in the bedrooms.”

DISCUSSION

This brief summarizes a variety of facilitators and barriers to VMMC as well as some misconceptions about the procedure among participants in Iringa, Tanzania. Facilitators included perceived reduction in risk of HIV transmission; anonymity due to long distances to facilities; positive experiences in counseling and surgery; perceived improvement in hygiene; reduced shame and a boost in self-esteem; women's preference for circumcised male partners; and effective messaging encouraging youth to be circumcised. Barriers included a lack of traditional circumcision in the region; the linking of circumcision and Islam; a fear of violence from uncircumcised peers; fear of pain, impotence, and relationship disturbance; rumors about improper disposal of the foreskin; distance to facilities; perceived corruption of providers; long waiting times; negative experiences with HIV testing, counseling, and surgery; and the painful journey home. Misconceptions included the idea that circumcision provided full protection from HIV transmission, that male-to-female transmission was reduced, that transmission of STIs such as syphilis and gonorrhea was reduced, that condom use is impossible for uncircumcised men, and that bruising and abrasions on the genitals is necessary for HIV transmission.

Overall, this study serves to confirm, complement, and deepen the results of earlier studies conducted in Iringa (Layer et al., 2012, 2013a-b; Plotkin et al., 2011). We heard many similar themes from our participants as those identified in these previous studies, including that some individuals link circumcision to Islam (Plotkin et al., 2011), that many women prefer circumcised men (Layer et al., 2012, 2013a-b; Plotkin et al., 2011), that older men feel ashamed queuing with younger men (Plotkin et al., 2011), and that many people incorrectly assume that circumcision protects against syphilis and gonorrhea (Layer et al., 2012, 2013a-b; Plotkin et al., 2011). Together, this study and previous qualitative studies help develop a thorough understanding of the facilitators, barriers, conceptualizations, and understandings of VMMC in Iringa from the perspective of men and women, clients and providers, and a variety of other community residents, using a variety of qualitative methods.

Implications

The findings in this study have a number of implications for future intervention development. Programs looking to expand VMMC services in Iringa should look to address shame in older and married men, develop effective messaging techniques, and improve specific aspects of service provision.

Shame reduction for married men and elders

These results have many implications for interventions aiming to promote VMMC to married men and elders. Most importantly, these adult men need to be offered a way to be circumcised without suffering shame from providers, their own family, or the community. To reduce shame from providers, the VMMC program in Iringa should consider hiring married adults and older men to provide circumcision services to their peers. All providers should maintain 100% confidentiality about who they have served. To prevent shame from family, the program should consider finding a way to separate adults and older men from younger generations during the actual circumcision procedure. Several men in the study mentioned that, once the surgery was complete, they could pretend they have malaria to disguise the healing time from the younger generations of their family. Finally, to reduce shame from the

community, the program should consider finding a way to make sure that the community does not witness or find out about the circumcision of married adults and older men. Different generations should not be expected to wait in line together. Privacy must be absolutely 100%. Home circumcisions in a private room could be a solution to these issues and should be considered.

Messages

Our results suggest that MCHIP's past messaging has successfully communicated the protective effect of male circumcision, as all of our participants were well aware of its benefits. From their perspective, the communication efforts of MCHIP began a significant cultural shift towards the desirability of circumcision. This success can be expanded upon in future HIV prevention interventions in the following ways.

To reach married and older men, VMMC interventions in Iringa should continue the current shift away from messaging centered exclusively on HIV transmission to a more comprehensive message that includes other benefits of circumcision including the benefits to general health, cleanliness, and well-being. Emphasizing general health benefits, hygiene, and modernity could attract greater numbers of older men, as older men were often considered not at risk of HIV infection due to reduced sexual risk behaviors. Interventions should try to enlist adults and elders to be on posters and flyers to show these age groups that their peers are also being circumcised. Adults and elders should also be enlisted to conduct elders meetings to discuss circumcision in a safe space for older and married men.

Interventions could also consider enlisting religious leaders in encouraging their congregants to be circumcised. For Christians, this could include emphasizing that even Jesus was circumcised. Messaging needs to dispel fear of excessive pain, needles, and dying, and could do so by emphasizing the bravery of those who choose to be circumcised. Older men need to be assured that their pain will not be especially acute as compared to younger men, and their healing time will be normal. The general public needs to be clearly informed about how the foreskins and blood are disposed of to dispel harmful rumors, such as those mentioned by some participants in this study. People also need to be assured that their sexual performance will not suffer. Risk-reduction messages need to be clearer and communicate that while there is reduced risk of female-to-male transmission of HIV, genital ulcer disease, herpes simplex virus type 2, trichomonas vaginalis, and high-risk human papillomavirus, there is no reduced risk for transmission of gonorrhea, syphilis, and male-to-female transmission of HIV.

Future interventions should continue the cold-season youth campaigns and should consider expanding to schools and churches as venues. Mass gatherings and experiential media events should be continued for children and youth, but should not target married adults and elders. Older populations should be targeted by one-on-one counseling by their peers, in age-group meetings, and through posters and flyers picturing their peers. Interventions should also consider hiring VMMC advocates in target communities who have been circumcised and can speak to the advantages of the procedure. They should be drawn from different age groups—unmarried youth, married adults with children, and elders. Interventions should consider ways to encourage circumcision while also addressing the rising stigma directed towards those who choose not to be circumcised. Several young men in our study seemed to be tireless in promoting VMMC, suggesting that some VMMC clients could serve as useful local

advocates. However, this should be approached cautiously, given the reports of violence towards those advocating for circumcision in this study. These reports of violence when peers advocate for VMMC were surprising and, to our knowledge, have not been identified in previous research. Our interviews included only a handful of these reports, so it is unclear how widespread this concern might be. Future research could ask specifically about this issue.

Service provision

Interventions should try to find a way to facilitate communication between partners about the importance of circumcision so one partner does not assume the other is cheating if he/she brings it up. Programs should initiate conversations with tea, timber, and tobacco plantation management to plan ways to facilitate the opportunity for workers to be circumcised without losing pay. Different recruitment and service-delivery strategies should be considered for people in different life stages—children, youth, adults with children, and elders. Further, programs should consider ways to reduce time spent waiting in lines and should consider ways to bring services closer to the clients—perhaps even into their homes.

Misconceptions should be addressed within the clinic and among service providers so they can effectively be addressed in the community. Counselors should be educated to specifically dispel the myth that one must have abrasions/sores (*michubuko*) on one's genitals in order for HIV transmission to be possible. Counselors should also be taught that men do not need to be circumcised to wear a condom, that the purpose of HIV testing is not to protect the providers from accusations that a client was infected during the surgery, and that men do not have to avoid warm places such as kitchens during the healing period.

Reports of VMMC providers taking bribes were troubling and further investigation is warranted. It is possible that these reports were due to a lack of understanding of the prioritization of older men; this policy should be clearly communicated to others waiting in line to ensure that the integrity of the program is maintained. Further, the program should ensure that all providers are experienced and that they do not accept bribes, show favoritism to friends, family, or influential persons, or ask for registration fees.

Fear of pain was another important barrier cited by participants in this study. The VMMC program in Iringa should make sure that anesthesia techniques are adequate and should consider more intensive pain management options for those clients who feel the anesthesia is not enough. Finally, the program should consider addressing the long, painful homeward journey of clients by exploring ways to get them home faster and with more effective pain management strategies.

Strengths and limitations

This study had several limitations. Other than the eight interviews with VMMC clients, the remaining interviews were designed to cover a wide variety of topics related to HIV prevention, of which VMMC was only one. Most of these participants (other than the VMMC clients) talked for no more than five minutes about their perspectives on VMMC in Iringa. While we draw out differences in responses by gender, age, and occupation of participants, these comparisons are reflective of our particular

participants and subject to limitations of generalizability inherent in qualitative research. Strengths of this study include in-depth interviews with eight VMMC clients covering a large range of topics and the large number and diversity of participants in total, including both key informants who might be responsible for implementing or monitoring such a program as well as community members and potential program recipients of various types. Considering previous qualitative research in Iringa which has drawn solely from focus group discussions (Plotkin et al., 2013) or focused exclusively on women's perspectives on VMMC (Layer et al., 2012, 2013a-b), our use of in-depth interviews with a wide variety of participants adds a significant dimension to the existing literature.

Conclusion

In sum, our participants indicated that in the last few years, male circumcision has become desired by almost all men across the Iringa region. With careful programmatic design and sufficient resources, reaching high coverage of VMMC appears to be an achievable goal in HIV prevention for Iringa.

REFERENCES

- Auvert, B., Taljaard, D., Lagarde, E., Sobngwi-Tambekou, J., Sitta, R., & Puren, A. (2005). Randomized, controlled intervention trial of male circumcision for reduction of HIV infection risk: the ANRS 1265 trial. *PLoS Medicine*, 2(11): e298.
- Bailey, R.C., Moses, S., Parker, C B., Agot, K., Maclean, I., Krieger, J.N., ... & Ndinya-Achola, J.O. (2007). Male circumcision for HIV prevention in young men in Kisumu, Kenya: a randomized controlled trial. *Lancet*, 369(9562), 643–656.
- Gray, R. H., Kigozi, G., Serwadda, D., Makumbi, F., Watya, S., Nalugoda, F., ... & Wawer, M. (2007). Male circumcision for HIV prevention in men in Rakai, Uganda: a randomised trial. *Lancet*, 369(9562), 657–666.
- Larke, N. (2010). Male circumcision, HIV and sexually transmitted infections: a review. *British Journal of Nursing*, 19(10), 629-634.
- Layer, E.H., Beckham, S.W., Mgeni, L., Shembilu, C., Momburi, R., & Kennedy, C.E. (2013a). “After my husband’s circumcision I know that I am safe from diseases”: women’s attitudes and risk perceptions towards male circumcision in Iringa, Tanzania. *PLoS One*, 8(8), e74391
- Layer, E.H., Beckham, S.W., Momburi, R., & Kennedy, C.E. (2013b). Understanding the partial protection of male circumcision for HIV prevention among women in Iringa Region, Tanzania: an ethnomedical model. *AIDS Care*, 25(8), 1045-1050.
- Layer, E.H., Beckham, S.W., Momburi, R., & Kennedy, C.E. (2012). The role of women in male circumcision: experiences of female partners of male circumcision clients in Iringa, Tanzania. (Unpublished manuscript).
- Mahler, H. R., Kileo, B., Curran, K., Plotkin, M., Adamu, T., Hellar, A., ... & Fimbo, B. (2012). Voluntary medical male circumcision: matching demand and supply with quality and efficiency in a high-volume campaign in Iringa Region, Tanzania. *PLoS Medicine*, 8(11): e1001131.
- Plotkin, M., Kuver, J., Curran, K., Mziray, H., Prince, J., & Mahler, H. (2011). *Embe Halijamenywa: The Unpeeled Mango. A qualitative assessment of views and preferences concerning voluntary medical male circumcision in Iringa region, Tanzania*. Washington, D.C.: Maternal and Health Integrated Program (MCHIP), USAID.
- Plotkin, M., Castor, D., Mziray, H., Kuver, J., Mpuya, E., Luvanda, P.J., ... & Mahler, H. (2013). “Man, what took you so long?” Social and individual factors affecting adult attendance at voluntary medical male circumcision services in Tanzania. *Global Health Science and Practice*, 1(1), 108-116.

Tanzania Commission for AIDS (TACAIDS), Zanzibar AIDS Commission (ZAC), National Bureau of Statistics (NBS), Office of Chief Government Statistician (OCGS), and ICF International. (2013). *Tanzania HIV/AIDS and Malaria Indicator Survey 2011-12*. Dar es Salaam, Tanzania: TACAIDS, ZAC, NBS, OCGS, and Macro International Inc.